

WEATHERIZATION GENERAL APPENDIX

Iowa Weatherization Program

Department of Human Rights
Division of Community Action Agencies
Lucas State Office Building, 2nd Floor
Des Moines, Iowa 50319
Website: www.weatherization.iowa.gov



Cost Limits and Allowances

Average Expenditure per Completed Unit Limit

The Average Expenditure per Unit Limit applies to homes charged as completions to the DOE Contract. The Average Expenditure per Unit Limit does not apply to homes charged as completions to the HEAP Contract. The average limit is updated annually by DOE. The DCAA notifies agencies at the beginning of each program year as to what the updated Expenditure per Unit Limit is.

Total Cost of Home (based on estimated cost using DOE, HEAP, Utility, ECIP funds)

Work on homes requires DCAA prior approval when estimated cost is more than: \$10,000.

The estimated cost includes health and safety, energy efficiency, and repair work using DOE, HEAP, Utility, and ECIP funds.

Support Allowance (per home)

- Completed Home: 35 percent of the sum of DOE, HEAP, Utility, and ECIP expenditures for health and safety, labor, and materials.
- Incomplete Home: \$200

Expenditure Limits

The following expenditure limits are in effect for the current program year. All limits include the costs for labor and materials.

- **Heating System Repair - All systems except boilers**
 - Limit of \$1,000 (per dwelling, excluding ductwork)
- **Heating System Repair – Boilers and Heat Pumps**
 - Limit of \$2,000 (per dwelling)
- **ECIP**
 - Agencies may use ECIP funds for furnace repair/replacement. The ECIP allowance per furnace repair/replacement is:
 - \$1,500 - When furnace repair/replacement is done in conjunction with weatherization.
 - \$3,000 - When furnace repair/replacement is not done in conjunction with weatherization
- **Water Heater Repair**
 - Limit of \$300 (includes associated plumbing)

General Health and Safety Repairs

General health and safety repairs are defined as “Repairs necessary (1) for installation of weatherization measures and (2) to eliminate health and safety problems in the home.” General health and safety repairs are limited to: plumbing repairs, electrical repairs, Energy Star-rated dehumidifiers, sump pumps, gutters and downspouts, banking and grading, minor asbestos removal, pest removal, and mold/mildew cleanup. The cost limit for general health and safety repairs is \$1,500 per home.

Incidental Repairs

- Incidental repairs for houses, mobile homes, and multi-unit dwellings having fewer than 5 units is limited to what is allowed by the NEAT/MHEA Audit's Savings to Investment Ratio (SIR). The cost of these repairs must be input in the NEAT/MHEA Audit and may be done only if the NEAT/MHEA Audit's cumulative SIR is 1.0 or greater. Incidental repair work must be done in accordance with the *Work Standards*, where described.
- Incidental repairs for Multi-unit Dwellings having 5 or more units: Requires prior approval from DCAA.

Compact Fluorescent Lights (CFLs)

- Regular CFLs – Limit of \$7/bulb, maximum 20 bulbs per house, minimum of 1.5 hours/day
- 3-Way CFLs – Limit \$15/bulb, maximum 2 per house, minimum of 1.5 hours/day
- Circleline CFL – Limit of \$10/bulb, maximum 1 bulb per house, minimum of 1.5 hours/day

Water Heating Measures

- Faucet aerators – Limit of \$3/aerator, maximum 3 per house
- Pipe insulation – Limit of \$3/3-foot section, maximum 2 per house
- Low-flow showerheads – Limit of \$10/showerhead (includes handheld low-flow showerheads), maximum 2 per house

State of Iowa Travel Allowances

Reimbursement for mileage, meals, and lodging is in accordance with State of Iowa travel allowances. The current allowances are shown below.

- Meals
 - Breakfast: \$ 5.00
 - Lunch: 8.00
 - Dinner: 15.00
- Overnight Lodging (per night)
 - \$55.00 + tax (No reimbursement for safety box fees.)
- Mileage
 - \$0.39/mile

FORMS – HANDOUTS

Following is a list of forms developed by the DCAA for use in the program. Note: The Evaluation Form was developed by an IWAC Committee. The list is organized by function.

The Approval Request and Waiver Request forms are designed so they can be completed using a computer and emailed to the DCAA.

Copies of the forms (other than the Excel worksheet forms) are included in this section of appendix. The most current version of all the forms is on the State of Iowa Weatherization Members Only web page: www.weatherization.iowa.gov.

Some of the forms are occasionally revised. When that happens, the revised form will be put on the Weatherization website and agencies will be notified of the revised form by letter or email.

Most of the agencies have designed “internal” forms to assist them with their administration of the program. Samples of many of those forms are also on the Iowa Weatherization Program website.

Client/Landlord Consent

Release of Liability Form* (English and Spanish)

Landlord Agreement

Deferral Documentation Form*

Health and Safety

Health and Safety Assessment Findings, Part 1 & 2* (English and Spanish)

Health and Safety Test Checklist

Lead Paint Notification Forms

- Form 1 – Renovation Work in a Single Dwelling Unit
- Form 2 – Emergency Renovation Work in a Single Dwelling Unit
- Form 3 – Notice to Owner for Renovation in Common Areas of Multi-Family Housing
- Form 4 – Notice to Residents for Renovation in Common Areas of Multi-Family Housing

Iowa Lead-Safe Renovation Report

Lead Test Kit Documentation Form

Iowa Lead-Safe Training Documentation Form

Iowa Post-Renovation Cleaning Verification Documentation Form

Exempt from Lead Safe Renovation Requirements**

Asbestos in Homes

Radon in Iowa

Wx Draft/Spillage/CO testing Checklist and Summary Sheet**

Ventilation Form

- Instruction Sheet
- Ventilation and Your Home*

Refrigeration Appliance

Refrigeration Appliance Data Sheet

Refrigeration Appliance Vendor Agreement

Client Refrigeration Appliance Agreement*

Approval Requests

Equipment Purchase Request Form

Vehicle Purchase Request Form

Fuel Switching Request

* Denotes a form printed on 2-part or 3-part NCR paper and supplied by the DCAA

** Denotes a form that is meant to be used as a “tool”. Use of the form is optional.

Fuel Switching Request Calculations Worksheet

SHPO (State Historical Preservation Office)

- Exempt from SHPO Review
- Request for SHPO Comment
- Instructions for Exempt from SHPO Review, Project Description

Multi-Unit Dwelling Approval Form

- Projects Using NEAT Audit
- Projects Using Audit Other Than NEAT

Approval for Additional Insulation Measures (Utility Contracts)

Waiver Requests

\$10,000 Expenditure Limit Waiver Request

Flat Rate Contracting

Flat Rate Adjustment Form

Weatherization Flat Rate Price List (Excel spreadsheet available on the weatherization website)

*Weatherization Supplier Price List** (Excel spreadsheet available on the weatherization website)*

*Weatherization Contract Labor List** (Excel spreadsheet available on the weatherization website)*

*Weatherization Flat Rate Price Summary** (Excel spreadsheet available on the weatherization website)*

Financial Forms

State of Iowa General Accounting Expenditure (GAX) Form

Iowa WAP Training Allowance Reimbursement Form

Close-out Report

General Forms

Evaluation Form (Developed by an IWAC Committee)

Client File Checklist

Contractor/Subcontractor/Vendor File Checklist

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Release of Liability

Release of Liability and Waiver of Claims

Health and Safety Assessment

In addition to the energy audit we will do on your home, we will also do a limited health and safety assessment of the home. The health and safety assessment will consist of a visual inspection for potential health and safety problems. You will be notified of any health and safety problems that are identified, including mold. However, the evaluator is not a qualified mold professional. Mold may be present in areas not accessible or seen during the visual inspection or during the actual work on your home. Work on your home will be performed in a manner to prevent future mold growth. However, if there are existing conditions that are unseen or if, after the work is completed, situations within your home result in mold growth, we shall not be held responsible or liable.

Weatherization Activities

Notice: During weatherization activities, particularly when insulation is being blown into wall cavities and attics, insulation dust, other types of dust, and other particles may become airborne. Additionally, unforeseen circumstances may result in some insulation leaking through cracks into the home's living space. In those circumstances where insulation leaks into the living space, we will be responsible for clean-up (repairing damage and cleaning up the living area). Minor construction dust is inevitable at the end of any remodeling work. Construction dust clean-up will be the responsibility of the home owner/occupant.

Recommendation: Does anyone in the home have any of the following conditions:

Allergies	_____	Yes	_____	No	Pregnancy	_____	Yes	_____	No
Asthma	_____	Yes	_____	No	Other Respiratory Conditions	_____	Yes	_____	No
Emphysema	_____	Yes	_____	No	Decreased Immune Functions	_____	Yes	_____	No

It is recommended that people with the above health conditions be out of the house when insulation is being blown into the house. Furthermore, it is also recommended that infants less than 12 months old should be out of the house when insulation is being blown. Persons who leave the house during the insulation process should remain away from the house the amount of time specified in the manufacturer's instructions.

Release and Waiver of Claims: I acknowledge by my signature below receipt of the information and recommendations set out above. Additionally, I agree on behalf of myself and any minor children or others for whom I am responsible, to hold the agency and its agents harmless from any claims, medical problems or personal injuries that may occur, develop or worsen in response to the weatherization activities. This waiver is for all damages, direct or indirect, that may relate to weatherization activities, including money lost by not being able to work, healthcare costs and pain or suffering.

I am aware the weatherization process may cause airborne particles, including dust, to be released in my home and that such airborne particles can aggravate health conditions in some people. I have chosen to go forward with the weatherization process, accepting any and all risks of injury or damages.

I have carefully read this release and waiver and fully understand its contents. I am aware this is a release of liability and have signed it of my own free will.

Client Name: _____ Phone: _____

Address: _____

City, Zip: _____ File Number: _____

Client Signature: _____ Date: _____

Agency Name: _____ Phone: _____

Agency Representative Signature: _____ Date: _____

Acuerdo de Liberación de Responsabilidad

Acuerdo de Liberación de Responsabilidad y Renuncia de Reclamos

Evaluación de Salud y Seguridad

Además de la auditoría de energía que realizaremos en su casa, nosotros también haremos una pequeña evaluación de salud y seguridad de la casa. La evaluación de salud y seguridad consistirá en una inspección visual de problemas que pudieran ser potencialmente serios. Usted será notificado de cualquier problema de salud y seguridad que hayan sido identificados, incluyendo moho. Cabe mencionar, que el evaluador no es un profesional calificado de problemas de moho. El moho tal vez se localice en áreas no accesibles o visibles durante la inspección visual o durante el trabajo en su casa. El trabajo en su casa será desempeñado de manera que pueda prevenirse el crecimiento de moho en el futuro. Como quiera que sea, si hay condiciones existentes que no son visibles o si después que el trabajo haya sido terminado, existen situaciones dentro de su casa que causen el crecimiento de moho, nosotros no hacemos responsables de lo que suceda.

Actividades de Weatherization

Advertencia: Durante las actividades de Weatherization, particularmente cuando la insolación es instalada en las cavidades y áticos de las paredes, y el polvo de la insolación u otro tipo de polvo y otras partículas pudieran estar volando en el aire. Adicionalmente, circunstancias imprevistas pudieran resultar en alguna filtración de la insolación a través de grietas en espacios habitables de la casa. En tales circunstancias, donde la insolación se haya filtrado dentro de los espacios de la habitación, nosotros seremos responsables de limpiar (reparar daños, y limpiar las áreas habitables). Es inevitable la aparición de polvo causado por construcciones pequeñas al término de cualquier trabajo de remodelación. Será responsabilidad del Dueño/Ocupante de la casa de limpiar el polvo causado por la construcción.

Recomendación: Hace alguien en el hogar tiene cualquiera de las condiciones siguientes:

Alergias	_____	Yes	_____	No	Embarazo	_____	Yes	_____	No
Asma	_____	Yes	_____	No	Otras Condiciones Respiratorias	_____	Yes	_____	No
Enfisema	_____	Yes	_____	No	Funciones Inmunes Disminuidas	_____	Yes	_____	No

Es recomendable que personas con las condiciones encima de salud estén fuera cuando la insolación sea instalada dentro de la casa. Además, es también recomendable que infantes menores de 12 meses se encuentren fuera de la casa cuando se inicie la instalación. Las personas que dejan la casa durante el proceso de la insolación deben permanecer lejos de la casa la cantidad de tiempo especificada en las instrucciones de manufacturer.

Liberación y Renuncia de Reclamos: Yo hago del conocimiento por mi firma al pie de la página que he recibido la información y recomendaciones arriba estipuladas. Adicionalmente, yo me comprometo por mí mismo y por cualquier niño menor de edad, y otros por los que yo soy responsable de mantener a la Agencia y a sus agentes libres de toda responsabilidad y de cualquier reclamo por problemas médicos, daños personales que pudieran ocurrir, desarrollo o empeoramiento del ambiente a consecuencia de las actividades de Weatherization. Esta renuncia de reclamo es por todos los daños, directos o indirectos, que pudieran estar relacionados con las actividades de Weatherization, incluyendo pérdida de dinero por no poder trabajar, costos médicos, así como otros inconvenientes.

Yo estoy al tanto que el proceso de Weatherization pudiera causar partículas en el aire, incluyendo polvo, que pudiera ser dejado en mi casa y que ciertas partículas en el aire pudieran agravar las condiciones de salud. Yo he decidido continuar con el proceso de Weatherization, aceptando cualquier y todos los riesgos de daños y perjuicios.

Yo he leído cuidadosamente este acuerdo de Liberación de Responsabilidad y Renuncia de Reclamos y he entendido completamente su contenido. Yo estoy al tanto que este es un acuerdo de Liberación de demanda y he firmado por mi propia voluntad.

Nombre del Cliente: _____ Número de teléfono: _____

Dirección: _____

Ciudad, Código Postal: _____

Firma del Cliente: _____ Fecha: _____

Nombre del Agencia: _____ Número de teléfono: _____

Firma del Representativo del Agencia: _____ Fecha: _____

Programa de Weatherization: Tiene como objetivo reducir el costo de la energía y mejorar la salud y seguridad de las familias de bajos ingresos mediante la instalación eficiente de componentes energéticos relacionados con medidas de salud y seguridad.

Landlord Agreement
Iowa Weatherization Program

I, _____ certify that I am the owner, or authorized agent,
for the property located at _____ and occupied by
_____. I authorize _____

to weatherize the dwelling or unit located above, in accordance with the following provisions:

- I affirm the rental dwelling is not presently being offered for sale.
- I affirm, to the best of my knowledge, the dwelling at this address has not been weatherized previously
- I agree not to raise the rent, due to weatherization, for a period of 12 months from the date the work is completed.
- I agree the tenant will not be evicted without just cause.
- If the rental unit to be weatherized is currently vacant, I agree to rent the vacant unit to a low-income household within 180 days after the weatherization work is complete.
- I agree the materials and equipment installed in the rental unit, using low-income weatherization funds, shall remain in the dwelling. If I sell the property as a habitable dwelling, I agree the materials and equipment installed, using low-income weatherization program funds, shall remain in the dwelling.

Because the weatherization measures that will be provided to the rental unit will make it less leaky, it is important to ensure that there are not unsafe levels of carbon monoxide or other problems that could pose a health or safety hazard to the tenant. Therefore, the Iowa Weatherization Program tests combustion appliances in eligible rental units for safety. The safety inspection will include checking for carbon monoxide and gas leaks, checking the venting of combustion appliances, and checking for back drafting or spillage of flue gases.

I certify that I agree to the aforementioned terms of this agreement.

Landlord/Agent Signature: _____ Date: _____

Address: _____

City, State, Zip Code: _____

Phone Number: _____

Agency Name: _____ Date: _____

Agency Representative: _____ Phone: _____

Address: _____

City, State, Zip Code: _____

Deferral Documentation Form

Iowa Weatherization Program

Client Name: _____ File Number: _____

Address: _____ City, Zip: _____

Phone Number: _____ Rent Own

Although a client may be eligible for the Weatherization Program, there are situations or conditions where weatherization services should be deferred (i.e. delayed or postponed). Usually, those situations or conditions are identified prior to any work beginning on the home. Occasionally, the situation is not identified until the work has already begun.

Deferring work on a dwelling does not mean the dwelling will never be weatherized. If the situation or condition causing the deferral changes, it may be possible to begin or complete the work. For example, a dwelling shouldn't be weatherized if it has a bad roof that leaks or will likely leak. However, the dwelling can be weatherized later if the roof is replaced/repared. Another example is a dwelling undergoing remodeling. The dwelling should not be weatherized while it is being remodeled. However, after the remodeling is completed, the dwelling may be weatherized.

Whenever weatherization is deferred, the agency must clearly explain to the client why the work was deferred, what changes need to occur before weatherization can begin/continue and the responsibility of both parties. The agency must also document the reason for the deferral in the file.

<input type="checkbox"/>	Client refused to sign the Release of Liability and Waiver of Claims Form.
<input type="checkbox"/>	Home is for sale.
<input type="checkbox"/>	Disconnected waste water pipes.
<input type="checkbox"/>	The dwelling has mold or moisture problems (such as pooling water in crawlspaces or standing water in the basement) so severe they cannot be resolved under existing health and safety measures and within repair limits.
<input type="checkbox"/>	Hazardous electrical wiring.
<input type="checkbox"/>	Presence of excessive animal feces and/or other excrements.
<input type="checkbox"/>	Rats, bats, roaches, reptiles, insects, animals, or other vermin inappropriately or not properly contained on the premises.
<input type="checkbox"/>	Unvented combustion appliances.
<input type="checkbox"/>	Cost of repairing or replacing an unsafe appliance is more than the program's allowable repair or replacement expenditure limit.
<input type="checkbox"/>	Dwelling has an unvented space heater which the client has refused to remove from the dwelling.
<input type="checkbox"/>	Dwelling is undergoing remodeling or has unfinished areas which affect the weatherization process.
<input type="checkbox"/>	Dwelling is beyond the scope of the program due to major structural deficiencies in the dwelling.
<input type="checkbox"/>	The mobile home has a heating system other than a heating system that is manufactured for mobile homes and the client refuses replacement.
<input type="checkbox"/>	The mobile home has a fireplace or heating stove that draws combustion air from inside the dwelling and the client refuses replacement.
<input type="checkbox"/>	Client moved or passed away while weatherization services were being provided.
<input type="checkbox"/>	The clients, or other occupants in a dwelling, are uncooperative, threatening or verbally abusive.
<input type="checkbox"/>	The client refuses to allow the agency and/or contractors to enter and/or perform necessary work on certain areas of the home.
<input type="checkbox"/>	Other (explain):

Work required prior to weatherization: _____

By signing below, I acknowledge that I have been notified as to the situation or condition that has caused the agency to defer work on my home. I will contact the agency once the above work has been completed. When I contact the agency, I understand that I must still be income-eligible. If I am no longer eligible for the program, my home cannot be weatherized.

Client Signature: _____ Date: _____

Agency Representative: _____ Date: _____ Phone Number: _____

Health & Safety Assessment Findings

Iowa Weatherization Program

Client Name: _____ File Number: _____

Address: _____ City, Zip: _____

Phone Number: _____ Rent Own

The purpose of the Iowa Weatherization Program is to lower the energy burden for our clients through energy conservation measures. Weatherization also completes an assessment of the home for potential health and safety issues. Because of programmatic and/or funding limits, Weatherization is not always able to address these issues. Items checked on this form have been identified as potential issues in your home.

1. Carbon Monoxide Testing

CO Reading	Maximum Safe CO Levels	Maximum Levels Allowed with CO Alarm	Repair to be done by Client/Landlord	Repair to be done by Agency
_____ Ambient Air	25	25	<input type="checkbox"/>	<input type="checkbox"/>
_____ Furnace/Boiler/Space Heater	100	100	<input type="checkbox"/>	<input type="checkbox"/>
_____ Gas Water Heater	100	100	<input type="checkbox"/>	<input type="checkbox"/>
_____ Gas Cooking Stove (per burner)	25	49	<input type="checkbox"/>	<input type="checkbox"/>
_____ Gas Oven	100	499	<input type="checkbox"/>	<input type="checkbox"/>
_____ Other (specify) _____			<input type="checkbox"/>	<input type="checkbox"/>

2. Draft Testing (atmospheric)

Record	Minimum Drafting Based on Outside Temperatures	
_____ Outside temperature	Below 20° F	-5 Pascals
_____ Gas furnace (in Pascals)	20° F – 39° F	-4 Pascals
_____ Gas water heater (in Pascals)	40° F – 59° F	-3 Pascals
	60° F – 80° F	-2 Pascals
	Above 80° F	-1 Pascals

3. Electrical System Visual Inspection

Check	Repair to be done by Client/Landlord	Repair to be done by Agency
_____ Bare wires	<input type="checkbox"/>	<input type="checkbox"/>
_____ Knob & tube wiring <i>(If "Yes", inspect for proper size fuses)</i>	<input type="checkbox"/>	<input type="checkbox"/>

4. Gas Line Inspection (check all gas lines for leaks)

Check	Leaks	Repair to be done by Client/Landlord	Repair to be done by Agency
_____	<input type="checkbox"/> Furnace	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/> Water heater	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/> Other combustion appliances <i>(specify) _____</i>	<input type="checkbox"/>	<input type="checkbox"/>

5. Unsanitary Conditions (may cause odors, viruses, or bacteria in the home)

Check	Cleanup to be done by Client/Landlord	Cleanup to be done by Agency
_____ Insects pests in work area	<input type="checkbox"/>	No
_____ Excessive animal feces/carcasses in work area	<input type="checkbox"/>	No
_____ Excessive bird/bat feces/carcasses in work area	<input type="checkbox"/>	No
_____ Raw sewage in house/basement/crawlspace	<input type="checkbox"/>	No

Educate the client regarding existing screws in dryer ducts (if applicable).

Tests and visual inspections of the items listed above were performed and no problems were identified. Test results, if not shown on this form, are on the agency evaluation form.

These are the existing conditions as of the date below. By signing below, I agree to complete the items marked for repair or cleanup by the client or landlord. I will then contact the agency so the weatherization work may proceed. I also agree to allow the agency to install needed exhaust fans. If I refuse to allow exhaust fan installation, the work on my home will be deferred.

Additional Comments: _____

Client Signature: _____ Date: _____

Agency Representative: _____ Date: _____ Phone Number: _____

Resultados de la Evaluación de Salud y Seguridad

Programa de Weatherization de Iowa

Nombre del Cliente: _____ Número de Expediente: _____

Dirección: _____ Ciudad, Código Postal: _____

Número de Teléfono: _____ Renta Dueño

El propósito del programa de Weatherization de Iowa es disminuir el consumo de energía por nuestros clientes a través de medidas de conservación. Weatherization también realiza una evaluación de la casa por asuntos potenciales de salud y seguridad. Debido a los límites programáticos y de financiamiento de evaluación, Weatherization no siempre puede solucionar todos los problemas. Las áreas marcadas en esta forma han sido identificadas como problemas potencialmente serios en su casa.

1. Prueba de Monóxido de Carbono Resultados

Carbono Resultados

_____ Aire ambiental

_____ Calefacción/Boiler/Espacio de calefacción

_____ Calentador de agua de gas

_____ Estufa de gas para cocinar

_____ Horno de gas

_____ Otros (*especifique*) _____

Máx. Nivel de Monóxido de Carbono por Salud	Máx. Nivel de Monóxido de Carbono (alarmante)
25	25
100	100
100	100
25	49
100	499

Reparaciones para hacer por el Cliente/Dueño

Reparaciones para hacer por la Agencia

2. Versión de Prueba (Atmosférica)

Recuerdo

_____ Temperatura Exterior

_____ Calefacción de Gas (en pascals*)

_____ Calentador de agua

Versión Mínima Basada en la Temperatura Exterior

Bajo 20° F	-5 Pascals*
20° F – 39° F	-4 Pascals*
40° F – 59° F	-3 Pascals*
60° F – 80° F	-2 Pascals*
Arriba 80° F	-1 Pascals*

Reparaciones para hacer por el Cliente/Dueño

Reparaciones para hacer por la Agencia

3. Inspección Visual del Sistema Eléctrico

Marque

_____ Cables sin protección

_____ Revisar perillas y cables de tubería

(Si la respuesta es "si", inspección para tamaños adecuados de fusibles)

Reparaciones para hacer por el Cliente/Dueño

Reparaciones para hacer por la Agencia

4. Inspección de Líneas de Gas (*verifique todas las líneas de gas por posible caso de fugas*)

Marque Fugas

_____ Calefacción

_____ Calentador de Agua

_____ Otros electrodomésticos de combustión

(Especifique) _____

Reparaciones para hacer por el Cliente/Dueño

Reparaciones para hacer por la Agencia

5. Condiciones Antihigiénicas (*Pueden causar olores, virus o bacterias en la casa*)

Marque

_____ Plaga de insectos en el área de trabajo

_____ Excremento excesivo de animales/cadáveres de animales en el área de trabajo

_____ Excremento excesivo de aves/murciélagos/cadáveres de animales en el área de trabajo

_____ Desechos humanos en la casa/sótano/áreas pequeñas de mantenimiento

Limpieza a Realizar por el Cliente/Dueño

Limpieza a Realizar por la Agencia

No
No
No
No

- Eduque al cliente con respecto a los tornillos existentes en conductos más secos (si fuera aplicable).
- Las pruebas e inspección visuales de las áreas listadas arriba fueron realizadas y ningún problema fue identificado. Si los resultados de la prueba no se dan a conocer en esta forma, se encuentran en la forma de evaluación de la agencia.

Estas son las condiciones existentes en la fecha que se muestra al pie de la página. Con mi firma al pie de la página, Yo, me comprometo a reparar o limpiar las áreas listadas arriba ya sea por el cliente o por el dueño. Entonces contactare a la agencia de manera que Weatherization pueda proceder a realizar su trabajo. También de acuerdo permitir que la agencia instalar ventiladores exhaust necesarios. Si se niegan a permitir la instalación de ventilador de escape, se aplazó el trabajo en mi casa.

Comentarios Adicionales: _____

Firma del Cliente: _____ Fecha _____

Representante de la Agencia: _____ Fecha: _____ Número de teléfono: _____

Pascal: Unidad de Medida

Health & Safety Assessment Findings

Iowa Weatherization Program

Client Name: _____ File Number: _____

Address: _____ City, Zip: _____

Phone Number: _____ Rent Own

1. Moisture Areas

Existing conditions (*check all that apply*)

- _____ Damp atmosphere in house
- _____ Client complaint of allergy-like symptoms
- _____ Visible mold growth (*if "Yes", go to #2*)
- _____ Evidence of water penetrating the home (*stains, moist areas*)
- _____ Evidence of conditions that might allow water in the home (*poor grading, bad flashing, bad/missing gutters*)
- _____ Actual construction defect or deterioration that allows water into the home (*roof, decks, windows, concrete slabs, lack of vapor barrier*)
- _____ Plumbing defects (*leaking drains, pipes or toilet seats, missing caulk on sinks or tubs*)
- _____ HVAC problems (*dirty, moist filters, poor condensation drainage*)
- _____ Dryer vented indoors, inadequate ventilation for a kitchen, bath or other high moisture area
- _____ Any source of condensation

2. Mold Areas

Checklist	Existing Mold	Sq. Ft. of Area	Cleanup to be Done by Client/Landlord
_____ Bath (<i>location</i>) _____	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Shower (<i>location</i>) _____	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Kitchen	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Laundry area	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Basement walls	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Crawlspace	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Exterior walls	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Attic/Ceilings	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Other (<i>specify</i>) _____	<input type="checkbox"/>	_____	<input type="checkbox"/>

- Existing mold was found in your home. The mold is located in the areas checked under the Existing Mold column.
 - Weatherization work cannot be done until the mold in the areas checked under the Cleanup column has been cleaned up. You (or your landlord) are responsible for the cleanup.
 - Any item checked in the Existing Mold column but not requiring client cleanup will either be cleaned by the agency or will not be disturbed during the weatherization work and therefore, does not need to be cleaned up in order to proceed with weatherization. However, it is advisable to clean up all mold.
- No visible evidence of existing mold was found.

Additional Comments: _____

By signing below, I acknowledge that I have been notified of the conditions shown above in the home prior to any weatherization work being done. If any mold has to be cleaned up before weatherization work can begin, I agree to have it cleaned up and then contact the agency so the weatherization work may proceed.

Client Signature: _____ Date: _____

Agency Representative: _____ Date: _____ Phone: _____

Resultados de la Evaluación de Salud y Seguridad

Programa de Weatherization de Iowa

Nombre del Cliente: _____ Número de Expediente: _____

Dirección: _____ Ciudad, Código Postal: _____

Número de Teléfono: _____ Renta Dueño

1. Áreas Húmedas

Condiciones actuales (marque todas las que apliquen)

- _____ Humedad en la atmósfera de la casa
- _____ Quejas del cliente por síntomas similares a alergias
- _____ Evidencia del crecimiento de moho (si la respuesta es si, vaya a la sección #2)
- _____ Evidencia de penetración de agua en la casa (residuos, áreas húmedas)
- _____ Evidencia de condiciones que permiten el paso de agua en la casa (desnivel pobre para que fluya el agua, mal funcionamiento de la palanca del inodoro, falta de canales para drenar el agua)
- _____ Defectos de construcción o de deterioro actual que permita la penetración del agua (techo, balcón, ventanas, cimiento de concreto, falta de barrera de vapor)
- _____ Defectos de plomería (goteras, tubería, o asiento de inodoro, falta de silicón en lavabos o tinas)
- _____ Problemas de HVAC* (suciedad, filtros húmedos, pobre drenaje de condensación)
- _____ Ventilación de la secadora dentro de la casa, ventilación inadecuada para la cocina, baño u otra área húmeda
- _____ Cualquier otro tipo de condensación

2. Áreas con Moho

Lista para chechar	Evidencia de Moho	Pies Cuadrados del Área	Limpieza a Realizar por Cliente/Dueño
_____ Baños (localización) _____	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Regadera o ducha (localización) _____	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Cocina	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Área de lavandería	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Paredes del sótano	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Áreas pequeñas	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Paredes exteriores	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Ático/techos	<input type="checkbox"/>	_____	<input type="checkbox"/>
_____ Otros (especifique) _____	<input type="checkbox"/>	_____	<input type="checkbox"/>

Se encontró áreas con moho en su casa. El moho se encontró en las áreas que se marcaron en la columna de Evidencia de Moho.

El trabajo de Weatherization no puede realizarse hasta que el moho en las áreas que se marcaron sobre la columna de limpieza hayan sido aseadas. Usted (o el dueño) son responsables dicha limpieza.

Cualquier otra área que se encuentre marcada sobre la columna de Evidencia de Moho pero que no requiere de limpieza por el cliente será aseada ya sea por la agencia o no será considerada durante el trabajo de Weatherization. Por lo tanto, el área no necesita estar limpia para proceder con el trabajo de Weatherization. Como quiera que sea, es recomendable limpiar las áreas con moho.

No se encontró evidencia de moho.

Comentarios Adicionales: _____

Con mi firma al pie de página, yo hago del conocimiento que he sido notificado de los condiciones en la casa antes de cualquier trabajo realizado de weatherization. Si el moho tiene que ser removido antes que inicie el trabajo de weatherization, yo me comprometo a limpiar dichas áreas y posteriormente a contactar a la agencia de manera que el trabajo de weatherization pueda realizarse.

Firma del Cliente: _____ Fecha _____

Representante de la Agencia: _____ Fecha: _____ Número de teléfono: _____

*HVAC: Heating, Ventilation and Air Conditioning (Calefacción, Ventilación y Aire Acondicionado)

Weatherization: Tiene como objetivo reducir el costo de la energía y mejorar la salud y seguridad de las familias de bajos ingresos mediante la instalación eficiente de componentes energéticos relacionados con medidas de la salud y seguridad.

Health & Safety Test Checklist

Iowa Weatherization Program

Client Name: _____ File Number: _____

Address: _____ City, Zip: _____

Phone Number: _____ Rent Own

Test (Pre- and Post- Weatherization)		
	Pre-	Post-
Room-to-Room Pressure Test * <i>(when required)</i>		
Pressure Pan Test * <i>(when required)</i>		
Pre-	Post-	
		CO (Carbon Mon oxide) Reading <i>(enter test results)</i>
		Furnace Spillage <i>(Yes/No)</i>
		Furnace Draft Test <i>(enter test results)</i>
		Furnace Static Pressures <i>(enter test results)</i>
		Temperature Rise <i>(enter test results) *</i>
		Water Heater Spillage <i>(Yes/No) *</i>
		Water Heater Draft Test <i>(enter test results) *</i>
		Baseline pressures of CAZ with reference to the outside <i>(enter test results)</i>
		Pressures of CAZ with reference to the outside with fans on <i>(enter test results)</i>
		Blower Door <i>(enter test results) *</i>
		Garage Leakage Testing <i>(enter test results for house-to-zone – for homes with attached/tuck-under garages)</i>
		Attic Bypass Leakage <i>(enter total leakage path test results – if completed)</i>
	NA	MVL (Minimum Ventilation Limits) <i>(volume/10) *</i>
		DTL (Depressurization Tightness Limits) <i>(enter test results in CFMs) *</i>
Existing	Needed	
		Exhaust Fan <i>(list existing CFMS and list 100% mechanical ventilation needed) *</i>
		Carbon Monoxide Alarm <i>(homes with an attached/tuck-under garage must be left with at least one working alarm – enter number of alarms existing and needed)</i>
		Smoke Alarm <i>(mobile homes must be left with at least one working alarm – enter number of alarms existing and needed)</i>
		Mobile Home Doors <i>(mobile homes must be left with 2 functioning doors – enter number of doors existing and needed)</i>
		Dryer Ducts <i>(it is highly recommended that screws in existing dryer ducts are removed and the joints taped)</i>
		Other (explain):

* Also applies to mobile homes

Additional Comments: _____

Agency Representative: _____ Date: _____ Phone Number: _____

FORM 1 – Renovation Work in a Single Dwelling Unit

Notification Prior to Renovation, Remodeling, or Repainting

Address: _____ Year Built: _____

General Nature of Work: Weatherization Location of Work: _____

Expected Start Date: _____ Expected Completion Date: _____

I have received the pamphlet entitled **Lead Poisoning: How to Protect Iowa Families or Renovate Right** and am aware of the potential health risk associated with remodeling, renovation or repainting housing containing lead-based paint or lead-based paint hazards. I received the pamphlet before the work began.

Printed Name of Owner Signature of Owner Date

Printed Name of Occupant Signature of Occupant Date

Printed Name of Contractor Signature of Contractor Date

Contractor Address City State Phone

List of ALL Known Occupants

Note Regarding Certificate of Mailing Option

As an alternative to delivery in person, you may mail the pamphlet to the owner and/or tenant via CERTIFIED mail with return receipt or its equivalent at least 7 days before the work begins.

On _____, I sent the pamphlet to the owner and/or tenant by _____.

Attach receipt for certified mail or its equivalent.

Printed Name of Contractor Signature of Contractor Date

Contractor Address City State Phone

No Signature Available Option

If the pamphlet was delivered, but the signature of the known adult occupant could not be obtained, check the appropriate box below.

I certify that I have made a good-faith effort to deliver the pamphlet **Lead Poisoning: How to Protect Iowa Families or Renovate Right**, to the unit listed below at the dates and times indicated, and that an adult occupant was unavailable to sign the acknowledgement. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

I certify that I have made a good-faith effort to deliver the pamphlet **Lead Poisoning: How to Protect Iowa Families or Renovate Right**, to the unit listed below at the dates and times indicated, and that the occupant refused to sign the acknowledgement. I further certify that I have left a copy of the pamphlet at the unit.

Printed Name of Person Certifying Delivery Signature of Person Certifying Delivery Attempted Delivery Date & Time

Where Pamphlet was Left (ex., taped to door, slipped under door, etc.)

Printed Name of Contractor Signature of Contractor Date

Contractor Address City State Phone

FORM 2 – Emergency Renovation Work in a Single Dwelling Unit

Notification Prior to Renovation, Remodeling, or Repainting

Address: _____ Year Built: _____

General Nature of Work: Weatherization Location of Work: _____

Expected Start Date: _____ Expected Completion Date: _____

Some of the paint disturbed during this emergency renovation remodeling, and repainting may contain lead. I have included a copy of the pamphlet, *Lead Poisoning; How to Protect Iowa Families or Renovate Right*, with this notice.

Printed Name of Contractor

Signature of Contractor

Date

Contractor Address

City

State

Phone

Note Regarding Certificate of Mailing Option

As an alternative to delivery in person, you may mail the pamphlet to the owner and/or tenant via CERTIFIED mail with return receipt or its equivalent as soon as possible after the work begins.

On _____, I sent the pamphlet to the owner and/or tenant by _____.

Attach receipt for certified mail or its equivalent.

Printed Name of Contractor

Signature of Contractor

Date

Contractor Address

City

State

Phone

FORM 4 – Notice to Residents for Renovation in Common Areas of Multi-Family Housing

Notification Prior to Renovation, Remodeling, or Repainting

Check One: Non-emergency renovation, remodeling, repainting _____
 Emergency renovation, remodeling, repainting _____

Address: _____ Year Built: _____

General Nature of Work: Weatherization Location of Work: _____

Expected Start Date: _____ Expected Completion Date: _____

Some of the paint disturbed during this renovation, remodeling and repainting may contain lead. You can get a copy of the pamphlet **Lead Poisoning: How to Protect Iowa Families or Renovate Right** at no cost by calling me at _____. Please leave a message and be sure to include your name, address and phone number. I will either mail you a pamphlet or leave one at your unit.

Printed Name of Contractor

Signature of Contractor

Date

Contractor Address

City

State

Phone

Record of Tenant Notification Procedures for Work Done in Common Areas of Multi-Family Housing

Notification Prior to Renovation, Remodeling, or Repainting

Project Address:

Street: _____

City _____ State _____ Zip _____

Owner of Multi-Family Housing _____

Number of Units in Multi-Family Housing _____

Method of Delivering Notices to Each Unit _____

Printed Name of Contractor

Signature of Contractor

Date

Contractor Address

City

State

Phone

Printed Name of Person Making Delivery
(If other than contractor)

Signature of Person Making Delivery
(If other than contractor)

Date

Iowa Lead-Safe Renovation Report

To be completed for all renovation projects on pre-1978 structures

A. Date Report Issued: ___ / ___ / ___

B. Important Information:

Please be aware that as of April 22, 2010 renovations* that take place in pre-1978 residential housing and child occupied facilities are regulated and certification is required. This renovation report is required to be completed within 30 days following a renovation. This report is required to be kept for 3 years by the Iowa certified firm and certified individual conducting the renovation.

This renovation report is always required to be issued to the property owner(s) of the address where the renovation occurred. This report may also be required to go to other parties if the renovation occurred in a unit that is not owner occupied or in a child occupied facility. Check all that apply.

An adult occupant of a renovated unit that is not owner occupied
Name: _____

The person who requested the renovation, if different from the property owner or adult occupant.
Name: _____

The adult representative of a child-occupied facility.
Name: _____

For renovations in a child occupied facility or in the common area(s) of multi-family housing, a notice that is likely to be seen shall be posted. The notice shall include instruction on how the report can be obtained free of charge.

*Simply stated: Renovation is the modification of any existing structure, or portion thereof that results in the disturbance of painted surfaces.

C. Address Renovated:

Street: _____ City: _____, IA Zip: _____

Apartment Numbers (if applicable): _____

Year Built: _____

Property owner's name: _____ Owner Telephone: _____

Property owner's address:

Street: _____ City: _____ State: _____ Zip: _____

D. Certification Information:

Name of certified firm: _____ Firm telephone: _____

Firm certification number: IA _____ FIRM _____

Name of certified individual assigned to renovate: _____ Telephone: _____

Individual certification number: IA _____

E. Renovation information:

Date(s) renovation occurred: _____

Brief description of renovation work: _____

F. Exemptions:

Specific work practices related to lead-based paint are required. Some or all of the work practices may be exempt. Check any applicable exemption below:

- The entire property was determined to be free of lead-based paint by an Iowa certified lead inspector/risk assessor. (Attach report) All work practices are exempt if property is free of lead-based paint.

- The renovations were considered to be emergency in nature**. Emergency renovations are exempt from the work practices. However, post-renovation cleaning verification or clearance testing by an Iowa certified lead professional is still required. (Attach documentation of emergency)

- Some or all of the surfaces renovated were negative for lead-based paint when tested with an EPA approved test kit(s). Only Iowa certified lead-safe renovators, lead abatement contractors and lead abatement workers can use EPA approved test kits. All of the results, positive and negative, must be reported. (See Section H)

- Some or all of the surfaces renovated were negative for lead-based paint when tested by an Iowa certified lead inspector/risk assessor using XRF or laboratory analysis. Only Iowa certified lead inspector/risk assessors can test paint using XRF or laboratory analysis. (Attach inspection report)

**Emergency renovation are not-routine failures of equipment or of a structure that were not planned but resulted from a sudden unexpected event that, if not immediately attended to, presents a safety or public health hazard or threatens equipment or property with significant damage. Renovations conducted in response to an elevated blood lead (EBL) inspection are also considered to be emergency.

G. Work Practices:

Specific work practices are required for renovation. Some or all of the work practices may be exempt, see Section F. Check all of the work practices that apply and describe if necessary. The description of the work practice must be location specific.

All Locations:

- Warning signs posed. Locations: _____
- Work area contained. Type of containment: _____

Interior: *pictures must also be provided for each item checked*

- All objects in work area covered. _____
- All objects in work area removed. _____
- HVAC ducts closed and covered. _____
- Floors in and near the work area covered. _____
- All windows and doors in the work area closed. _____
- Containment for doors used as entrance to work areas. _____

Exterior: *pictures must also be provided for each item checked*

- All windows in the work area and within 20 feet of work area are closed. _____

All doors in the work area and within 20 feet of work area are closed. _____

Ground covered to contain all dust and debris. (must extend 10 feet in all directions from work area) _____

Vertical containment. _____

Multi-story Exterior: *pictures must also be provided for each item checked*

All windows and doors below the work area are closed. _____

Waste Storage:

All waste from renovation stored under containment. _____

Waste Transportation:

All waste from renovation transported under containment. _____

Additional/Other Work Practices: _____

H. EPA Approved Test Kit Information:

If test kits were used to determine the presence or absence of lead-based paint then all the results must be included in this report. Use the Lead Test Kit Documentation Form and attach it to this renovation report, if applicable.

Lead Test Kit Documentation Form is attached.

Not applicable – no EPA approved test kits used.

I. Training information and documentation.

A certified training course is not required for all individuals performing the renovation, but every individual that performs renovation work is required to be trained in lead safe work practices. For individuals that are not certified as renovators or lead inspector/risk assessors, the required training must occur on the job. All on-the-job training must be documented. Use the "Training Documentation Form" and attach it to this renovation report if applicable.

Training Documentation Form attached.

Not applicable – the certified individual listed in Section D of this report was the only renovator.

J. Post-Renovation Cleaning Verification or Clearance Testing:

Each renovation must conclude with post-renovation cleaning verification or clearance testing. Only Iowa certified lead-safe renovators, lead abatement contractors, or lead abatement workers can perform the post-renovation cleaning verification. Only Iowa certified sampling technicians or lead inspector/risk assessors can perform clearance testing.

Clearance testing – the clearance report from the certified sampling technician or lead inspector/risk assessor must be attached to this renovation report.

Post-renovation cleaning verification – the post-renovation cleaning verification documentation form is attached.

K. Other Applicable Laws:

Federal law requires that any know information about lead-based paint be disclosed when residential properties built before 1978 are sold or leased. Known information would include results from recognized testing kits. If a recognized test kit was used during this renovation, then the property owner will need to disclose this renovation report. In addition to any know information, the brochure, *Lead Poisoning: How to Protect Iowa Families* or the EPA pamphlet, *Renovate Right*, is required to be given out. The U.S. Environmental Protection Agency (EPA) and the Department Housing and Urban Development (HUD) both enforce the disclosure rule.

Iowa law requires a notification prior to renovations that take place in residential property or child occupied facilities built prior to 1978. The brochure, *Lead Poisoning: How to Protect Iowa Families* or the EPA pamphlet, *Renovate Right*, is also needed for compliance with these rules.

Check to indicate that the notification and brochure were given prior to this renovation. Attach a copy of the notification form to this report.

L. Signature of Iowa certified individual listed in Section D of this form.

_____ Date: _____

Lead Test Kit Documentation Form

This form must be attached to the Iowa Lead-Safe Renovation Report

Street Address: _____ City: _____ IA Zip: _____

TEST 1**Test Kit Information**

Manufacturer: _____ Model #: _____

Lot #: _____

Test Location (example, NW Bedroom 2nd floor – north window sill)

Room or Room Equivalent: _____

Component Tested: _____

Test Result

_____ Yes – lead-based paint is present on this specific component

_____ No – lead-based paint is not present on this specific component

_____ Inconclusive test result – ASSUME LEAD-BASED PAINT IS PRESENT

TEST 2 Test kit information same as previous? ___Yes (skip info section) ___No (complete info section)**Test Kit Information**

Manufacturer: _____ Model #: _____

Lot #: _____

Test Location

Room or Room Equivalent: _____

Component Tested: _____

Test Result

_____ Yes – lead-based paint is present on this specific component

_____ No – lead-based paint is not present on this specific component

_____ Inconclusive test result – ASSUME LEAD-BASED PAINT IS PRESENT

TEST 3 Test kit information same as previous? ___Yes (skip info section) ___No (complete info section)**Test Kit Information**

Manufacturer: _____ Model #: _____

Lot #: _____

Test Location

Room or Room Equivalent: _____

Component Tested: _____

Test Result

_____ Yes – lead-based paint is present on this specific component

_____ No – lead-based paint is not present on this specific component

_____ Inconclusive test result – ASSUME LEAD-BASED PAINT IS PRESENT

TEST # ____ Test kit information same as previous? ___Yes (skip info section) ___No (complete info section)

Test Kit Information

Manufacturer: _____ Model #: _____

Lot #: _____

Test Location

Room or Room Equivalent: _____

Component Tested: _____

Test Result

_____ Yes – lead-based paint is present on this specific component

_____ No – lead-based paint is not present on this specific component

_____ Inconclusive test result – ASSUME LEAD-BASED PAINT IS PRESENT

TEST # ____ Test kit information same as previous? ___Yes (skip info section) ___No (complete info section)

Test Kit Information

Manufacturer: _____ Model #: _____

Lot #: _____

Test Location

Room or Room Equivalent: _____

Component Tested: _____

Test Result

_____ Yes – lead-based paint is present on this specific component

_____ No – lead-based paint is not present on this specific component

_____ Inconclusive test result – ASSUME YES

TEST # ____ Test kit information same as previous? ___Yes (skip info section) ___No (complete info section)

Test Kit Information

Manufacturer: _____ Model #: _____

Lot #: _____

Test Location

Room or Room Equivalent: _____

Component Tested: _____

Test Result

_____ Yes – lead-based paint is present on this specific component

_____ No – lead-based paint is not present on this specific component

_____ Inconclusive test result – ASSUME LEAD-BASED PAINT IS PRESENT

Iowa Post-Renovation Cleaning Verification Documentation Form

This form must be attached to the Iowa Lead-Safe Renovation Report

Street Address: _____ City: _____ IA Zip: _____

- The first step in the post-renovation cleaning verification is a visual inspection to determine if all of the dust, debris, and residue in the work area was removed. Do not proceed to step two of the post-renovation cleaning verification until the work areas are free of dust, debris and residue.

_____ Visual inspection Passed (check only when complete)

- The second step of the post-renovation cleaning verification is to verify that the work area has been cleaned. This verification process is a series of wipes taken on the window sill, window troughs, uncarpeted floors, and countertops and then compared to a cleaning verification card.

- Each window sill, window trough, uncarpeted floor or countertop in the work area must be wiped and verified as clean
- If a component fails the first or second wipe test, then it must be re-cleaned before the next wipe test
- A component that is re-cleaned following a failed second wipe test must be allowed to dry for at least one hour before the third wipe with the electrostatically charged dry cloth.
- The component is considered clean when it passes the first or second wipe test, or after the third wipe with an electrostatically charged dry cleaning cloth.
- Each wipe can be used on up to 40 square feet of uncarpeted floor or countertop.

Date of post-renovation cleaning verification: _____ / _____ / _____

Expiration Date of Cleaning Verification Card: _____ / _____ / _____

Component: WS = window sill WT = window trough UF = uncarpeted floor C = countertop

Test Results: P = pass F = fail

Component Location: N = north S = south E = east W = west

Circle all that apply in the table below.

Room	Component	Component Location	Wipe Result 1 Wet disposable	Wipe Result 2 Wet disposable	Wipe Result 3 Dry electrostatic
<i>Example: Dining Room</i>	WS WT UF C	N E S W <i>Middle of 3</i>	P F	P F	P
	WS WT UF C	N E S W	P F	P F	P
	WS WT UF C	N E S W	P F	P F	P
	WS WT UF C	N E S W	P F	P F	P
	WS WT UF C	N E S W	P F	P F	P

Component: WS = window sill WT = window trough UF = uncarpeted floor C = countertop

Exempt from Lead Safe Renovation Requirements
Iowa Weatherization Program

Client Name: _____

Client Address: _____

Name of Agency: _____

Evaluator Name: _____ **WX File Number:** _____

1. House was built 1978 or later: YES NO
(If YES, file form in house file, if NO continue to #2)

2. Contractor disturbing more than one square foot of painted, stained or finished surfaces:
(If YES, Lead Renovator Report Form is required)

List all contractors (business names) working on project:

_____	YES	NO

Asbestos in Homes

What is asbestos?

Asbestos is a naturally occurring mineral fiber mined from the earth. It is heat and chemical resistant, and is easily formed into just about any shape or product. It was used in more than 3,000 different construction materials and manufactured products, including many found in homes.

Why is it a concern?

When disturbed, asbestos breaks down into very small fibers up to 1,200 times thinner than a human hair. These tiny fibers easily become airborne and when inhaled, they can travel deep into the lungs and become trapped in lung tissue. Once trapped, these fibers can cause mesothelioma, lung cancer and asbestosis. There's no known safe level of asbestos exposure, and medical research indicates these fibers can cause severe lung diseases and cancer in 10 to 30 years after the initial asbestos exposure.

This is why it's important to identify asbestos-containing materials in your home so you can protect your health as well as your family's health.

What products contain asbestos?

The following is a short list of some of the more common asbestos containing materials found in homes:

Adhesives	Gaskets
Appliance components	Heat shields (paper and corrugated cardboard)
Ceiling products	Pipe insulation
Ceiling texture (Popcorn texture)	Tank insulation
Ceiling tiles	Paints and coatings
Ceiling tile mastic	Plaster
Cement-asbestos board (Transite) products	Roofing Products
Chimney flue lining	Base flashing
Ducts	Felt
Pipes	Shingles
Shingles	Tar or "Black Jack"
Siding	Table pads
Wall Panels	Vermiculite
Electrical products	Attic and wall insulation
Cloth wire insulation	Fireplace decoration
Electrical panels	Gardening products
Flooring Products	Vinyl wall coverings
Asphalt floor tiles	Wall applications
Floor tile mastic	Caulking and putties
Vinyl floor tiles	Spackling compounds
Vinyl sheet flooring (linoleum)	Wallboard or sheetrock
Heating and Cooling System products	Wallboard joint compound
Boiler insulation	Window glazing
Duct work insulation	
Furnace insulation	

Asbestos in Homes

How do I find out if it's asbestos?

You can check for asbestos markings on the material or its packaging, or you can hire an Iowa-certified asbestos inspector to sample the material or perform an asbestos inspection. Companies that perform sampling and inspections are listed in the Yellow Pages under "Asbestos Consulting and Testing", or contact the Iowa Department of Public Health.

Aren't all asbestos products banned?

No. The United States Environmental Protection Agency (EPA) has banned the use of only the following asbestos-containing products in new construction and renovation:

- Spray-applied material
- Pipe insulation
- Boilers and hot water tank insulation
- Various paper and sheet products
- New uses of asbestos

The EPA has no existing bans on other asbestos-containing products or uses.

If you have asbestos in your home...

Leave it alone

Asbestos is only a problem if asbestos fibers are released into the air. If the asbestos material is in good condition and if it is not being disturbed, then it will not release asbestos fibers. The safest and least costly option may be to leave the asbestos material alone.

Repair it

Sometimes, asbestos materials can be repaired. If the asbestos material has minimal damage, it may be repaired with a special coating called encapsulant. Check with your hardware store or a safety supply store for materials to repair or encapsulate asbestos.

Remove it

Removing the asbestos material may be the best option if the asbestos material is extensively damaged or if it will be disturbed by renovation or other activities. Homeowners may legally remove asbestos materials themselves from the single-family home they own and occupy. However, it is strongly recommended that a licensed asbestos contractor is utilized.

Licensed contractors use techniques that are unavailable to homeowners, so the asbestos is handled safely. They also perform air monitoring to see if the air in your home meets acceptable standards during and at the end of the project.

How do I get more information?

For more information about asbestos, contact the Iowa Department of Public Health at 1-866-227-9878 or visit <http://www.idph.state.ia.us/>

RADON IN IOWA

What is Radon?

Radon is a natural radioactive gas that can cause cancer. You can't see, smell or taste it, but radon may be in your home. The Surgeon General's National Health Advisory on Radon states that "Indoor radon is the second-leading cause of lung cancer in the United States and breathing it over prolonged periods can present a significant health risk to families all over the country." According to the Environmental Protection Agency (EPA), radon is the first leading cause of lung cancer in nonsmokers and the second leading cause of lung cancer in smokers.

The entire state of Iowa is considered at high risk for radon gas in homes by the EPA. High levels of radon can be found in any type of home, so it is recommended everyone test their homes.

Testing

Why should I test my home?

Although there are no immediate symptoms, long-term exposure to radon can cause cellular damage in the lungs that can lead to lung cancer.

The United States Environmental Protection Agency, Surgeon General, American Lung Association, American Medical Association, and the National Safety Council recommend testing your home for radon because testing is the only way to know if your home has radon.

Contact your local county health department or call **1-800-383-5992** to purchase a do-it-yourself, low-cost test kit.

Data

The Iowa Radon Survey has indicated that Iowa has the largest percentage of homes above the US Environmental Protection Agency action level. It is also designated by the US EPA as an entirely zone 1 state, which means that at least 50% of the homes are above US EPA's recommended action level.

For further information about radon in your home, you may go to the following website.
<http://www.epa.gov/radon/pdfs/citizensguide.pdf>

WX Draft – Spillage – CO – Testing Checklist and Summary Sheet

Set Up

Heating appliance and water heater off?	<input type="checkbox"/> Yes
Furnace filter clean or removed?	<input type="checkbox"/> Yes
All exterior windows and doors closed?	<input type="checkbox"/> Yes
Fireplace or wood stove dampers closed?	<input type="checkbox"/> Yes <input type="checkbox"/> NA
Is there a door from the CAZ to the main body of the house? <i>If "Yes" - close</i>	<input type="checkbox"/> Yes <input type="checkbox"/> NA
Record baseline CAZ pressure WRT outside.	_____Pa
Exhaust appliances on, including air handler? <i>(Exception: Do not operate whole house exhaust fans)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> NA
Interior doors closed? <i>(Complete room-to-room pressure tests in rooms with exhaust fans. If test shows positive pressure, leave door closed. If test shows negative pressure, open door.)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> NA
Blower door used to simulate 300 CFM fireplace flow?	<input type="checkbox"/> Yes <input type="checkbox"/> NA

CAZ Test

Determine CAZ pressure WRT outside with CAZ door closed: Record this reading minus the baseline.	_____Pa
Determine CAZ pressure WRT outside with CAZ door open: Record this reading minus the baseline.	_____Pa

** Recreate conditions which caused the greatest negative pressure in the CAZ in the CAZ test above **

Appliance Testing

Water Heater	<i>(Order of testing determined on-site.)</i>
Fire the water heater	
Spillage after 2 minutes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Draft after 5 minutes:	_____ Pa or _____ "W.C."
Carbon monoxide after 5 minutes:	_____/_____/_____ PPM

Furnace/Boiler/Space Heater	<i>(Order of testing determined on-site.)</i>
Fire the heating appliance.	
Did operation of the heating appliance cause spillage or reduction in draft for any of the other appliances?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Spillage after 5 minutes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Draft after 5 minutes:	_____ Pa or _____ "W.C."
Carbon monoxide after 5 minutes:	_____/_____/_____/_____/_____/_____ PPM

Ventilation and Your Home (Instruction Sheet)

Iowa Weatherization Program

Client Name: _____ File Number: _____
Address: _____ City, Zip: _____
Phone: _____

Healthy homes require some ventilation to provide fresh air for the occupants. People feel better and work better when they breathe the right amount of fresh air. Natural ventilation happens when a window is open or when the wind blows air into a home. Mechanical ventilation can be provided by a bathroom or kitchen exhaust fan. A home may not get enough natural ventilation when cracks and holes are sealed to save energy.

_____ (enter agency name) has inspected your home and has determined that it needs mechanical ventilation to supply adequate fresh air. The recommended rate of continuous ventilation is _____ CFM (cubic feet per minute), which is based on the size and the air tightness of your home and the number of people in the household. The following system has been installed.

Fan Type: _____ (i.e. Broan, Fantech, Panasonic)
Location of Fan Installed: _____ (i.e. basement, bathroom ceiling, crawlspace)
Ventilation Operating Time: _____ MPH (minutes per hour) (# of minutes fan is set to run)
Ventilation Rate (Set Speed): _____ CFM (cubic feet per minute)
(the rate of speed in CFMs the fan is set to run – not the maximum capacity of the fan)
Your fan is set up to run: _____ (enter: continuously, intermittently, or manually)
Type of Controller Installed: _____ (i.e. Airetrak, Internal Speed Delay, Multi-Speed Switch, On/Off Switch)
Location of Controller Installed: _____ (i.e. basement ceiling, bathroom wall, wall near exhaust fan, under the cover grille of the fan)
Location of Service Switch: _____ (i.e. in attic near the access, junction box under fan grille, on wall next to controller)
Installer Name: _____ (enter business name)
Installer Phone Number: _____ (enter business phone number)

For the best results, at your present household size, keep the current fan setting. If more people move into your home, you may wish to increase the current setting. *No matter what the current fan setting, always run your bath fan for 15 to 20 minutes after a bath or shower.* A bath or shower adds a lot of moisture to the air and over time, that moisture may damage parts of your home.

Controller Operation Directions: Provided Not Provided

Maintenance: Like most equipment, ventilation fans require some upkeep. Twice a year, or as needed, check and clean the fan grille (if accessible). See manual for additional information.

Fan Warranty Information: Provided Not Provided

Controller Warranty Information: Provided Not Provided

Customer Verification

This certifies that _____ (enter agency name) has explained the ventilation system(s) installed in my home, how it operates, and how I should take care of it. I am to call the installer listed above with any questions regarding the operation of my ventilation system.

Client

Date

Agency Representative

Date

Ventilation and Your Home

Iowa Weatherization Program

Client Name: _____

File Number: _____

Address: _____

City, Zip: _____

Phone: _____

Healthy homes require some ventilation to provide fresh air for the occupants. People feel better and work better when they breathe the right amount of fresh air. Natural ventilation happens when a window is open or when the wind blows air into a home. Mechanical ventilation can be provided by a bathroom or kitchen exhaust fan. A home may not get enough natural ventilation when cracks and holes are sealed to save energy.

_____ has inspected your home and has determined that it needs mechanical ventilation to supply adequate fresh air. The recommended rate of continuous ventilation is _____ CFM (cubic feet per minute), which is based on the size and the air tightness of your home and the number of people in the household. The following system has been installed.

Fan Type: _____
Location of Fan Installed: _____
Ventilation Operating Time: _____ MPH (minutes per hour)
Ventilation Rate (Set Speed): _____ CFM (cubic feet per minute)
Your fan is set up to run: _____
Type of Controller Installed: _____
Location of Controller Installed: _____
Location of Service Switch: _____
Installer Name: _____
Installer Phone Number: _____

For the best results, at your present household size, keep the current fan setting. If more people move into your home, you may wish to increase the current setting. *No matter what the current fan setting, always run your bath fan for 15 to 20 minutes after a bath or shower.* A bath or shower adds a lot of moisture to the air and over time, that moisture may damage parts of your home.

Controller Operation Directions: Provided Not Provided

Maintenance: Like most equipment, ventilation fans require some upkeep. Twice a year, or as needed, check and clean the fan grille (if accessible). See manual for additional information.

Fan Warranty Information: Provided Not Provided

Controller Warranty Information: Provided Not Provided

Customer Verification

This certifies that _____ has explained the ventilation system(s) installed in my home, how it operates, and how I should take care of it. I am to call the installer listed above with any questions regarding the operation of my ventilation system.

Client Signature

Date

Agency Representative Signature

Date

Original – Agency File (*always*)
Copy – Client (*always*)

09/10/12

Refrigeration Appliance Data Sheet

Iowa Weatherization Program

Vendor: _____ Contact Person: _____

Address: _____ City, Zip: _____

Phone Number: _____ Date: _____

Appliance Cost: \$ _____ Prices good from _____ to _____

Delivery Fee: \$ _____ Removal Fee: \$ _____

Brand _____ Model Number: _____ Serial Number: _____

Style:

Refrigerators

- Top Freezer
- Bottom Freezer
- No Freezer
- Side-by-Side

Freezers

- Chest
- Upright

Energy Star Rated

- Yes
- No

Defrost: Automatic

Partial Automatic

Manual

Color: White

Black

Other

Annual energy consumption (kWh): _____

Height (inches): _____

Rating: _____

Width (inches): _____

Fresh food volume (cu ft): _____

Depth (inches): _____

Freezer volume (cu ft): _____

Total volume (cu ft): _____

UL Standards: All replacement refrigerators must meet UL-250 (1993) standards.

Disposal Agreement: All refrigerator units which are to be replaced must be properly disposed of according to the environmental standards in the Clean Air Act (1990) Section 68, as amended by Final Rule, 40 CFR 82, May 14, 1993.

Refrigeration Appliance Vendor Agreement

Iowa Weatherization Program

The following agreement is made between the local Weatherization Program and:

Vendor: _____

Local Agency: _____

Address: _____

Address: _____

City, State, Zip: _____

City, Zip: _____

Phone Number: _____

Phone Number: _____

The above named vendor offers the price quotes and appliances contained on the Appliance Data Sheets (attached) and agrees to abide by the following conditions:

1. Guarantees the attached quote prices for a period of _____ months from the date of signature.
2. To deliver goods and services in all counties listed: _____

3. To make delivery to the client within _____ days after receiving approval notification from the agency.
4. To remove all designated appliances from the clients' homes.
5. To destroy any and all appliances removed from the clients' homes to assure future use is prevented. The appliances must be disposed of according to the environmental standards in the Clean Air Act (1190), Section 608, as amended by Final Rule, 40 CFR 82, May 14, 1993.
6. To provide normal covered service after the sale.
7. To maintain commercial general liability insurance coverage in an amount deemed sufficient by the local agency.
8. To maintain automobile insurance coverage in an amount deemed sufficient by the local agency.
9. To provide the agency a detailed billing for each house including manufacturer, model number and price for each unit delivered in the case of replacement.
10. To hold in confidence all names and addresses of clients.
11. In some situation, an appliance will be removed without any replacement or two or more appliances removed with only one replacement. I **do** or **do not** agree to provide such removal services for \$_____ per additional appliance removed.

Signed:

Vendor Representative Signature: _____ Date: _____

Agency Representative Signature: _____ Date: _____

Client Refrigeration Appliance Agreement

Iowa Weatherization Program

Vendor Name: _____ Client Name: _____
 Contact Name: _____ File Number: _____
 Address: _____ Address: _____
 City, State, Zip: _____ City, Zip: _____
 Phone: _____ Phone: _____

The Iowa Weatherization Assistance Program will provide you with new refrigeration appliances in exchange for low efficiency refrigeration appliances that are currently in service in your house. The appliances to be removed must meet certain requirements for energy consumption, and will be metered by the evaluator prior to offering new appliance(s). Your old appliance(s) will be removed from your home and disposed of. The new appliance(s) will be provided at no charge. You will be responsible for removing all food items from your old appliance(s) and transferring them to the new appliance(s).

The evaluator is responsible for assuring the replacement appliance will fit into the space available and will be delivered with the door hinged on the proper side.

Appliances to be installed by the Weatherization Assistance Program:

	Appliance 1	Appliance 2	Appliance 3
Contract ID:			
Type:	<input type="checkbox"/> Refrigerator <input type="checkbox"/> Freezer	<input type="checkbox"/> Refrigerator <input type="checkbox"/> Freezer	<input type="checkbox"/> Refrigerator <input type="checkbox"/> Freezer
Brand:			
Energy Rating:			
	Annual kWh Usage-Old	BART Repl Rating-New	Annual kWh Usage-Old BART Repl Rating-New
Model:			
Size (cu ft):			
Color:			
Door Hinge:	<input type="checkbox"/> Left <input type="checkbox"/> Right	<input type="checkbox"/> Left <input type="checkbox"/> Right	<input type="checkbox"/> Left <input type="checkbox"/> Right
Defrost:	<input type="checkbox"/> Auto <input type="checkbox"/> Partial Auto <input type="checkbox"/> Manual	<input type="checkbox"/> Auto <input type="checkbox"/> Partial Auto <input type="checkbox"/> Manual	<input type="checkbox"/> Auto <input type="checkbox"/> Partial Auto <input type="checkbox"/> Manual
Ice Maker:	<input type="checkbox"/> Inside <input type="checkbox"/> Door <input type="checkbox"/> None	<input type="checkbox"/> Inside <input type="checkbox"/> Door <input type="checkbox"/> None	<input type="checkbox"/> Inside <input type="checkbox"/> Door <input type="checkbox"/> None

Appliances owned by the client:

Will Remain	To Be Removed	To Be Replaced	Description	Location	Metering Duration	Meter Reading
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____	_____	_____

Please sign below to acknowledge this agreement:

- I *accept* the Weatherization Program's offer to replace and remove the above appliance(s).
 I *refuse* the Weatherization Program's offer to replace and remove the above appliance(s).

Client Signature: _____ Date: _____

Evaluator Signature: _____ Date: _____

Equipment Purchase Request Form

Iowa Weatherization Program

The purchase of equipment and vehicles using weatherization funds must have prior DCAA approval when the purchase price is \$5,000 or more. Refer to Section 9.0 of the Policy and Procedures manual.

Agency Name: _____ Date: _____

Funds to be used: DOE - Regular Funds HEAP Equip. Other (specify) _____
 DOE - ARRA Funds HEAP Admin/Support _____
 DOE - ARRA - Equip Funds _____

Equipment is needed for: Program Expansion Replacement Other (explain) _____

Item Brand Name, Description	Replacing Current Item	Quantity	Unit Price	Net Price
_____	<input type="checkbox"/>	_____	_____	\$0.00
_____	<input type="checkbox"/>	_____	_____	\$0.00
_____	<input type="checkbox"/>	_____	_____	\$0.00
_____	<input type="checkbox"/>	_____	_____	\$0.00
Total:				\$0.00

Purchase Justification: Explain why the item(s) is needed, the items' purpose, and who will be using the item(s). If attrition, list present value and serial number of equipment to be replaced.

Was the bid proposal advertised in a newspaper or other media? Yes No N/A

* Not applicable if bid was not advertised in a newspaper or other media.

* Advertisement must be sent along with this form.

If applicable, in which media did you advertise? _____

If applicable, dates advertised. From _____ To _____

Number of bid proposals sent to vendors. _____ N/A

* Not applicable if bid request was advertised.

Number of bids received back from vendors. _____ Selected vendor was low bidder. Yes No

Selected Vendor Name: _____

Bid Specifications: (* In ALL cases, bid requests must be sent along with this form for review.) If vendor selected was not low bidder, explain the reason the vendor was chosen.

Agency Review:

Agency Representative Approval: _____ Date: _____
(Entering your name serves as your digital signature)

Agency Representative Title: _____

Agency Contact Person: _____ Date: _____

DCAA Review: DCAA Approval: Yes No

DCAA Representative Approval: _____ Date: _____
(Entering your name serves as your digital signature)

DOE Review: DOE Approval Needed: Yes No DOE Approval: Yes No

DOE Representative Approval: _____ Date: _____
(Entering your name serves as your digital signature)

DOE Representative Title: _____

Notes:

Vehicle Purchase Request Form

Iowa Weatherization Program

The purchase of vehicles using **DOE** funds must have prior DCAA and DOE approval **regardless of purchase price**. The purchase of vehicles using **HEAP** funds must have prior DCAA approval when the **unit purchase price is \$5,000 or more**.

Refer to Section 9.0 of the Policy and Procedures manual.

The agency is responsible for ensuring that it has sufficient funds to cover the cost of the vehicle/s.

Agency Name: _____

Date: _____

Funds to be used: DOE - Regular Funds HEAP Equip. Other (specify) _____
 DOE - ARRA Funds HEAP Admin/Support
 DOE - ARRA - Admin Funds

Equipment is needed for: Program Expansion Replacement Other (explain) _____

Year, Make, Model, Description, VIN	Replacing Current Item	Quantity	Unit Price	Trade-In Value	Net Price:
_____	<input type="checkbox"/>	_____	_____	_____	\$0.00
_____	<input type="checkbox"/>	_____	_____	_____	\$0.00
_____	<input type="checkbox"/>	_____	_____	_____	\$0.00
_____	<input type="checkbox"/>	_____	_____	_____	\$0.00
Total:					\$0.00

Purchase Justification: Explain why the vehicle is needed and who will be using it.

Is the new vehicle(s) replacing a current vehicle? Yes No

Vehicle Replacement: What vehicle is being replaced and why? Include the year, make, model and VIN of the vehicle being replaced.

Will the current vehicle(s) be used as trade-in on the requested purchase? Yes No

* Show trade-in value in the box above.

Will the current vehicle(s) be disposed of? Yes No

* Describe how you plan to dispose of the vehicles(s) in the box below.

Disposal Explanation: Include estimated present value, the source of funds used to purchase the vehicle and the purchase date.

Will the new vehicle(s) will be used for any other program? Yes No

Other Program Use: If yes, explain what program and how the Weatherization Program will be compensated for the use (e.g. mileage charges, rental fee, etc.).

Was the bid proposal advertised in a newspaper or other media? Yes No N/A

* Not applicable if bid was not advertised in a newspaper or other media.

* Advertisement must be sent along with this form.

If applicable, in which media did you advertise? _____

If applicable, dates advertised. From _____ To _____

Number of bid proposals sent to vendors. _____ N/A

* Not applicable if bid request was advertised.

Number of bids received back from vendors. _____ Selected vendor was low bidder. Yes No

Selected Vendor Name: _____

Bid Specifications: (* In ALL cases, bid requests must be sent along with this form for review.) If vendor selected was not low bidder, explain the reason the vendor was chosen.

Agency Review:

Agency Representative Approval: _____ Date: _____
(Entering your name serves as your digital signature)

Agency Representative Title: _____

Agency Contact Person: _____ Date: _____

DCAA Review: DCAA Approval: Yes No

DCAA Representative Approval: _____ Date: _____
(Entering your name serves as your digital signature)

DOE Review: DOE Approval Needed: Yes No DOE Approval: Yes No

DOE Representative Approval: _____ Date: _____
(Entering your name serves as your digital signature)

DOE Representative Title: _____

Notes:

Fuel Switching Request

Iowa Weatherization Program

This form should be used when requesting approval to switch fuel sources in a dwelling.

By sending this request, the agency is certifying the client agrees to the fuel switch and has signed a statement from the agency confirming the agreement.

If the switch in fuels is to a higher cost fuel, the agency has explained this to the client.

Agency Name: _____

Date: _____

Agency Contact Person: _____

Phone: _____

Client Name: _____

File Number: _____

Address: _____

City, Zip: _____

Phone Number: _____

Furnace

Current Fuel Type: _____

Water Heater

Proposed Fuel Type: _____

Estimated Additional Cost to Switch Fuel: \$_____

(Complete one request per appliance.)

Fuel switch based upon client request

Fuel switch based upon health and safety
Explanation: _____

Reason for fuel switch (approval will not be given without an explanation): _____

DCAA Review

DCAA Approval: ___ Yes ___ No

Reviewed By: _____ Date: _____

Notes: _____

Fuel Switching Request Calculations Worksheet

Iowa Weatherization Program

This form should be used in conjunction with the Fuel Switching Request form when requesting approval to switch fuel sources for the furnace for efficiency reasons.

Client Name: _____ File Number: _____

Address: _____ City, State, Zip: _____

(Complete one calculation sheet per appliance.)

Section A (Complete fields for existing unit efficiency and proposed unit efficiency)

Electric	_____	x	292	/	_____	Efficiency =	_____
	<i>Fuel cost per kWh</i>				<i>Efficiency as a decimal</i>		<i>Cost per Million Btu's</i>
Natural Gas	_____	x	10	/	_____	Efficiency =	_____
	<i>Fuel cost per Therm</i>				<i>Efficiency as a decimal</i>		<i>Cost per Million Btu's</i>
Fuel Oil	_____	x	7.14	/	_____	Efficiency =	_____
	<i>Fuel cost per gallon</i>				<i>Efficiency as a decimal</i>		<i>Cost per Million Btu's</i>
Propane	_____	x	11.1	/	_____	Efficiency =	_____
	<i>Fuel cost per gallon</i>				<i>Efficiency as a decimal</i>		<i>Cost per Million Btu's</i>
Air-to-Air Heat Pump	_____	x	292	/	_____	Efficiency =	_____
	<i>Fuel cost per kWh</i>				<i>Efficiency as a decimal</i>		<i>Cost per Million Btu's</i>

Section B

Note: If this is an all-electric home, only indicate Btu's used from the fall through the spring.

1. Million Btu's (MBtu's) used last winter: _____
(Do not include cooling months)

2. Cost x MBtu's (old system) _____
Cost of old system (from Section A above) x Mbtu (from line B1)

3. Cost x Mbtu's (new system) _____
Cost of new system (from Section A above) x Mbtu (from line B1)

Savings _____ \$0.00

_____ / _____ \$0.00 = _____ #DIV/0!
**Total installation cost Savings Payback in years (If the payback is less than 15 years, it is cost effective to switch fuels.)*

*Includes cost of appliance, ductwork, etc.

Appliance Efficiency Key		
Appliance	Efficiency Range	Efficiency as a Decimal
Electric	100%	1
Natural Gas or Propane	70% - 98%	.70 - .98
Oil	70% - 80%	.70 - .80
Air-to-Air Heat Pump	100% - 180%+	1.0 - 1.8+

Btu Conversion Factors	
Electric	1kWh = 3,400 Btu's
Natural Gas	1 CCF = 100,000 Btu's
Natural Gas	1 therm = 100,000 Btu's
Propane	1 gallon = 91,300 Btu's
Fuel Oil	1 gallon = 135,000 Btu's

**Exempt from SHPO Review
Project Determination Form**

After referencing the Programmatic Memorandum of Understanding (PMOU) to verify that the project activity does not need to be reviewed by SHPO, use this form to document compliance with the SHPO consultation portion of Section 106. A copy must be in each house file.

As an example, here are the steps you should take:

- Evaluate the home
- Compare measures to be done on the home with Appendix A and B of the PMOU
- If all proposed measures to the home are included in Appendix A and/or B, the house is less than 45 years or it is a mobile home, then fill out this form, sign and date it, and include the original in your house file.

Agency Name: _____ **Contract Number:** _____

For information on this request, contact:

Contact Name: _____ **Contact Phone Number:** _____

Project Address (Street, City, Zip): _____ **Project County:** _____

WX File Number: _____

Project Description: (check all that apply – use additional page to describe other types of work)

- Air sealing
 - Thermal insulation (wall, attic, foundation, floor)
 - Attic ventilation (roof, gable, soffit) (not visible from public right-of-way)
 - Replace/repair water heater (using existing venting or venting not visible from public right-of-way)
 - Replace/repair furnace (using existing venting or venting not visible from public right-of-way)
 - Furnace clean and tune
 - Compact fluorescent bulbs
 - Refrigerator/freezer replacement
 - Smoke and/or CO alarm
 - Exhaust fans (venting not visible from public right-of-way)
 - Showerhead/faucet aerators/water pipe wrap
 - Minor repair to doors and/or windows (work closely resembles existing wood work)
 - New door (door openings are not altered and not visible from public right-of-way)
 - New window (replacement of vinyl windows with ones reflecting the period, style or characteristics of home)
 - Other repair work (please describe) _____
-
-
-

Reason Project Activity is Exempt from SHPO Review: reproduce reason from the Programmatic Agreement (PA).

- All proposed measures are included in exhibit A and/or B of the PMOU
- Age of home – house is ____ years old
- Mobile home

Pictures: Take a “before” picture of the primary façade of any buildings directly impacted by the project activities. Include in house file.

Applicant Certification:

As the duly designated certifying official of the recipient, I also certify that: I am authorized to and do consent to assume the status of responsible federal official under the National Environmental Policy Act of 1969 and each provision of law designated in the 24 CFR 58.

Signature and Title of the Certifying Officer of Applicant _____ Date _____

REQUEST FOR SHPO COMMENT

____ This is a new submittal

____ This is additional information relating to SHPO R&C #: _____

Instructions for completing this form are available in the User's Manual, found online at www.iowahistory.org/historic-preservation/review-and-compliance/index.html under "Review and Compliance". If you have questions while completing the form, please reference the user's Manual before contacting your project administrator or SHPO, as appropriate. Please attach a copy of the lead federal agency statement and/or the signature authorization form to your submittal, if applicable.

Cover Letter: Please include a cover letter with a comprehensive description of the Area of Potential Effect (APE) and project activities. The APE should include the project area, all easements, burrow areas, equipment and material storage and staging areas. If applicable, describe excavation and other earthmoving activities including three-dimensional parameters (length, width and depth).

I. General Information

a. **Project name and/or Property owner:**

b. **Property Street and Number:**

c. **County:**

City:

Zip:

d. **Lead Federal Agency:** DOE

WX File Number:

e. **Federal Funding Program/Permit:** DOE WAP

f. **Contact Person on Project:**

Contact Address:

City:

State:

Zip:

Email:

Phone:

II. Identification of Historic Places

Please check box indicating whether you are requesting an archaeological and/or architectural review of the project and include each of the items requested.

____ **Archaeology**

____ 7.5 min Quad U.S.G.S. (1-mile radius) with quad name and APE outlined (maps on line at www.ortho.gis.iastate.edu)

____ Site plan showing limits of proposed activities or general layout (engineering)

____ Aerial photo: zoom to project area (photos on line at www.ortho.gis.iastate.edu)

____ Description of width and depth of proposed excavation and current conditions of project area

____ OSA site file search, Phase IA or Phase I (whichever is appropriate per Users Manual)

____ Number of acres in project: _____

____ Legal location: Section(s): _____ Township: _____ Range(s): _____

____ **Architecture**

____ Date or original construction for the building

____ Previous site information available (contact Iowa Site Inventory Coordinator)

____ Updated or new Iowa site Inventory Form (available online at www.iowahistory.org/preservation)

____ Clear photos of property and surrounding area (see Users Manual)

____ Location map (no bigger than 11x17) with APE clearly defined (Quad map or city plat map – see Users Manual)

____ Copy of county or city assessor's card record or other appropriate property information (see Users Manual)

____ Detailed description of proposed action, including copy of project specifications if applicable

III. Applicant Certification (check either Adverse Effect or No Adverse Effect for Historic Property Affected category)

Determination of Effect (check one)

____ **No historic properties will be affected** (i.e., none are present or there are historic properties present but the project will have no effect upon them)

____ **No adverse effect to a historic property** (i.e., historic property is present and affected. However, the project either has no adverse effect on the historic property, or the applicant or other federally authorized representative will consult with SHPO to modify the project or impose conditions to avoid adverse effects)

____ **Adverse effect to a historic property** (i.e., historic property is present and adversely affected. The applicant, or other federal authorized representative, will consult with the SHPO and other consulting parties to resolve the adverse effect.)

I understand that the SHPO has 30 days from receipt to object to the finding, after which the SHPO waives its opportunity to comment on this undertaking.

Federally Authorized Signature: _____ Date: _____

Typed Name and Title:

Submit one copy with each property for which our comment is requested.

Return to: Review and Compliance Coordinator, State Historic Preservation Office, 600 E. Locust St. Des Moines, IA 50319-0290

Instructions for Exempt from SHPO Review, Project Description Form

Please print or type this form

Once it has been determined that the house is not subject to SHPO Section 106 review, complete this form and maintain it in the appropriate client/house file.

1. Agency Name: self explanatory
2. Contract Number: fill in your agency's weatherization contract number (i.e. DOE-ARRA-09-01B)
3. Contact name: indicate name of person to contact with questions about this house
4. Contact phone number: include phone number of person listed in #3
5. Project Address: record the street number, street name, city and zip code of the house
6. Project County: indicate county where house is located
7. WX File Number: record the complete file number including agency number(i.e. 04-01-123)
8. Project Description: check the measures you will be completing on the house, if there are other measures not listed, but are included in Appendix A and/or B attach a separate sheet of paper listing those measures and where they are in the Appendix.
9. Reason Project Activity is Exempt: check the appropriate line. If the property is exempt because it is less than 45 years old, indicate the age of the house.
10. Pictures: Include a digital picture of the front of the house
11. Applicant Certification: sign and date the form
12. Maintain the form and photo in the appropriate client/house file
13. You may begin work on the house

Instructions for Request for SHPO Comment

Please print or type this form

If a house is not exempt from SHPO review, complete Section I (General Information) of this form and send it to SHPO.

1. Project Name or Property Owner: Name of client
2. Property Street and Number: self explanatory
3. County: self explanatory
4. City: self explanatory
5. Zip: self explanatory
6. Lead Federal Agency: DOE
7. WX File Number: record the complete file number including agency number(i.e. 04-01-123)
8. Federal Funding Program/Permit: DOE WAP
9. Contact Person on Project: indicate name of person to contact with questions about this house
10. Contact Address, City, State, Zip: address of person listed in #9
11. Email, Phone: of person listed in #9
12. With the form you must send:
 - a. Digital pictures of all sides of the house
 - b. Digital pictures of the streetscape – each way down the street from the house
 - c. Digital pictures of areas where work will be performed
 - d. Copy of the county assessor's card of the property
 - e. Detailed description of **all** the work to be completed
13. Send the form and all required information to SHPO – **you may not begin work on the house until completion of the SHPO Section 106 review.**

Multi-Unit Dwelling Approval Form

Iowa Weatherization Programs

For projects using NEAT Audit

This form **must** be used when requesting approval from DCAA to weatherize dwellings that contain between five (5) and twenty four (24) individually heated units. The NEAT audit can be used on this type dwelling.

Agency:

Agency contact person for this project:

Contact person phone:

Project name:

Address, City:

Project contact person:

Project ownership: Private (for profit) Private (non profit) Public/municipal Other (please describe) _____

Total number of buildings in project:

Number of units per building (if varied, attach list of number of units by building):

Number of stories per building (if varied, attach list of number of stories by building):

Size of units (if varied, give size range or average size):

1 bedroom unit _____ sq ft

2 bedroom unit _____ sq ft

3 bedroom unit _____ sq ft

Configuration of building:

Separate exterior entrance for each unit (little or no common areas)

Common exterior entrance used for multiple units (common halls/stairs areas)

Other (please describe)

Roof configuration: Flat Pitched

Method used to determine 66% tenant eligibility:

Property on DOE list of eligible units – List # _____

Eligibility determined by local agency through client application process

Other (please describe) _____

Description of how the agency will ensure that the weatherization benefits will accrue to the tenants:

Anticipated date of project completion:

Do any heating systems or water heaters need to be repaired or replaced? Yes or No

If yes, has the landlord agreed to pay the cost of the repair/replacements? Yes or No

Has the NEAT Audit been run on at least one of each different type of unit in each building? Yes or No (including a first floor unit, top floor unit, unit without a foundation) **Attach a copy of the NEAT Audit runs for each different type of unit.**

Describe energy efficiency measures to be installed:

Describe any health and safety issues that will be mitigated using program funds (include estimated cost of mitigation):

Describe any repairs required to complete project (include estimated cost of repairs):

Estimated cost of all weatherization work including health and safety costs (total costs are limited to number of eligible tenants x \$6500 {current DOE per home average}): \$

DCAA Review

Approved Yes No Date:

Reviewed by:

Notes:

Multi-Unit Dwelling Approval Form

Iowa Weatherization Programs

For projects using different audit tool

This form **must** be used when requesting approval from DCAA to weatherize dwellings that contain more than 24 units or between 5 and 24 with a single heating system. The NEAT audit cannot be used on this type dwelling; an alternative audit, EA-Quip or TREAT, must be used.

Agency:

Agency contact person for this project:

Contact person phone:

Procedural Review Process

Project name:

Address, City:

Project contact person:

Project ownership: Private (for profit) Private (non profit) Public/municipal Other (please describe):

Total number of buildings in project:

Number of units per building (if varied, attach list of number of units by building):

Number of stories per building (if varied, attach list of number of stories by building):

Size of units (if varied, give size range or average size):

1 bedroom unit _____ sq ft

2 bedroom unit _____ sq ft

3 bedroom unit _____ sq ft

Configuration of building:

Separate exterior entrance for each unit (little or no common areas)

Common exterior entrance used for multiple units (common halls/stairs areas)

Other (please describe):

Roof configuration: Flat Pitched

Method used to determine 66% tenant eligibility:

Property on DOE list of eligible units – List # _____

Eligibility determined by local agency through client application process

Other (please describe):

Description of how the agency will ensure that the weatherization benefits will accrue to the tenants:

Describe planned audit procedures using either EA-Quip or TREAT:

DCAA Procedural Review

Procedures Approved Yes No

Date:

Reviewed by:

Notes:

Work Plan Review

Anticipated date of project completion:

Do any heating systems or water heaters need to be repaired or replaced? Yes or No

If yes, has the landlord agreed to pay the cost of the repair/replacements? Yes or No

Describe energy efficiency measures to be installed:

Describe any health and safety issues that will be mitigated using program funds (include estimated cost of mitigation):

Describe any repairs required to complete project (include estimated cost of repairs):

Estimated cost of all weatherization work including health and safety costs (total costs are limited to number of eligible tenants x \$6500 {current DOE per home average}): \$

DCAA Work Plan Review

Approved ___ Yes ___ No Date:

Reviewed by:

Notes:

Approval for Additional Insulation Measures

Utility Company:

Date:

CAP Agency Name:

CAP Agency Contact Person (include e-mail):

CAP Agency Telephone:

Client Name:

Client Address:

Utility funds to be expended to complete the insulation at this address: \$
(Include brief explanation)

Request approved _____ denied_____

By utility company representative:

Submit to:

Alliant – Robin Sempf – RobinSempf@alliantenergy.com

Black Hills – Jim Dillon – Jim.Dillon@blackhillscorp.com

MEC – Kim Willer – kawiller@midamerican.com

\$10,000 Expenditure Limit Waiver Request

Iowa Weatherization Program

DCAA prior approval is required when estimated labor and material costs will be more than \$10,000.

Agency Name: _____ Date: _____
 Agency Contact Person: _____ Phone Number: _____

Client Name: _____ File Number: _____
 Address: _____ City, Zip: _____
 Phone Number: _____

SIR: _____ Furnace/Water Heater Waiver Needed? Y N
 Received? Y N

Total Estimated Costs:

	Material Cost:	Labor Cost:	Total Cost:
Insulation (<i>attic, walls, foundation, bandjoists, etc.</i>)	_____	_____	\$0.00
Infiltration (<i>weatherstrip, caulk, liquid foam, etc.</i>)	_____	_____	\$0.00
Air Sealing (<i>rigid foam, bypass sealing materials, etc.</i>)	_____	_____	\$0.00
Heating System	_____	_____	\$0.00
Water Heater	_____	_____	\$0.00
Furnace and Water Heater Venting	_____	_____	\$0.00
Other Health & Safety	_____	_____	\$0.00
Refrigerator	_____	_____	\$0.00
Freezer	_____	_____	\$0.00
General Health & Safety Repair (refer to limit)	_____	_____	\$0.00
Incidental Repair (refer to limit)	_____	_____	\$0.00
Other	_____	_____	\$0.00
TOTAL:	\$0.00	\$0.00	\$0.00

List all funds and dollar amounts to be used:

HEAP _____
 ECIP _____
 OTHER _____
 DOE - REG _____
 UTILITY _____
 (specify) _____
 DOE - ARRA _____
 CLIENT _____
 Total: _____ \$0.00

Provide an explanation for the high cost for any of the cost categories listed above.
 If costs are shown in the OTHER HEALTH & SAFETY, GENERAL HEALTH & SAFETY REPAIR,
 INCIDENTAL REPAIR, or OTHER category, describe what is included.
Approval will not be given without an explanation.

DCAA REVIEW:

DCAA Approval: Yes No

Reviewed By: _____ Date: _____

Notes: _____

\$10,000 Expenditure Limit Waiver Request

Form Explanation

Iowa Weatherization Program

DCAA prior approval is required when estimated labor and material costs will be more than \$10,000.

SIR Field

* List the SIR that is given by the NEAT audit for this home. Costs for insulation, incidental repairs, infiltration, and heating system should be included in the NEAT SIR.

Total Estimated Costs Section

* If the furnace estimated cost is over the limit (less venting and ECIP) then a furnace waiver must be obtained before approval will be given on the \$10,000 waiver. The appropriate boxes need to be checked concerning the furnace waiver.

* The estimated costs are to be entered under the correct category.

* *General Health and Safety Repairs* are those items listed in section 7020 of the Work Standards. The current cost limit is \$800.00 and there are no waivers to exceed this limit. This dollar limit is listed in the General Appendix in the Cost Limit section.

* *Incidental Repairs* are items listed in section 7010 of the Work Standards. The cost is limited by the NEAT audit (i.e. the costs must be included in the NEAT Audit's SIR calculation and the cumulative SIR must be at least 1.0). However if the cost seems unusually high the waiver may be denied or more information may be needed for its approval. For incidental repairs on mobile homes, there is a dollar limit of \$600.00 that cannot be exceeded (mobile home doors are excluded from this limit). For more information on this category put your cursor on the red triangle in this cell.

* *Other* usually consists of hot water measures and CFLs.

* The costs then need to be broken out by funding source and the ending total should be the same as that listed above.

* ECIP funds are included in the limit as are DOE/HEAP, Utility, and the stimulus funds. Client contributions and other should be listed if known but usually don't count towards the limit.

* When any of the listed costs are high and explanation of why they are high should be listed. Some examples of this are; installing drywall to separate the garage from the home, removing and drywalling over a suspended ceiling, a lot of blockers in the sidewalls, difficulty in removing the siding, exceptionally large home with 3500 sq.ft., etc.

Flat Rate Adjustment Form

Iowa Weatherization Program

This form must be used when the agency proposes an adjustment to the labor rate for contractors operating under the flat rate method. Labor rates may be adjusted using one of the cost of living indices outlined in the Policy and Procedures Manual; however, DCAA approval to adjust the rate must be obtained.

Agency Name: _____

Date: _____

Agency Contact Person: _____

Phone Number: _____

Address: _____

City, Zip: _____

Adjustment

Weatherization Flat Rate

Furnace Flat Rate

Labor Rate

Current labor rate: \$_____/hour

Effective date of current rate: _____

Proposed labor rate: \$_____/hour

Effective date of proposed rate: _____

Basis for increase:

(List each rate index used as the basis for increasing the labor rate and the math used to increase the current rate to the proposed rate. Indices which may be used: Consumer Price Index, U.S. Bureau of Labor Statistics, COLA, or Across the Board Agency COLA) _____

Material Prices

Attach current Flat Rate Price List.

Attach new Flat Rate Price List showing revised material prices.

New Measures/Materials

List new measures/materials added to the flat rate list: _____

DCAA Review

DCAA Approval: _____ Yes _____ No

Reviewed By: _____

Date: _____

Notes: _____

STATE OF IOWA
DEPARTMENT OF HUMAN RIGHTS

GAX

BUDGET FY 12	GENERAL ACCOUNTING EXPENDITURE	DOCUMENT NUMBER
	DATE	ACCTG PERIOD (mm/yy)

VENDOR CODE	AGENCY NAME
VENDOR NAME AND ADDRESS	BILL TO ADDRESS (ORDERING AGENCY)
	SHIP TO ADDRESS

TERMS	FOB	ORDER APPROVED BY	GOODS RECEIVED/SERVICES PERFORMED
			DATE INITIALS

ORDERED	RECEIVED	UNIT OF MEASURE	DESCRIPTION	UNIT PRICE	TOTAL PRICE
			Reimbursement for Training Employee: _____ Date / Location: _____ Type of Training: _____ Travel/Meals/Lodging (T/M/L): \$ _____ Tuition: \$ _____		

	DOCUMENT TOTAL
--	-----------------------

<p align="center">CLAIMANT'S CERTIFICATION</p> <p>I CERTIFY THAT THE ITEMS FOR WHICH PAYMENT IS CLAIMED WERE FURNISHED FOR STATE BUSINESS UNDER THE AUTHORITY OF THE LAW AND THAT THE CHARGES ARE REASONABLE, PROPER, AND CORRECT, AND NO PART OF THIS CLAIM HAS BEEN PAID.</p> <p>DATE _____ TITLE _____</p> <p>CLAIMANT'S SIGNATURE (CAA) _____</p>	<p align="center">DEPARTMENT CERTIFICATION</p> <p>I CERTIFY THAT THE ABOVE EXPENSE WERE INCURRED AND THE AMOUNTS ARE CORRECT AND SHOULD BE PAID FROM THE FUNDS APPROPRIATED BY:</p> <p>CODE OR CHAPTER SECTION(S) _____</p> <p>AUTHORIZED SIGNATURE _____</p>
--	---

THE FOLLOWING FIELDS ARE FOR STATE ACCOUNTING USE ONLY

DOC TYPE GAX	DOC NUMBER	DOC DATE	ACCTG PRD	BUDGET FY 08	ACTION NEW/MOD E	PO SHIP INSTR	PV TYPE 1	INT IND	INT SELLER FUND	INT SELLER AGCY
VENDOR CODE	ADDR OVERRIDE	F/A INDICATOR	EFT IND	TEXT -po's only (Y/N)	TEXT (po's only)					

REF DOC TYPE	REF DOC NUMBER	REF DOC LINE	COM LN	VEND INVOICE #	COMMODITY CODE	GS CONTRACT
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LINE	FUND	AGCY	ORG	SUB ORG	ACTV	FUNC	OBJT	SUB OBJT	JOB NUMBER	REP CAT	QUANTITY / UNITS	I/D	DESCRIPTION	AMOUNT	I/D
01	0190	379	235A				2483								
02	0190	379	235A				2489								
03															
04															
05															
06															
07															

	DOCUMENT TOTAL	
GAX	WARRANT # _____	AUDITED BY _____ PAID DATE _____

IOWA WEATHERIZATION PROGRAM
TRAINING ALLOWANCE REIMBURSEMENT FORM

Agency Name: _____

Agency Employee: _____

or Contractor's Name: _____

Social Security/Fed ID # : _____
(contractors only)

Street or Box # : _____
(contractors only)

City: _____
(contractors only)

State: _____
(contractors only)

Zip: _____
(contractors only)

Reimbursement for Training: _____ Date: _____
(Name of Training Session)

Number of Hours Attended: _____ x \$20 / hr = \$ _____
(see shaded area below)

(Signature of Trainer Required)

Net Allowable
(DCAA use only)

Mileage reimbursement: _____ x \$.39 / mile = \$ _____
(photocopy of agency's internal travel report required)

Lodging Reimbursement: _____ x room rate = \$ _____
(\$50 + tax / night maximum - photocopy of invoice required; credit card receipt is not acceptable)

Meals reimbursement: Day 1 Day 2 Day 3 Total

Breakfast _____
(enter actual out-of-pocket expense incurred by attendee; not agency's per diem; must incur before 7AM)

Lunch _____
(enter actual out-of-pocket expense incurred by attendee; not the agency's per diem)

Dinner _____
(enter actual out-of-pocket expense; not the agency's per diem; must incur after 6PM)

Total Meals Reimbursement: _____

CHECKLIST:

Does the agency/vendor name appear on the face of the GAX? _____
Does the document date appear on the face of the GAX? _____
Are two GAX's enclosed? _____

Has the claimant/vendor (CAA) signed both GAX's? _____
Are both signatures original, i.e. no photocopies? _____
Is supporting documentation attached? _____

The State will provide an allowance of \$20 per hour for agency technical staff and contractors for time spent at certain training sessions. The conditions for receiving the allowance are as follows: The allowance will be provided for Bureau of Weatherization-sponsored training. This includes training conducted by bureau staff or contractors hired by the bureau. The allowance will not be provided for state on-site training, agency in-house training or staff development, or attendance at conferences. The allowance will cover only actual training hours. Unless specified in the training notification, only agency technical staff or contractors are eligible for the allowance. Trainees must attend the entire training session to receive tuition reimbursement, i.e., if a person attends four (4) hours of a 6-hour training, no allowance will be provided. Trainees who complete a qualified training session will be given a form signed by the trainer. The form will be used to request reimbursement from the DCAA for the training allowance and can be submitted with their travel / meals / lodging (T/M/L) reimbursement request.

Correspondence about the bureau-sponsored training will specify which expenses qualify for reimbursement.

WEATHERIZATION ASSISTANCE CLOSEOUT FORM

Agency Name:

Contract Number:

Line Item	Budget		Expenditures
Administration	0.00		0.00
Health & Safety	0.00		0.00
Support	0.00		0.00
Labor	0.00		0.00
Materials	0.00		0.00
Liability Insurance	0.00		0.00
Other: (please list)	0.00		0.00
Total Budget	0.00		
Expenditures to Date			0.00
Payments Received to Date			
Payment Requested not Received			
Funds Returned/Funds Requested			

Preparer Name :

Preparer Title:

Executive Director:

Executive Director Signature: _____

Date:

Submit two copies of this form with the corresponding Summary Report (101)
Closeout is due 45 days after end of contract.

EVALUATION

Job #: _____ AFN: _____ Directions: _____
 Name: _____
 Address: _____ Floor Area (sq ft): _____ Volume: _____
 Blower Door Air Leakage Rate (CFM): _____ Surface: _____
 Phone #: _____ Pre-Retrofit: _____ @ _____ Pascals
 County: _____ Post-Retrofit: _____ @ _____ Pascals
 Owner Renter # in HH: _____ Change in CFM: _____ CFM Ex: _____
 Primary Vendor: _____ Secondary Vendor: _____ DTL _____ BTL _____ BTLA _____ Pre ^P _____
 LiHEAP App. Date: _____ Evaluation Date: _____ Post ^P _____
 Evaluator: _____ # of Stories: _____ Infiltration Costs: _____ Repair Costs: _____
 House Color: _____ Siding Type: _____ Temperatures: Outside: _____ Inside: _____

Refrigerator/Freezer Metering			
Refrigerator 1		Freezer 1	
Start Time: _____ End Time: _____	<input type="checkbox"/> No Action	Start Time: _____ End Time: _____	<input type="checkbox"/> No Action
Minutes: _____ Reading: _____	<input type="checkbox"/> Remove	Minutes: _____ Reading: _____	<input type="checkbox"/> Remove
Brand: _____	<input type="checkbox"/> Exchange	Brand: _____	<input type="checkbox"/> Exchange
Refrigerator 2		Freezer 2	
Start Time: _____ End Time: _____	<input type="checkbox"/> No Action	Start Time: _____ End Time: _____	<input type="checkbox"/> No Action
Minutes: _____ Reading: _____	<input type="checkbox"/> Remove	Minutes: _____ Reading: _____	<input type="checkbox"/> Remove
Brand: _____	<input type="checkbox"/> Exchange	Brand: _____	<input type="checkbox"/> Exchange

Garage Air Leak Test
Open Door Method
Beginning CFM: _____
Ending CFM: _____

Air Conditioning
Size: _____
<input type="checkbox"/> Room <input type="checkbox"/> Central <input type="checkbox"/> None

--	--	--	--

Utility Information & Other Work

Item	Needed	Existing	Item	Needed	Existing	Measures	Quantity
Bath Exhaust Vent Kit			Raceway for CO Detector			_____ Watt Fluorescent	
Kitchen Exhaust Vent Kit			CO Detector			_____ Watt Fluorescent	
Electric Dryer Vent Kit			Smoke Detector			_____ Watt Fluorescent	
Gas Dryer Vent Kit			Pipewrap			_____ Watt Fluorescent	
Faucet Aerators			Showerhead			_____ Watt Fluorescent	

Specific Instructions

Client Statement: The weatherization work items shown on this form have been explained to me. I understand that only this work is to be completed. I understand that the work will be done at no cost to me.

Materials and equipment installed in an eligible dwelling by the low-income weatherization program shall remain in the dwelling. In the event the homeowner or landlord sells the property as a habitable dwelling, materials and equipment installed by the low-income weatherization program shall remain in the dwelling.

Client Signature: _____ Date: _____

Name: _____ Furnace Contractor: _____
 Address: _____ Mailed On: _____
 Directions: _____
 Phone #: _____ Owner Renter Sq Ft per Floor: Basement: _____ 1st Floor: _____
 County: _____ Job #: _____ 2nd Floor: _____

HEATING SYSTEM

Manufacturer: _____
 Model: _____
 % of Heat Supplied: _____
 Input Rating (Units/kBtu/hr): _____
Input Rating Units: 0=No Input; 1=kBtu/hr; 2=gal/hr; 3=lb/hr; 4=ccm
 Output Capacity (kBtu/hr): _____
 Steady-State Efficiency (%): _____
 Vent Damper: Present? Y N
 Recommended? Y N
 Diameter (In.): _____
 Pilot Light: Present? Y N
 (if applicable) On in Summer? Y N
 Burner: Flame Retention Head Present? Y N
 (if applicable) Recommended? Y N
 IID (if applicable): Present? Y N
 Power Burner (if applicable): Present? Y N
 Repair/Replacement/Comments: _____

System Type: *Additional Htg. Systems should be added on another sheet of paper.*

Gravity Heat Pump Electric Resistance, Fixed
 Steam Boiler Forced-Air Unvented Space Heater
 Hot Water Boiler Vented Space Heater Electric Resistance, Portable

Fuel Type:

Natural Gas Propane Kerosene
 Oil Wood
 Electric Coal

Location:

Unheated Intentionally Heated Unintentionally Heated

Tuneup / Replacement Status

Tuneup/Replacement Optional Tuneup Already Performed
 Replacement mandatory Tuneup mandatory

Enter estimated replacement costs if different from default value:

Labor \$ _____ Equipment \$ _____ SS Efficiency % (if applicable): _____

SAFETY TESTING

FURNACE	PRE	POST
Outside Temperature		
Draft		
Spillage? (Y or N)		
C.O. ppm		
Fan ON		
Fan OFF		
Supply Temp.		
Return Temp.		
Temp. Rise		
Rated Temp. Rise		

FURNACE	PRE	POST
CAZ with ref. to: Outside		
CAZ with ref. to: all fans on		
Secondary Heating? (Y or N)		
Furnace System Fused? (Y or N)		
Supply Air Pressure		
Return Air Pressure		
Filter Size		
Gas Leak Test		
S-Type Fuse		

WATER HEATER		
Type: <input type="checkbox"/> Electric <input type="checkbox"/> Natural Gas		
<input type="checkbox"/> Propane		
Size: _____ Gallons		
	Qty.	Needs
Pipe Wrap		
Overflow Drain Leg		
	PRE	POST
Draft		
C.O. ppm		
Spillage? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Turn Down? <input type="checkbox"/> Yes <input type="checkbox"/> No		
APPLIANCE TESTING	PRE	POST
Oven:		
Burners:		
Type: <input type="checkbox"/> Electric <input type="checkbox"/> Natural Gas		
<input type="checkbox"/> Propane		

Actual Work Required: _____

 Comments: _____

Other Work

Item	Needed	Existing	Item	Needed	Existing	Item	Needed	Existing
Bath Exhaust Vent Kit			Electric Dryer Vent Kit			Chimney Cap		
Kitchen Exhaust Vent Kit			Gas Dryer Vent Kit			Flue Liner		

Additional Items/Costs: _____

Name _____

File # _____

Check When Complete	Initials	Client File Checklist
		WAMS
		* House Data Report (page with client information)
		* MAT List (materials list)
		\$10,000 Expenditure Limit Waiver Request (if applicable)
		Approval for Additional Insulation Measures (if applicable)
		Evaluation
		* Copy of current LIHEAP or Wx Application
		* Evaluation form and supporting documentation
		* Pictures taken at the time of evaluation (unless maintained on a CD or other media that is in the client house file)
		* Release of Liability
		* Health & Safety Findings Assessment Form Part #1
		* Health & Safety Findings Assessment Form Part #2
		* If mold found in home, picture of mold must be in the file
		* Health & Safety Test Checklist
		* Deferral Documentation form and supporting documentation (if applicable)
		* Documentation regarding when the work was completed that caused the deferral, etc.
		Rentals (if applicable)
		* Landlord Agreement
		Multi-Units (if applicable)
		* Multi-Unit Dwelling Approval Form (for projects using NEAT Audit)
		* Multi-Unit Dwelling Approval Form (for projects different audit tool)
		SHPO
		* Exempt from SHPO Review Project Determination
		* Request for SHPO Comment
		* Pictures of house to be attached to SHPO form
		Audit
		* NEAT/MHEA Audit BLD (input) Report
		* NEAT/MHEA Audit Recommended Measures (output) Report
		Furnace/Water Heater/Electric Work Documentation
		* Bids and supporting documentation
		* Fuel Switching Request and Calculation Worksheet (if applicable)
		* Change order and supporting documentation (if applicable)
		* Inspection Form (if different than the final inspection form)
		* Invoice and supporting documentation
		* Photo documentation, including pictures of sealed/covered/inaccessible areas, as appropriate
		Weatherization Work Documentation
		* Bids/Work Order and supporting documentation
		* Change order and supporting documentation (if applicable)
		* Inspection Form (if different than the final inspection form)
		* Invoice and supporting documentation
		* Photo documentation, including pictures of sealed/covered/inaccessible areas, as appropriate
		Slate Documentation
		* Exposure Assessment and Procedure Checklist for Slate and Insul-Brick Siding Removal and Reinstallation
		Vermiculite Documentation
		* Vermiculite test results
		* Vermiculite testing invoice
		Lead Documentation
		* Form 1 – Renovation Work in a Single Dwelling Unit
		* Form 2 – Emergency Renovation Work in a Single Dwelling Unit
		* Form 3 – Notice to Owner for Renovation in Common Areas of Multi-Family Housing
		* Form 4 – Notice to Residents for Renovation in Common Areas of Multi-Family Housing
		* Exempt from Lead Safe Renovation Requirements (to be completed when work being done is exempt from following lead safe work practices)
		* Lead Test Kit Documentation Form (to be completed when a Lead Test Kit is utilized)
		* Iowa Lead-Safe Renovation Report (to be completed for all renovation projects on pre-1978 structures)
		* Iowa Lead-Safe Training Documentation Form (must be completed anytime lead safe work practices are required)
		* Iowa Post-Renovation Cleaning Verification Documentation Form (must be completed when lead safe work practices are required for interior work)
		* Pictures of Lead Safe Work Practices being followed
		Refrigeration Appliances (if applicable)
		* Client Refrigeration Appliance Agreement (to be completed when a refrigeration unit will be replaced and/or removed)
		* Invoice from the Refrigeration Vendor
		Final Inspection
		* Ventilation and Your Home (to be in the file when exhaust fans are installed in the home)
		* Final Inspection Form
		* Pictures taken at final inspection, including pictures taken at time of re-inspections
		State Housing Inspection Report and follow-up documentation (if applicable)

Check When Complete	Weatherization Contractor/Subcontractor File Checklist	Expiration Date
	Commercial General Liability Insurance (\$500,000/per occurrence and \$1 million aggregate)	
	Proof of Automobile Insurance (coverage amount as deemed sufficient by agency)	
	Proof of Worker's Compensation Insurance (or waiver - signed at beginning of each new contract)	
	Current signed contract between the agency and the contractor (may be yearly or by job)	
	Excluded Parties List System printout (researcher signs - performed each time contract renewed)	
	Current Contractor's Registration with the State of Iowa (contractors must renew yearly with IWD)	
	Current Electrical Contractor License (as applicable)	
	Current Plumbing & Mechanical License (as applicable)	
	Proof of having taken OSHA Construction course	
	* Someone must be on-site who has taken the 30-hour course - usually the on-site supervisor (copy of card in file)	
	* All other on-site contractor employees must take the 10-hour course (copy of card in file)	
	Proof of having taken Slate Safe Work Practices training	
	* On-site supervisor and all other on-site employees must take take slate training (copy of each person's certificate of completion in file)	
	Proof of being a Lead Firm (copy of certificate)	
	Proof of having taken Lead Renovator training	
	* Someone must be on-site who is a certified lead renovator - usually the on-site supervisor (copy of card in file)	
	* All other on-site contractor employees must either be certified renovators, pass the 4 or 8 hour renovator course, or receive on-the-job training in lead safe work practices by the on-site certified renovator (copy of certificate of completion, ID card, or copy of letter from IDPH issuing the card, must be in agency file OR on-the-job training is to be noted on the training documentation form in the appropriate house file)	

*** Note, above requirements apply to subcontractors as well - EXCEPT subcontractors will not have a contract with the agency.

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Check When Complete	Furnace/Water Heater/Electrical Contractor/Subcontractor File Checklist	Expiration Date
	Commercial General Liability Insurance (\$500,000/per occurrence and \$1 million aggregate)	
	Proof of Automobile Insurance (coverage amount as deemed sufficient by agency)	
	Proof of Worker's Compensation Insurance (or waiver - signed at beginning of each new contract)	
	Current signed contract between the agency and the contractor (may be yearly or by job)	
	Excluded Parties List System printout (researcher signs - performed each time contract renewed)	
	Current Contractor's Registration with the State of Iowa (contractors must renew yearly with IWD)	
	Current Electrical Contractor License (as applicable)	
	Current Plumbing & Mechanical License (as applicable)	
	Proof of having taken OSHA Construction course	
	* Someone must be on-site who has taken the 30-hour course - usually the on-site supervisor (copy of card in file)	
	* All other on-site contractor employees must take the 10-hour course (copy of card in file)	
	Proof of being a Lead Firm (copy of certificate)	
	Proof of having taken Lead Renovator training	
	* Someone must be on-site who is a certified lead renovator - usually the on-site supervisor (copy of card in file)	
	* All other on-site contractor employees must either be certified renovators, pass the 4 or 8 hour renovator course, or receive on-the-job training in lead safe work practices by the on-site certified renovator (copy of certificate of completion, ID card, or copy of letter from IDPH issuing the card, must be in agency file OR on-the-job training is to be noted on the training documentation form in the appropriate house file)	

*** Note, above requirements apply to subcontractors as well - EXCEPT subcontractors will not have a contract with the agency.

Rev. 08-07-12

Check When Complete	Appliance Vendor File Checklist	Expiration Date
	Commercial General Liability Insurance (coverage amount as deemed sufficient by agency)	
	Proof of Automobile Insurance (coverage amount as deemed sufficient by agency)	
	Current signed agreement between the agency and the contractor (may be yearly or by job)	
	Excluded Parties List System printout (researcher signs - performed each time contract renewed)	
	Current Appliance Data Sheets	

Rev. 11-27-12

To open ZipTest Pro3:

- Go into the "Home" screen
- Hit the green diamond, and then 3
- Wait for the program to load
- Choose "new" or "continue"

To run DTL:

- Hit F3
- Hit 1, or "Enter" on 1
- Choose program 1
- Enter in required data, using the arrows to move between boxes (leave CFM50 blank)
- When finished with DTL, hit "ESC" to return to the ZipTest Pro3 page

To run ASHRAE 62.2:

- Hit F1
- Hit 2, or arrow down to 2 and "Enter"
- Hit "Enter", to choose 1
- Enter in all required data, using the arrows to move between boxes
- To enter in existing fans/windows, change "Use Alt Comp Tool?" to "Yes"
- Then enter in if baths/kitchens are affected (yes/no), and then will have to enter #s
- When finished with 62.2, hit "Enter" to return to the ZipTest Pro3 page

To exit ZipTest Pro3, hit the 2nd key, and then F2 (F7)

To open ZipTest Pro3:

- Go into the "Home" screen
- Hit the green diamond, and then 3
- Wait for the program to load
- Choose "new" or "continue"

To run DTL:

- Hit F3
- Hit 1, or "Enter" on 1
- Choose program 1
- Enter in required data, using the arrows to move between boxes (leave CFM50 blank)
- When finished with DTL, hit "ESC" to return to the ZipTest Pro3 page

To run ASHRAE 62.2:

- Hit F1
- Hit 2, or arrow down to 2 and "Enter"
- Hit "Enter", to choose 1
- Enter in all required data, using the arrows to move between boxes
- To enter in existing fans/windows, change "Use Alt Comp Tool?" to "Yes"
- Then enter in if baths/kitchens are affected (yes/no), and then will have to enter #s
- When finished with 62.2, hit "Enter" to return to the ZipTest Pro3 page

To exit ZipTest Pro3, hit the 2nd key, and then F2 (F7)

FORMULAS AND MEASUREMENTS

FORMULAS

- Area of a square or rectangle = Length X Width (See the Summary of Standards to determine what is included in area measurements for NEAT and BTL calculations)
- Area of a circle = $\pi \times r^2$ or 3.1416 X radius X radius
- Area of a triangle = $1/2 B \times H$ or 1/2 the length of the base X the highest point of the triangle
- Circumference of a circle = $2 \times \pi \times r$ or 2 X 3.1416 X radius
- Volume of a square or rectangle = length X width X height (See the Summary of Standards to determine what is included in volume measurement for NEAT and BTL calculations)
- Volume of a cylinder = $\pi \times r^2 \times h$ or 3.1416 X radius X radius X height
- Minimum ventilation level (MVL) for Iowa is .35 as set by ASHRAE
- 17 is the correlation factor used for Iowa in some of the following formulas
- Building Tightness Limit (BTL) = $.35 \times \text{volume} \div 60 \times 17$
- Air changes per hour (ACH) = natural air changes per hour (NACH)
- $\text{NACH} = \text{CFM} 50 \div \text{volume} \times 60 \div 17$ or
- $\text{NACH} = \text{ACH} 50 \div 17$
- Mechanical change rate (MCH) = $.35 - \text{NACH}$
- Ventilation capacity in CFM = mechanical change rate X house volume $\div 60$. This is used to determine the CFM of a ventilation fan that is needed for the BTL
- Air free carbon monoxide: $A \div B = \text{air free CO}$ (A = carbon monoxide reading X 20.9 (oxygen in air), and B = 20.9 - oxygen content of flue gases.)
- U-value = $1 \div \text{R-value}$
- R-value = $1 \div \text{U-value}$
- Cost per million Btus by fuel type
 - Electric = fuel cost (KWh) X 292 \div efficiency of heating unit (1.0)
 - Natural gas = fuel cost (therm) X 10 \div efficiency of heating unit (steady state efficiency)
 - Oil = fuel cost (gallon) X 7.14 \div efficiency of heating unit (steady state efficiency)
 - Propane = fuel cost (gallon) X 11.1 \div efficiency of heating unit (steady state efficiency)Efficiencies are represented as decimals with electric heating being 1.0 and gas and oil being under 1.0 such as .92 for a high efficiency unit. A geothermal heat pump would be 3.0 to 4.0 efficient, and an air to air heat pump would be 1.8 to 2.6 efficient.

- Cellulose insulation
 - .036 lbs. Of cellulose insulation per square foot, per R-value open blow (example. R-19 = .6816 lb. per square foot)
 - .296 lbs. Of cellulose insulation per square foot, per R-value dense pack (example 6 inch cavity = 1.7816 lb. per square foot)
- Cost effectiveness
 - Payback = cost in dollars divided by annual savings
 - Return on investment = annual savings in dollars divided by initial cost in dollars
 - Savings to investment ratio = life-cycle savings in current dollars divided by initial cost in dollars
- Heating input from a gas meter = gas flow rate in cubic feet per minute X the energy content of gas (usually 850 - 1100 Btus/cu. Ft.) X 60 (number of minutes per hour).
- Heating replacement savings (annual) = 1 - (efficiency of existing heater divided by efficiency of replacement heater) X annual heating cost of the existing heater.

MEASUREMENT CONVERSIONS

- Energy Conversions
 - 1 kilowatt = 1,000 watts
 - 1 kilowatt = 56.89 Btu per minute
 - 1 kilowatt = 1.34 horsepower
 - 1 kilowatt hour = 3413 Btu
 - 1 Btu = .2930 watt-hour
 - 1 Therm = 100,000 Btu
 - 1 ton = 12,000 Btu
- Btu Conversion Factors
 - Electricity = 3,412 Btu/kWh (kilowatthour)
 - Natural Gas = 100,000 Btu/therm or 100,000 Btu/CCF
 - Fuel Oil = 315,000 Btu/gallon
 - LPG (Propane) – 91,330 Btu/gallon
 - Wood – 20 million Btu/cord
- Metric Conversions
 - 1 meter = 3.281 feet
 - 1 micrometer = μm = micron = .000001 meter
 - 1 liter = 1.057 quart = .264 gallons
 - 1 kilogram = 2.205 lbs.
 - 1 gram = .0353 ounce
- Pressure Conversions
 - 1 Pascal = .004 inches of water column
 - 1 Kilopascal = .145 lbs. Per square inch (psi)
 - .1 inch water column = 25 Pascals
 - .2 inch water column = 50 Pascals
 - .5 inch water column = 125 Pascals
 - 1 inch water column = 250 Pascals
- Temperature Conversion
 - Celsius to Fahrenheit = $9/5 \times \text{Celsius reading} + 32$ or $1.8 \times \text{Celsius reading} + 32$
 - Fahrenheit to Celsius = $\text{Fahrenheit reading} - 32 \times 5/9$ or $\text{Fahrenheit reading} - 32 \times .5556$

- Fraction to Decimal Conversion
 - $1/16 = .0625$
 - $1/8 = .1250$
 - $3/16 = .1875$
 - $1/4 = .2500$
 - $5/16 = .3125$
 - $3/8 = .3750$
 - $7/16 = .4375$
 - $1/2 = .5000$

2012 Iowa (Grantee) Health and Safety Plan

(Fill in the white boxes below the category heading.)

Budgeting (Check one):

The grantee is encouraged to budget health and safety costs as a separate category and, thereby, excludes such costs from the average per-unit cost calculation. This separate category also allows these costs to be isolated from energy efficiency costs in program evaluations. The grantee is reminded that, if health and safety costs are budgeted and reported under the program operations category rather than the health and safety category, the related health and safety costs must be included in the calculation of the average cost per home and cost-justified through the audit.

Separate Health & Safety Budget

Contained in Program Operations

Incidental Repairs (List repairs, if any, that will be removed as health and safety measures and implemented as incidental repairs.):

If the grantee chooses to identify any health and safety measures as incidental repairs, they must be implemented as such under the grantee's weatherization program in all cases – meaning, they can never be applied to the health and safety budget category. In order to be considered incidental repairs, the measure must fit the following definition and be cost justified along with the associated efficiency measure. Incidental Repairs means those repairs necessary for the effective performance or preservation of weatherization materials. Such repairs include, but are not limited to, framing or repairing windows and doors which could not otherwise be caulked or weather-stripped and providing protective materials, such as paint, used to seal materials installed under this program.

Incidental repairs include:
 Window repair/replacement
 Door repair/replacement
 Roof repair
 Siding repair
 Wall & ceiling repair/replacement
 Foundation repair

Health and Safety Expenditure Limits (Provide a per-unit average percentage and justification relative to the amount. Low percentages should include a statement of what other funding is being used to support health and safety costs, while larger percentages will require greater justification and relevant historical support.):

The grantee must set health and safety expenditure limits for their subgrantees, providing justification by explaining the basis for setting these limits and providing related historical experience. It is possible that these limits may vary depending upon conditions found in different geographical areas. These limits must be expressed as a percentage of the average cost per dwelling unit. For example, if the average cost per dwelling is \$5000, then an expenditure of \$500 per dwelling would equal 10 percent expenditures for health and safety. 10 percent is not a limit on H&S expenditures but exceeding this amount will require ample justification. These funds are to be expended by subgrantees in direct weatherization activities. While required as a percentage of the average unit cost, if budgeted separately, the health and safety costs are not calculated into the per-house limitation.

Per-Unit Average Percent: 25 %

Iowa Weatherization program has historically used 25% (\$1,692) of the average DOE production cost (\$6,769) for health and safety and is proposing to continue with that rate. The past year health and safety was actually 31.56%. Anything over the 25% allowable costs is covered with other, non-DOE funds. Required furnace and water heater replacements are run through the NEAT audit to determine cost effectiveness. If NEAT determines an individual SIR of 1.0 or greater, then that replacement is completed as an energy efficiency measure rather than health & safety. The following chart represents a health and safety measures completed on units in 2011 production.

Average Health & Safety Costs - 2011					
Total 4536 Completions					
Work Item	# of Homes Receiving Measure	Total Costs	Average Costs	% of Homes Receiving Measure	Health & Safety Costs per Home
CO alarm	3590	183,119.50	51.01	79.32%	40.46
Smoke alarm	2097	90,739.80	43.27	46.33%	20.05
Appliance testing	1206	144,572.08	119.88	26.65%	31.94

Dryer Venting	2533	244,461.90	96.51	55.97%	54.01
Furnace replacement	1715	3,791,159.58	2,210.59	37.89%	837.64
Furnace repair	1174	412,822.27	351.64	25.94%	91.21
Furnace Venting	1350	317,454.83	235.15	29.83%	70.14
Water heater replacement	1784	1,777,345.35	996.27	39.42%	392.70
Water heater repair	373	39,699.32	106.43	8.24%	8.77
Water heater venting	757	157,894.95	208.58	16.73%	34.89
Mobile home door	204	164,940.87	808.53	4.51%	36.44
Mechanical ventilation	2956	1,384,789.30	468.47	65.31%	305.96
LSWP	1747	535,941.08	306.78	38.60%	118.41
Heat source damming	1806	81,842.45	45.32	39.90%	18.08
Pressure balance	375	21,738.24	57.97	8.29%	4.80
Misc H&S	626	107,873.24	172.32	13.83%	23.83
					2,089.35
					2089/6769 = 30.86%

Deferral Policy (Provide a detailed narrative of the grantees overall deferral policy):

Deferral may be necessary if health and safety issues cannot be adequately addressed according to WPN 11-6 guidance. The decision to defer work in a dwelling is difficult but necessary in some cases. This does not mean that assistance will never be available, but that work must be postponed until the problems can be resolved and/or alternative sources of help are found. In the judgment of the auditor, any conditions that exist, which may endanger the health and/or safety of the workers or occupants, should be deferred until the conditions are corrected. Deferral may also be necessary where occupants are uncooperative, abusive, or threatening. The grantee should be specific in their approach and provide the process for clients to be notified in writing of the deferral and what corrective actions are necessary for weatherization to continue. The grantee should also provide a process for the client to appeal to a higher level in the organization.

Although a client may be eligible for the Weatherization Program, there are situations or conditions where weatherization services should be deferred (i.e. delayed or postponed). Hopefully, the decision to defer weatherization can be made before work, or any significant work, begins on a dwelling. However, there are times when work will have begun on a dwelling before one of the situations or conditions is identified. In those cases, the local agency should defer doing any additional work. In cases of deferral, the client will be referred to other sources of funding to help alleviate the issues causing the deferral. The referrals may include USDA 501 loans and grants, HUD, utility companies and local public health agencies. Other referral processes may also be developed as needed.

Deferring work on a dwelling does not mean the dwelling will never be weatherized. If the situation or condition causing the deferral changes, it may be possible to begin or complete the work. For example, a dwelling shouldn't be weatherized if it has a bad roof. However, the dwelling can be weatherized later if the roof is replaced/repared. Another example is a dwelling undergoing remodeling. The dwelling should not be weatherized while it is being remodeled. However, after the remodeling is completed, the dwelling may be weatherized.

Deferral Notification

When an agency defers work on a dwelling, it must notify the client, and the landlord when appropriate, in writing of the reason for the deferral. The notification must include, at a minimum, the reason why work is being deferred and, when appropriate, what corrective action the client or landlord must take so the weatherization services can be rescheduled. A copy of the notification with documentation justifying the decision to defer services must be kept in the client/house file. Agencies should attempt to identify all reasons why work is being deferred on a home and notify the client or landlord of all the reasons.

Following are reasons weatherization services should be deferred. This list is not intended to be all inclusive:

When a client:

- o Refuses to sign the "Client Consent Form". (See Section 2010)
- o Is uncooperative including, but not limited to:
 - Refusing to allow the installation of top energy efficiency measures or important health and safety measures.
 - Refusing access to parts of house that prevent the evaluation of the house from being performed or prevents important measures from being installed.
 - Refusing to change behavior that can cause health and safety problems (e.g. refusal to discontinue using excessive number of humidifiers).
 - Moves or dies while weatherization services are being provided. (Weatherization services may be completed if the majority of work is done prior to the client moving/dying.)

When a client, or other occupant in a dwelling:

- Is threatening or physically or verbally abusive.
- Has known health conditions which prohibit the installation of insulation or other materials.
- Is involved in illegal activities.

When a dwelling:

- Is posted as being "For Sale" or is known to be for sale (except homes currently in a housing rehabilitation program).
- Is scheduled for demolition.
- Poses a health or safety hazard to crew workers or contractors, for example, rats, bats, roaches, reptiles, insects, animals or other vermin inappropriately or not properly contained on the premises.
- Has a health and safety hazard that must be corrected by the client (or landlord) before weatherization services may begin. Examples include, but are not limited to:
 - Severe mold or moisture problems (such as pooling in the crawlspace or standing water in the basement) so severe they cannot be resolved within program limits.
 - The presence of animal feces or raw sewage that prevents weatherization measures from being installed.
 - The presence of an unvented space heater unless the unvented space heater is removed from the dwelling. (A vented space heating system may be installed as a replacement if needed.)
 - The presence of disconnected water waste pipes or hazardous electrical wiring.
 - The presence of asbestos, including vermiculite that contains asbestos, that prevents weatherization measures from being installed.
 - When health and safety hazards, including unsafe combustion appliances, could pose a health or safety threat to clients but the weatherization program cannot mitigate the hazards due to expenditure limits or program rule/policy limits.
- Is undergoing remodeling or has unfinished areas, which directly affect the weatherization process. Weatherization work may be done when the remodeling is completed.
- Is so full of clutter a weatherization evaluation or weatherization services cannot be done.
- Is beyond the scope of the program due to major structural deficiencies or is in such a state of disrepair that failure is imminent and the conditions cannot be resolved in a cost-effective manner. Examples would be dwellings requiring a new roof or foundation repair or where lead exposure cannot be mitigated with safe work practices.

When a mobile home:

- Has a heating system other than a heating system manufactured for mobile homes or a sealed combustion high efficiency furnace with modifications per manufacturer's instructions and installed properly to include outside air for combustion.
- Has a fireplace or heating stove drawing combustion air from inside the dwelling.

Procedure for Identifying Occupant Health Concerns:

Procedures must be developed and explained on how information is solicited from clients to reveal known or suspected occupant health concerns as part of the initial application for weatherization, additional screening of occupants again during the audit, and what steps will be taken to ensure that weatherization work will not worsen the health concern.

While the primary purpose of the Weatherization Program is to reduce energy use in dwellings, it is important to ensure the completed energy efficiency work does not create a health and safety problem or exacerbate an existing health and safety problem in the dwelling. Before beginning any work on a home, agencies must complete the Iowa Weatherization Program health and safety assessment, which consists of identifying any health or safety problems that may pose a threat to the occupants and/or workers and any problems that need to be corrected before weatherization activities can be started. Agencies must also notify owners and occupants of visual assessment findings and obtain the release of liability.

The health and safety assessment includes, but is not limited to, addressing the following:

- Client informed consent process
- Combustion appliance testing, including:
 - Carbon monoxide test
 - Spillage and draft test
 - Temperature rise and static pressure test
 - Proper venting size, configuration, and condition
 - Gas leaks
- Moisture and mold assessment
- Lead paint
- Slate siding
- Unsanitary conditions
- Electrical hazards
- Fire hazards
- Friable asbestos
- Building structure to ensure a safe working area
- Garage leakage test in homes with an attached or tuck-under garage
- Building tightness limits and depressurization tightness limits

Health and safety problems found during the health and safety assessment will result in the agency taking one of three actions:

1. If the problem will not prevent the dwelling from being weatherized and installing weatherization measures won't exacerbate the problem, the agency can proceed with weatherizing the dwelling but will notify the client of the problem.

2. If the problem must be remedied before weatherization measures can be installed, the agency must determine if the program can remedy the problem or if the client or landlord will have to correct the problem. If the program can remedy the problem, weatherization can proceed once the agency has corrected the problem.
2. In those cases where the client or landlord is responsible for correcting the problem, the agency must ensure the client understands either he/she or the landlord is responsible for correcting the problem before weatherization can begin. The agency must notify the client of the problem regardless of who is responsible for correcting it.

Health and safety testing must also be repeated after weatherization to ensure the activities did not create a health and safety problem in the home. Program funds may be used to conduct the assessment and testing, and to abate certain health and safety problems.

It is very important for the agency to document any health and safety problems and any problems or conditions which could result in health and safety problems. Documentation must include photos. Good documentation can protect the agency from claims made by clients that the work done by or on behalf of the agency caused a health and safety problem.

A. Client Informed Consent

Because it is possible weatherization activities could have an adverse effect on an occupant's health, it is important clients provide an "informed consent", consenting to the weatherization activities before they are started. The form is reviewed with the client at the time of initial home assessment. Applicant medical conditions are not accessed at the time of application because all weatherization applications in Iowa come through the LHEAP system. At the time of application, clients are asked about general disability issues, but not those specifically related to the weatherization process. Agencies must inform all clients weatherization activities can release dust and dust-like particles in the air. Occupants with certain health conditions could have those conditions aggravated by the dust and dust-like particles and should be out of the house when insulation is being blown. Health conditions aggravated by dust include:

- o Asthma
- o Emphysema
- o Allergies
- o Respiratory problems
- o Pregnancy
- o Decreased immune function
- o Other serious health conditions

It is also recommended infants less than 12 months old should be out of the house when blown insulation or two-part foam insulation is being installed.

Persons who leave the dwelling during the insulation process should remain outside the house for the amount of time specified in the manufacturer's instructions.

Clients are required to sign a **Release of Liability and Waiver of Claims** (Release of Liability) Form informing them of this. The consent form should be signed before the dwelling is evaluated. If the client refuses to sign the form, no work will be completed on the home and it will be closed incomplete. The original of the signed Release of Liability Form must be in the client file, and the copy will be left with the client.

The Release of Liability and Waiver of Claims is a 2-part NCR form that is provided by the Weatherization Program. A sample can also be found in the Forms section of the Weatherization General Appendix as well as on the Members Only section of the Weatherization webpage.

The Release of Liability Form is important because it documents the client has been informed weatherization activities could result in airborne particles being released in the home which could aggravate a health condition of the occupants in the home. It also documents the client authorized the agency to weatherize the home.

If a client is not available to sign the Release of Liability Form when the evaluator arrives to conduct the evaluation of the home, the evaluator may proceed with the evaluation. However, the evaluator must leave a copy of the Release of Liability Form, a return envelope, and instructions to the client that no work will be done on the home until the client signs the form and returns it to the agency.

The Release of Liability Form is available on the State of Iowa Weatherization Members Only web page as well as in the Forms section of the Weatherization General Appendix.

Documentation Form(s) have been developed (Check Yes or No):

Documentation forms must be developed, include the client's name and address, dates of the audit/assessment and when the client was informed of a potential health and safety issue, a clear description of the problem, a statement indicating if, or when weatherization could continue, and the client(s) signature(s) indicating that they understand and have been informed of their rights and options

Yes

No

Completing the General Issue Tables below, or something similar, for each health and safety category will help explain to DOE how the WPN 11-6 requirements will be addressed.

Air Conditioning and Heating Systems	
Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input checked="" type="checkbox"/> X Alternative Guidance <input type="checkbox"/>	
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
N/A	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
<p>The following combustion appliance testing is done both prior to the start of any weatherization work and again after the work is completed (pre- and post-weatherization).</p> <p>For combustion furnaces, boilers, water heaters, cook stoves, space heaters, and gas fireplaces:</p> <ul style="list-style-type: none"> o Carbon monoxide levels under worst-case condition o Spillage of combustion gases and proper drafting under worst-case condition o Existence of gas leaks o Proper venting size, configuration, and condition <p>For combustion furnaces and boilers:</p> <ul style="list-style-type: none"> o Temperature rise and static pressure testing <p>The Iowa Weatherization Program has established maximum acceptable carbon monoxide levels for various types of appliances. Carbon monoxide problems (exceeding the maximum acceptable level) must be corrected before any work is started on dwellings. Carbon monoxide readings and draft test results must be recorded on the Health and Safety Assessment Findings Form. The temperature rise results must be documented in the house file.</p> <p>Furnaces and water heaters are checked to ensure they are safe. Depending on circumstances, unsafe furnaces and water heaters may be repaired or replaced using program funds. All furnace work must be performed by a qualified, furnace technician, or trained agency personnel in conformance with ANSI Z223.1-1999 (same as NFPA 54-1999) including Appendix H and shall be done within program spending limits.</p> <p>Air conditioners will not be replaced in Iowa, however if an A-coil is leaking and will result in damage to the furnace, it may be replaced if not repairable.</p> <p>During the heating season, no weatherization work may be done until a non-operational or hazardous primary heating unit is repaired or replaced.</p> <p>Pre- and post-weatherization baseline pressure readings are taken of the combustion appliance zone with reference to the outside.</p> <p>Chimneys and flues for wood stoves and gas/oil appliances are inspected to ensure they are in good condition and are free of obstructions.</p> <p>Refer to the Work Standards for detailed combustion appliance testing procedures, venting guidelines, and maximum allowable carbon monoxide levels.</p>	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
See deferral policies	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
N/A	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
All auditors/inspectors are trained to test heating systems to determine proper operating performance.	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	
Clients are instructed in the operation and maintenance of new heating systems.	

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

Any unit replaced will be removed from the job site and disposed of in a manner to take it off grid permanently.

Air Conditioning Installation (as specific to installation as a health and safety measure): Provide a narrative on implementation protocols of air conditioning repair, replacement, and installation including justification for allowability that includes climate justification with degree days and how to define at-risk occupants

Air conditioners will not be replaced in Iowa, however if an A-coil is leaking and will result in damage to the furnace, it may be replaced if not repairable.

Heating System Installation (as specific to installation as a health and safety measure): Provide a narrative on implementation protocols of Heating System repair, replacement, and installation including justification for allowability that includes climate justification with degree days

All furnace work shall be performed by a qualified, furnace technician, or trained agency personnel. Furnace repair shall be performed in conformance with ANSI Z223.1-1999 (same as NFPA 54-1999) including Appendix H and shall be done in accordance with program spending limits. All furnace work must be in compliance with:

- o The Uniform Mechanical Code
- o National Fire Prevention Association (NFPA)
- o Local Codes (Where they exist)
- o The Furnace Manufacturer's Specifications

No used furnaces may be installed.

When installing a new furnace, it must be installed at least ¾" off the floor on blocks, rubber, or a plastic pad. Concrete pads are not acceptable.

Furnaces installed in mobile homes must be for that purpose or a sealed combustion high efficiency furnace may be installed with proper modifications per manufacturer's instructions.

If a new space heater is installed it must be vented and the agency must ensure there is an operable smoke alarm. (See Section 2060)

All new units shall carry a minimum one-year (1) warranty on workmanship. Each customer shall receive the manufacturer's product warranty information, clear maintenance instructions and a phone number of who to contact for warranty problems.

The output rating of all replacement heating units shall be properly sized as in accordance to Manual J.

Forced air furnace replacements are to be a minimum of 80% AFUE rating. A 92% or higher AFUE should be installed whenever possible. A two pipe system is recommended but not required if the CAZ provides sufficient combustion air. Condensate lines must go to a drain or drain line.

If the door of a high efficiency furnace is being used as combustion air chamber, there must be a rubber gasket around the panel to seal the combustion chamber. Grommets and/or rubber gaskets must be installed to seal openings in the furnace cabinet.

Ensure thermostats are working properly, replace if defective.

Adjust the heating anticipator in the thermostat to match the amp draw of the system control.

Repair or replace any unsafe power supply and install a properly sized and fused switch on the appliance or within 24".

For gas line specifications, refer to Section 2021 or the NFPA 54-2009. Drip legs (sediment traps) need to be installed to code.

Flexible gas lines cannot be installed through or in the furnace cabinet.

All venting shall be completed according to the manufacturer's specifications. A collar should be installed at the ceiling around the flue pipe. Where the venting exits through the ceiling, it must be air sealed.

If an atmospheric appliance (water heater) shares a chimney with a draft-induced appliance, the draft of the atmospheric appliance must be checked to ensure no drafting problems. (See Section 2031 & 2043)

All furnaces must have a filter rack outside the cabinet with a cover and shall have no open returns in the combustion area.

Perform a temperature rise test to ensure the temperature is within the manufacturer's guidelines.

Perform CO testing to ensure it does not exceed 100ppm, without any alterations to the furnace, lowering gas pressure below manufacturer recommendations, or changing orifice size.

Contractors must remove and dispose of equipment being replaced unless otherwise directed by the agency.

Appliances and Water Heaters

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided.

<p>Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.</p>	
<p>Concur with WPN11-6 X Alternative Guidance <input type="checkbox"/></p>	
<p>Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.</p>	
<p>DOE and/or other funds will be used to address this issue</p>	
<p>Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.</p>	
<p>N/A</p>	
<p>Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.</p>	
<p>All combustion water heaters must be properly vented before proceeding with any weatherization work. Any water heater which cannot be properly vented must be replaced.</p> <p>Determine if the gas valve is working properly. If not, replace the valve or the water heater, whichever is most cost-effective.</p> <p>Examine the temperature setting on the gas valve or thermostat. Consult with client to determine if the temperature can be lowered to 120°F without affecting the client's life style. If the home has a dishwasher, the temperature should be set at 140°F.</p> <p>Inspect the unit to determine whether combustibles or flammable items are around the water heater. If items are within 3', they need to be removed and the client needs to be notified of this safety problem.</p> <p>Record the appliance make, model, and input ratings for additional testing, if needed.</p> <p>As houses become tighter, there is a concern about sufficient combustion air. One simple check is to observe the flame. There are several symptoms of insufficient air. They are:</p> <ul style="list-style-type: none"> o Light blue flames with yellow tips. o Lazy flame with poorly defined edges that appear to be "reaching-out" for air. o Long flames that roll around, sometimes completely off the burner ports. o Flames that roll out the front of the cabinet. o Carbon monoxide production. <p>If the flame shows any of these symptoms, open an outside door or window in the CAZ. If this improves the flame, additional combustion air is needed.</p> <p>Iowa has been using ASHRAE 62.2 standards for ventilation for a number of years. When the added ventilation results in high negative pressure (-5pa or greater) in the water heater CAZ it often causes back drafting. When necessary to solve the back drafting problem, a power vented water heater will be installed. In those cases water heater replacements are considered a health and safety measure.</p> <p>Determine if the tank is leaking. If it is leaking, it should be determined if it is a health and safety concern and should be replaced.</p> <p>Determine whether a pressure relief valve and a discharge pipe are present. If the relief valve and/or the discharge pipe are not present and there is an existing location for them, determine whether it could be a safety concern and install if needed.</p> <p>Examine the plumbing to determine if there are leaks. If leaks exist, they may be repaired within program limits for General Health & Safety repairs.</p> <p><u>A water heater is not replaced solely on the basis of its age.</u> The age of a water heater does not provide an accurate indication of whether it should be replaced.</p> <p>Other combustion appliances, such as cooking stoves, are tested. If the CO reading is above acceptable limits, a CO alarm is installed and the client is informed of the issue. Weatherization dollars are not used to remedy these issues.</p>	
<p>Standards for Deferral: Describe when deferral should take place for the specific health and safety category.</p>	
<p>Deferral would only take place in the case of high CO reading on appliances other than water heater.</p>	
<p>Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.</p>	
<p>Clients are advised to thoroughly clean the stove to try to eliminate the high CO readings. If that does not work, clients are advised to replace the unit.</p>	
<p>Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.</p>	
<p>All evaluators/inspectors are trained on Iowa Weatherization Procedures concerning this issue.</p>	
<p>Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.</p>	
<p>Clients are instructed in the operation and maintenance of new water heaters. Clients are also advised to keep gas appliances</p>	

(cooking stoves) as clean as possible to eliminate the possibility of CO production.

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

Any unit replaced will be removed from the job site and disposed of in a manner to take it off grid permanently.

Asbestos - in siding, walls, ceilings, etc.

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is “required” or “not allowed” through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

<p>Concur with WPN11-6 <input type="checkbox"/></p> <p>Alternative Guidance X</p>	<p>Due to the potential health hazard posed by friable asbestos, the Iowa Weatherization Program has developed the following policies and procedures to address the work done on dwellings with slate-sided and insul-brick siding. These policies and procedures incorporate the OSHA and EPA regulations which apply to this work.</p> <p>Slate siding should only be removed from residential dwellings with fewer than 5 units. Slate siding should not be removed from residential dwellings with 5 or more units. Residential dwellings with 5 or more units may, however, still be weatherized if other measures are called for by the NEAT Audit. Slate siding may not be removed from dwellings either currently used for commercial purposes, or were once used for commercial purposes.</p> <p>Asbestos regulations governing commercial structures, dwellings used for commercial purposes, and dwellings once used for commercial purposes, fall under EPA's asbestos regulations, which have more stringent requirements than OSHA's regulations.</p>
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Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

DOE and/or other funds will be used to address this issue

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

N/A

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

1. Exposure Assessment

Agencies must have a person who is qualified to supervise the removal and reinstallation of slate and insul-brick siding. The qualified person must be on-site during the time the slate siding is removed and reinstalled. The qualified person does not have to be on the job-site during other times.

Prior to removing any slate and insul-brick siding, the qualified person must conduct an exposure assessment. The assessment is to determine whether the workers' expected exposure to friable asbestos, while removing or re-installing the siding, would be above or below the permissible exposure limit (PEL). The exposure assessment is an OSHA requirement.

If the initial hazard exposure assessment determines worker exposure is expected to be below the permissible exposure limit (PEL), the siding may be removed. If it is determined worker exposure is expected to be above the PEL, the siding may not be removed, unless respirators and protective clothing are used by the workers, in accordance with 29 CFR Part 1926.1101.

The assessment may take into account any previous monitoring results conducted at a job site where similar procedures/standards were followed and similar conditions existed. The use of prior test results for the hazard exposure determination meets this requirement. If prior testing found the level of airborne asbestos fibers was below the permissible exposure limits (PEL), when safe work practices were followed then the results of those tests may be used by the qualified person to assume the level of airborne asbestos fibers, at the new job site, will also be below the permissible exposure limits, if the same safe work practices are followed.

2. Slate Siding Safe Work Practices

The Iowa Weatherization Program requires local agencies to follow certain practices when removing and re-installing slate siding. These practices are ways to minimize and contain hazards inside the work area (also known as containment) and are designed to protect clients and workers when removing and re-installing slate siding. Refer to the Weatherization General Appendix for more detailed information concerning slate siding requirements and safe-work procedures.

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

N/A

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

N/A

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and safety categories, like OSHA, require training.

Workers who will be removing and reinstalling the slate siding must be properly trained. This includes asbestos awareness training and training on the Iowa Weatherization Program's work standards for removing and reinstalling slate siding. Agencies that use crew workers to remove and reinstall slate siding must keep documentation the workers have received this training. This is an OSHA requirement.

The DCAA has developed training material that, we believe, is sufficient to educate crew workers about asbestos, including the dangers of exposure to asbestos. The training also includes the work standards that must be followed when removing and reinstalling slate siding. Agencies may use the material developed by the DCAA to provide asbestos awareness training to their staff or contractors.

Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. **Note:** Some health and safety categories, like mold and moisture, require client education.

N/A

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

Any broken siding or dust from the siding must be disposed of according to EPA regulations. The broken siding or dust must be promptly placed in an approved hazardous material bag that has a waste generator sticker for asbestos on it. The debris must be taken to a landfill that accepts hazardous waste. A receipt containing proper documentation must be obtained from the landfill operator. The receipt must be kept in the records of the agency, if the agency disposed of the waste, or by the contractor, if the contractor disposed of the waste.

Asbestos - in vermiculite

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6

Alternative Guidance X

- If vermiculite is in the walls.
 - Have a sample of the vermiculite tested to see if it contains asbestos. Do not operate the blower door until the vermiculite has been tested.
 - If test results show there is no asbestos in the vermiculite, the walls may be insulated, if needed. Operation of the blower door can be done in depressurization mode.
 - If test results show there is asbestos in the vermiculite, do not insulate the walls. Operate the blower door in the pressurization mode. Other work may be done on the home.

- If vermiculite is in the attic.
 - Have a sample of the vermiculite tested to see if it contains asbestos. Do not operate the blower door until the vermiculite has been tested.
 - If the test results indicate there is no asbestos in the vermiculite, do attic air sealing and insulate over the existing vermiculite. Operation of the blower door can be done in depressurization mode.
 - If the test results indicate there is asbestos in the vermiculite:
 - Attic bypass sealing should not be completed nor should the attic be insulated.
 - To reduce the risk of moisture problems in the attic, the attic must be properly vented. If needed, add ventilation to ensure one (1) square foot of venting for every 300 square feet of attic floor space. This is necessary because the bypasses are not sealed.
 - Other energy efficiency measures and health and safety measures may be done. Operate the blower door in the pressurization mode.

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

DOE and/or other funds will be used to address this issue

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

N/A

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

N/A

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

N/A

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

N/A
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
Evaluators are instructed in proper methods to gather samples for testing.
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
N/A
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A

Asbestos - on pipes, furnaces, other small covered surfaces

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input type="checkbox"/> Alternative Guidance X	Weatherization measures will not be installed if they will disturb suspected friable asbestos. Clients will be provided with asbestos safety information anytime materials with presumed asbestos are present in the house. Minor asbestos removal, such as asbestos tape on furnaces, is allowable under the General Health and Safety Repair limits described in the Weatherization General Appendix.
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Suspected friable asbestos that would interfere with installation of weatherization measures would result in a deferral of work.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
Suspected friable asbestos that would interfere with installation of weatherization measures would result in a deferral of work.	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.	

Biologicals and Unsanitary Conditions - odors, mustiness, bacteria, viruses, raw sewage, rotting wood, etc.

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input type="checkbox"/> Alternative Guidance X	Any unsanitary conditions, including insect pests, animal or bird feces/carcasses or sewage leakage in the work area must be recorded on the Health & Safety Assessment Findings Form.
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also	

include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

1. Animal Feces or Raw Sewage

If animal feces or raw sewage are in the way of doing work or pose a health threat to workers, the feces/sewage must be removed by the client before work is begun or continued. If the client refuses to do this, the agency must defer work on the job. This must be documented on the Health and Safety Assessment Form.

2. Bird/Bat Droppings

There are some fungal diseases associated with bird and bat droppings. Those are histoplasmosis and cryptococcosis. Histoplasmosis is caused by a fungus that is transmitted to humans by airborne fungus spores from soil contaminated with bird droppings. The fungus is not in the bird droppings but in the soil. The bird droppings just provide a nutrient source for the growth of the fungi. Most infections are mild and produce either no symptoms or minor flu-like symptoms. Fresh bird droppings have not been shown to present a health risk for histoplasmosis.

Cryptococcosis is found in debris around pigeon roosts and soil contaminated with pigeon or chicken droppings. Cryptococcosis infections are mild and usually occur without symptoms.

Unlike birds, bats can become infected with the organism that can cause histoplasmosis. They can excrete the organism in their droppings. However, the incidence of histoplasmosis being transmitted to humans from bat droppings occurs infrequently.

Exposure to bat droppings only pose a risk if the droppings are dry and are disturbed so the spores become airborne and are inhaled. As a precautionary measure, evaluators should wear an NIOSH-certified respirator (an N95 respirator is sufficient) when entering attics until they have had a chance to determine whether bat droppings are present.

If bat droppings are present but will not prevent attic by-pass sealing and attic insulation from being done, work may proceed. However, protective clothing including an NIOSH-certified respirator that can filter particles as small as 0.3 microns, disposable gloves, overalls and boots must be worn. The bat droppings should be misted with water to prevent the spores from becoming airborne.

If the bat feces will prevent attic by-pass sealing and attic insulation from being done, do not do those measures. Do a one-point pressurization test and conduct a pressure test in the attic. With the blower door @ 50 pascals, if the house to zone (attic) pressure is 45 pascals or more, other work on the house may be done. If the house to zone (attic) pressure is less than 45 pascals, defer any work on the house. (A pressure reading of 45-50 pascals would indicate very little by-pass leakage, thus other work could be done to the home without concern about the by-passes not being sealed. A reading of less than 45 pascals indicates there is enough by-pass leakage to possibly be a problem. Therefore, all work on the house should be deferred.)

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and safety categories, like OSHA, require training.

Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. **Note:** Some health and safety categories, like mold and moisture, require client education.

Clients will be informed of any issues resulting in either total or partial deferral of work. In cases where the client cleans or otherwise eliminates the issue, weatherization work will be completed.

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

N/A

Building Structure and Roofing

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6 X
Alternative Guidance

Building rehabilitation and renovation is beyond the scope of the Weatherization Program. Homes whose structural integrity is in question should be referred to a housing rehabilitation program, if possible. Incidental repairs necessary for the effective performance and preservation of weatherization materials are allowed. An example of a limited repair would be sealing minor roof leaks to preserve attic insulation. Weatherization services should not be performed on dwellings whose structural integrity is in question, which could pose a safety hazard to workers, or are in such a state of disrepair that failure is imminent and the conditions cannot be resolved in a

	cost-effective manner.
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
In cases of deferral, the client will be referred to other sources of funding to help alleviate the issues causing the deferral. There referrals may include USDA 501 loans and grants, HUD, utility companies and local public health agencies. Other referral processes may also be developed as needed.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
Work will be deferred for structural issues in the following cases: <ul style="list-style-type: none"> o Is undergoing remodeling or has unfinished areas, which directly affect the weatherization process. Weatherization work may be done when the remodeling is completed. o Is so full of clutter a weatherization evaluation or weatherization services cannot be done. o Is beyond the scope of the program due to major structural deficiencies or is in such a state of disrepair that failure is imminent and the conditions cannot be resolved in a cost-effective manner. Examples would be dwellings requiring a new roof or foundation repair or where lead exposure cannot be mitigated with safe work practices. 	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
In cases of deferral, the client will be referred to other sources of funding to help alleviate the issues causing the deferral. There referrals may include USDA 501 loans and grants, HUD, utility companies and local public health agencies. Other referral processes may also be developed as needed.	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	
When an agency defers work on a dwelling, it must notify the client, and the landlord when appropriate, in writing of the reason for the deferral. The notification must include, at a minimum, the reason why work is being deferred and, when appropriate, what corrective action the client or landlord must take so the weatherization services can be rescheduled. A copy of the notification with documentation justifying the decision to defer services must be kept in the client/house file.	
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.	
N/A	

Code Compliance

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input checked="" type="checkbox"/>	Alternative Guidance <input type="checkbox"/>
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
N/A	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
N/A	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
N/A	

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.
N/A
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
Evaluators/Inspectors are trained in national code requirements. Sub-grantees must be aware of any local code requirements. Local agencies must ensure that weatherization-related work complies with all applicable codes.
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
N/A
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A

Combustion Gases

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input checked="" type="checkbox"/> X Alternative Guidance <input type="checkbox"/>	
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
Combustion appliances must be tested for proper drafting. All draft testing must be taken under "Worst-Case Scenario". (See Section 2041 Iowa Weatherization Standards) The purpose of draft testing is to ensure the proper venting of all combustion devices in the home.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
N/A	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
N/A	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
All evaluators/inspectors receive training in proper testing methods	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	
N/A	
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.	
N/A	
Combustion Gas Problem Discovery: Provide a narrative describing the process to be followed when combustion gas testing reveals health and safety concerns.	
<p>If CO level is unacceptable, correct the problem by one of the following methods:</p> <ul style="list-style-type: none"> o Check the gas pressure o Check the combustion volume (see Section 2022) o Check for dirty burner o Air damper not set correctly o Improper venting o Check orifice size o Check for blocked heat exchanger <p>The following combustion appliance testing is done both prior to the start of any weatherization work and again after the work is completed (pre- and post-weatherization).</p>	

For combustion furnaces, boilers, water heaters, cook stoves, space heaters, and gas fireplaces:

- o Carbon monoxide levels under worst-case condition
- o Spillage of combustion gases and proper drafting under worst-case condition
- o Existence of gas leaks
- o Proper venting size, configuration, and condition

For combustion furnaces and boilers:

- o Temperature rise and static pressure testing

The Iowa Weatherization Program has established maximum acceptable carbon monoxide levels for various types of appliances. Carbon monoxide problems (exceeding the maximum acceptable level) must be corrected before any work is started on dwellings. Carbon monoxide readings and draft test results must be recorded on the Health and Safety Assessment Findings Form. The temperature rise results must be documented in the house file.

Drainage - gutters, down spouts, extensions, flashing, sump pumps, landscape, etc.

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6 X
Alternative Guidance

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

DOE and/or other funds will be used to address this issue

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

Work will be deferred on houses where weatherization cannot solve the issues.

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

1. Site Drainage

Poor site drainage is often the reason for wet foundations, basements, crawlspaces, and slabs. The ground around the foundation of the house should be sloped away from the house so water runs away from the house and not toward it. Ideally, the ground adjacent to the foundation should slope away from the house at a minimum 5 percent (Six inches of fall in the first 10 feet).

Check for the following site drainage situations:

- o Does the site direct rain and snow melt toward the foundation rather than away from it?
- o Are there depressions in the ground close to the house where water can collect?
- o Are sidewalks or paved driveways sloped so they direct water toward the foundation rather than away from it?
- o Does the house have an effective gutter/downspout system that collects and drains rain water away from the foundations?

Agencies may improve grading around foundations as a General Health and Safety Repair, as long as the cumulative cost of the grading and any other general health and safety repair does not exceed the General Health and Safety Repair limit.

2. Gutters and Downspouts

Gutters and downspouts can be an important part of solving a site drainage problem. They collect and drain rain water away from foundations. Agencies should note if the house has an existing effective gutter/downspout system. If the gutter system is in good condition, but is clogged with debris, they may be cleaned by the program if client is physically unable to do the job and all other options (such as family or chore services) have been exhausted. The cleaning can only be done at the time of weatherization services and cannot be repeated as needed.

If gutters/downspouts are missing or are severely damaged, the agency may install or repair existing gutters/downspouts as a General Health and Safety Repair, as long as the cumulative cost of the gutter/downspouts and any other general health and safety repair does not exceed the General Health and Safety Repair limit.

3. Plumbing Repair

Leaking water pipes and sewer lines may cause moisture problems within the house. Minor repairs may be made to water pipes and sewer lines as a General Health and Safety Repair, as long as the cumulative cost of the plumbing repair and any other general health and safety repair does not exceed the General Health and Safety Repair limit. Cleanup of any unsanitary conditions due to plumbing leaks is the sole responsibility of the client.

<p>4. Sump Pumps</p> <p>Sump pumps may be installed to control water in lower levels of the home. Pumps may be installed as a General Health and Safety Repair, as long as the cumulative cost of the pump installation and any other general health and safety repair does not exceed the General Health and Safety Repair limit. Sump pumps must be installed to meet manufacturer's instructions and all local codes.</p> <p>5. Dehumidifiers</p> <p>Dehumidifiers may be installed, with client permission, to help control humidity in basements during summer months in homes with existing mold or moisture problems. All moisture source control methods must have been exhausted before installing a dehumidifier. Explain to the client that the dehumidifier might result in an increase in electric usage. Dehumidifiers must be ENERGY STAR® rated and installed to drain properly. If draining to a basement drain, the dehumidifier must be set on blocks to allow for proper drainage.</p> <p>If a drain does not exist, a dehumidifier may be installed by utilizing a dedicated condensation pump to an existing drain, sump pump, or sewer line. All condensate lines must terminate to a drain; they cannot terminate outside the envelope of the house. Ensure the drain line does not present a trip hazard for the client. Educate the client on proper usage of the dehumidifier including settings and summer/winter use.</p> <p>Dehumidifiers may be installed as a General Health and Safety Repair, as long as the cumulative cost of the dehumidifier and any other general health and safety repair does not exceed the General Health and Safety Repair limit.</p>
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.
Only when beyond the scope of the program.
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.
Clients will be referred to housing rehabilitation programs.
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
N/A
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
Clients will be instructed to keep gutters clean, downspouts and horizontal spouts clear. If sump pumps or dehumidifiers are installed, clients will be instructed in the use and maintenance of the equipment.
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A

Electrical, other than Knob-and-Tube Wiring	
<p>Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.</p>	
<p>Concur with WPN11-6 X Alternative Guidance <input type="checkbox"/></p>	<p>Correcting electrical wiring problems is generally not an allowable weatherization measure. Wires are inspected to ensure they are not bare or frayed. Service boxes are inspected to ensure they have secure covers. Fuses and breakers are inspected to ensure they are properly sized. If it is determined a hazardous situation exists, the problem must be corrected before weatherization work is started. Program funds may be used to correct minor electrical problems but spending must be within the General Health and Safety Repair cost limits. A licensed electrical contractor will be used to perform electrical work needed to correct a problem.</p>
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Electrical issues that cannot be remedied within Iowa weatherization limits will result in deferral of work. The client will be referred to a housing rehabilitation program.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
Electrical issues that cannot be remedied within Iowa weatherization limits will result in deferral of work.	

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.
See above
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
Weatherization staff will explain the issues to the client and discuss possible solutions including referral to other programs.
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A

Electrical, Knob-and-Tube Wiring

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input checked="" type="checkbox"/> X Alternative Guidance <input type="checkbox"/>	Unless prohibited by local codes, S-type fuses must be installed in homes having knob and tube wiring before insulating in the attic or walls to provide over-current protection.
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
If the use of S-type fuses is prohibited by local code, work will be deferred on the house.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
Weatherization evaluators are training to check for knob-and-tube wiring.	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.	

Fire Hazards

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input type="checkbox"/> Alternative Guidance <input type="checkbox"/>	<p>There must be a minimum of three (3) feet clearance of combustible materials around combustion appliances. If this situation does not already exist, workers must, with client permission, move items the required 3 feet away from the appliance and explain the potential safety problem to the client.</p> <p>All combustible materials must be a minimum of one (1) inch from the vent pipe or meet manufacturer's specifications. Damning material must also be around all heat sources in the attic, such as flue pipes, chimneys, mechanical ventilation with lights, unless IC rated and recessed lights, unless IC rated</p> <p>Smoke alarms must be installed for the following reasons:</p> <ul style="list-style-type: none"> o When space heaters are replaced with a vented space heater.

	<ul style="list-style-type: none"> o When mobile homes are weatherized. o When local codes require their installation.
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
N/A	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
Weatherization workers will, with client permission, clear areas around combustion appliances of all flammable materials.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
If the client refuses to all the removal of combustible materials from the area surrounding the combustion appliance, work on the house will be deferred.	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
N/A	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
Weatherization evaluators/inspectors are trained to check for such issues.	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	
Clients are educated on the importance of keeping the area around combustion appliances clear.	
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.	
N/A	

Formaldehyde, Volatile Organic Compounds (VOCs), and other Air Pollutants

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input checked="" type="checkbox"/> X Alternative Guidance <input type="checkbox"/>	<p>Volatile Organic Compounds (VOCs) are widely used as ingredients in many household products, such as paints, varnishes, fuels, and many cleaning, disinfecting, cosmetic, and hobby products. These products can release the organic compounds as vapor when they are used and, to some extent, when they are stored. Formaldehyde is a volatile organic compound found in many building materials and household products, such as new carpets and plywood. These products release the organic compounds over time. Organic compounds sometimes have adverse health effects on people.</p> <p>Because of the potential for adverse health effects, local agencies must take this into consideration when determining air tightness limits of dwellings and whether installing ventilation may be needed.</p>
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
N/A	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
N/A	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client	

education.
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A

Injury Prevention of Occupants and Weatherization Workers – Measures such as repairing stairs and replacing handrails.

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is “required” or “not allowed” through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6 <input checked="" type="checkbox"/> Alternative Guidance <input type="checkbox"/>	Minor repairs to stairs, steps, railings, etc are allowed under the program if necessary to complete the weatherization work. For example broken steps to the basement where the furnace is located may be repaired in order to complete furnace work. Broken boards on the front porch away from the door may not be repaired since it will not interfere with weatherization work.
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Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

DOE and/or other funds will be used to address this issue

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

If repairs are not considered minor, weatherization work will be deferred.

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

The minor repairs made to remedy the issues will be charged to incidental repairs rather than H&S.

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

Work beyond the scope of the program will be deferred

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

In case of deferral, clients will be referred to other programs to help eliminate the issues.

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and safety categories, like OSHA, require training.

Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. **Note:** Some health and safety categories, like mold and moisture, require client education.

In case of deferral, clients are informed of the problem and possible remedies.

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

N/A

Lead Based Paint

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is “required” or “not allowed” through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6 <input checked="" type="checkbox"/> Alternative Guidance <input checked="" type="checkbox"/>	<p>All Weatherization Assistance Program activities involving renovation work on pre-1978 target housing or child-occupied facility (see Chapter 69 for definition of child-occupied facility) are subject to the provisions of the Federal Environmental Protection Agency (EPA) and the Iowa Department of Public Health (IDPH) regulation that require that a notification be given to the occupants of the housing, informing them about the hazards of lead paint and the paint dust.</p> <p>Renovation activities are those resulting in a modification of an existing structure that results in the disturbance of 1.0 sq/ft or more of a painted or stained surface.</p> <p>Lead Safe Work Practices</p> <p>Any activity disturbing painted surfaces on residential structures built before 1978 may cause lead hazards. The Iowa Weatherization Program requires local agencies and their contractors to follow certain practices whenever lead-painted or presumed lead-painted surfaces are disturbed.</p>
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	<p>These practices, known as lead-safe work (LSW) practices, meet or exceed the DOE Benchmark Curriculum. They include ways to minimize and contain lead hazards inside a work area (also known as containment) when disturbing lead-based or presumed lead-based paints and coatings. Lead safe work practices are designed to protect clients and workers. Any time one square foot or more painted or stained surface is disturbed, LSWP must be used on residences built before 1978. Lead based paint dust, chips, and debris will be disposed of properly. Refer to the Weatherization General Appendix for more detailed information concerning the notification requirement and lead safe work practices.</p> <p>Occupational Safety and Health Administration (OSHA) have regulations governing work involving lead containing material. Included in the regulations are action levels and permissible exposure limits (PEL) for exposure to lead concentrations. An exposure in excess of the PEL requires the use of safety equipment such as respirators, protective clothing, head covering (hat, hood), eye and ear protection and hand and feet protection.</p>
<p>Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.</p>	
<p>DOE and/or other funds will be used to address this issue</p>	
<p>Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.</p>	
<p>N/A</p>	
<p>Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.</p>	
<p>Standards for Deferral: Describe when deferral should take place for the specific health and safety category.</p>	
<p>The Weatherization Program does not allow funding for lead-base paint abatement. Agencies must defer weatherization work on homes that need lead paint abatement.</p>	
<p>Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.</p>	
<p>Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.</p>	
<p>All final inspectors employed by sub-grantees are required to be Certified Lead Renovators. DCAA also recommends all sub-grantee evaluators also be Certified Renovators. All contractors and crews working on targeted housing (Pre-1978 construction) or child-occupied facility (see Chapter 69 for definition of child-occupied facility) must take the Iowa Department of Public Health Lead-Safe Renovator training program. The training must be provided by a trainer certified with the IDPH. The Lead-Safe Renovator course consists of eight hours of instruction time with two of those hours, hands on training and a 40 question test that the participants must score at least 80 percent (32 questions correct) in order to pass. If a person has already taken the Lead-Safe Work Practice course and can show proof they passed the course, he or she will need to take the four hour Lead-Safe Renovator course with two of those hours being hands on training.</p> <p>The course is designed for workers who perform renovation, remodeling and repainting or standard treatment for federally assisted activities pursuant to 24 Code of Federal Regulations (CFR) Part 35. Students successfully completing this course meet the performance standard of HUD's Lead Paint Regulation 24 CFR Part 1330 (a) (4).</p> <p>The course does not train people to perform lead-paint abatement, although it will prepare workers to perform Lead Safe Work Practices and LSW (Lead Safe Weatherization). Persons completing this course are not qualified to perform lead-base paint abatement. Courses for these activities are available from accredited lead training providers.</p> <p>All workers that are not certified renovators, that are conducting renovation, remodeling and repainting work on the job site, must have on the job training by the certified renovator assigned to that job site. The training should be specific to the work the worker is doing.</p>	
<p>Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.</p>	
<p>The notification pamphlet from the Iowa Department of Public Health is titled Lead Poisoning: How to Protect Iowa Families. A copy of this pamphlet is available on the State of Iowa Weatherization web page in the Members Only section www.weatherization.iowa.gov. Renovate Right is the federal version. DOE recommends providing the Renovate Right pamphlet, however; one of the two pamphlets must be provided to the owner, operator or occupants of the home prior to commencing the work but not more than 60 days prior to commencing the work.</p> <p>LSWP work will be discussed with the client.</p>	
<p>Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.</p>	
<p>Lead based paint dust, chips, and debris will be disposed of properly.</p>	
<p>Lead Based Paint Compliance: Provide a narrative describing how RRP and LSW implementation will be conducted and how the grantee will verify compliance. The explanation should clearly show an understanding that LSW and RRP are separate</p>	

requirements and both are required to be met.

The state will verify local agencies are complying with the minimum LSW standards and procedures by requiring file photos of LSW procedures being followed at all appropriate jobsites, by performing spot checks of crews and contractors working at jobsites and requiring the local agencies to perform spot checks of crews and contractors at jobsites.

If a local agency crew or contractor is found not to be in compliance with the LSW policies, procedures and minimum standards, the state will notify the local agency in writing of the noncompliance. The local agency will be required to submit a written corrective action plan to the state. Repeated instances of noncompliance will result in referral to the Iowa Department of Public Health which can levy fines.

Mold and Moisture

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6 X
Alternative Guidance

All homes must be visually inspected for existing mold. Although the entire house should be inspected for mold, particular attention should be paid to the following areas: bathrooms, kitchens, laundry areas, basement walls, ceilings next to exterior walls, attics, and crawlspaces. The mold assessment should be done the same time the moisture assessment is performed. Agencies must document any existing mold that is found. The Health and Safety Assessment Findings Form, Part 2 must be used to document existing mold. Photos must also be taken of existing mold. The Health and Safety Assessment Findings Form, Part 2 and the photos must be filed in the client/house file. The reason existing mold must be documented is to have proof that the mold was pre-existing and that weatherization did not cause it.

Sometimes what may look like mold may actually be water stains. If there is uncertainty as to whether a spot that looks like mold is actually mold rather than a water stain, a couple of drops of household bleach can dropped on the stain. If the spot is mold, the bleach will cause it to lose its color or disappear. If there is no change in the appearance of the spot, the spot probably isn't mold.

Evaluators must also inform the client of any mold that is found and the location of the mold. Evaluators should explain to clients that he/she is not a mold expert, that the mold assessment was a visual assessment only and that no testing for mold was done.

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

DOE and/or other funds will be used to address this issue

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

If the evaluator determines the moisture problem can be solved satisfactorily, there are three (3) options regarding the mold-like substances that are possible:

- o The agency may determine that the mold-like substances will not be disturbed by weatherization activities; therefore, weatherization work can proceed without the need for remediating the mold.
- o The agency may clean-up the mold-like substances and then proceed with weatherization work.
- o The agency can defer any work on the home until the mold-like substances is remediated by the client or landlord. This would be the situation if there large areas with mold-like substance growth.

If the evaluator determines the moisture problem cannot be satisfactorily eliminated, weatherization work must be deferred and the house closed incomplete.

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

If the evaluator determines the moisture problem cannot be satisfactorily eliminated, weatherization work must be deferred and the house closed incomplete.

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and safety categories, like OSHA, require training.

Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. **Note:** Some health and safety categories, like mold and moisture, require client education.

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

Mold Protocols: Provide a narrative describing protocols for addressing mold found in the client's homes. The protocol should include a method of identifying the presence of mold during the initial audit or assessment, notification to the client, and crew training on how to alleviate mold and moisture conditions in homes.

If the work can be completed without disturbing mold/mildew, cleanup is not required, but may be completed at the discretion of the evaluator within the program cost limits. If cleanup is completed, the following cleanup procedures must be followed. These procedures for the remediation of building materials that contain mold-like substances or will likely contain mold-like substances are from the U. S. Environmental Protection Agency (EPA) and New York City Department of Health Bureau of Environmental and Occupational Disease Epidemiology. The procedures are designed to protect the health of the occupants and cleanup personnel during remediation. These procedures are based on the area and type of material affected by water damage and/or mold-like substance growth. Visual documentation, such as pictures of the red flag situations, should be taken before and after the remediation process and kept in the client file.

The use of a biocide, such as sodium hypochlorite (chlorine bleach), is necessary to clean mold. Clean up procedures include:

- The area being cleaned needs to be ventilated to the outdoors.
- Bleach should be mixed with water in a 1/10 ratio (one cup bleach in 10 cups water).
- The area should be scrubbed with a brush and the bleach mixture and left on for 15 minutes
- The area should be rinsed and dried after 15 minutes

Other biocides may be used according to manufacturer's instructions. (Never mix chlorine bleach with ammonia or cleaning solutions that contain ammonia because toxic fumes can be produced.) Non-porous (e.g. metals, glass, and hard plastics) and semi-porous (e.g. wood and concrete) materials that are structurally sound and visibly moldy can be cleaned and reused. Porous materials (e.g. ceiling tiles, insulation, or wallboard) that can be cleaned can be reused. Some porous material cannot be cleaned and should be discarded.

Small Isolated Areas (10 sq. ft. or less per affected area)

Recommended personal protection:

- Respiratory protection (e.g. N95 disposable respirator), gloves, and goggles.
- The work area should be unoccupied.
- Containment of the work area is not necessary. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the case of children less than 12 months old, persons recovering from recent surgery, immune suppressed people, and people with chronic lung diseases (e.g. asthma, severe allergies).
- The mold should be cleaned with a biocide.
- Discarded material should be put in a sealed plastic bag. There are no other special requirements for the disposal.

Mid-Sized Isolated Areas (10 – 30 sq. ft. per affected area)

Recommended personal protection:

- Respiratory protection (e.g. N95 disposable respirator), gloves, and goggles.
- The work area should be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the case of children less than 12 months old, persons recovering from recent surgery, immune suppressed people, and people with chronic lung diseases (e.g. asthma, severe allergies).
- The work area should be covered with plastic sheets and sealed with tape before cleaning to contain any dust or debris.
- Misting surfaces (to suppress dust) should be done prior to cleaning.
- The work area should be HEPA vacuumed and the mold-like substance should be cleaned with a biocide.
- Discarded material should be put in a sealed plastic bag. There are no other special requirements for the disposal.

Large-Sized Isolated Areas (30 – 100 sq. ft. per affected area)

Recommended personal protection:

- Respiratory protection (e.g. N95 disposable respirator), gloves, and goggles.
- The work area and areas directly adjacent to the work area should be unoccupied.
- The work area should be covered with plastic sheets and sealed with tape before cleaning to contain any dust or debris.
- Heating/cooling system registers in the work area should be sealed with tape or other material.
- Misting surfaces (to suppress dust) should be done prior to cleaning.
- The work area should be HEPA vacuumed and the mold-like substance should be cleaned with a biocide.
- Discarded material should be put in a sealed plastic bag. There are no other special requirements for the disposal.

Extensive Areas (greater than 100 sq. ft. per affected area)

Personnel trained in the handling of hazardous materials should do the clean-up.

Occupant Preexisting or Potential Health Conditions

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided.

<p>Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.</p>	
<p>Concur with WPN11-6 <input type="checkbox"/></p> <p>Alternative Guidance X</p>	<p>See Procedures for Identifying Occupant Health Concerns section.</p>
<p>Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.</p>	
<p>DOE and/or other funds will be used to address this issue</p>	
<p>Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.</p>	
<p>Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.</p>	
<p>Standards for Deferral: Describe when deferral should take place for the specific health and safety category.</p>	
<p>Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.</p>	
<p>Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.</p>	
<p>Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.</p>	
<p>Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.</p>	

Occupational Safety and Health Administration (OSHA) and Crew Safety

<p>Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.</p>	
<p>Concur with WPN11-6 <input checked="" type="checkbox"/></p> <p>Alternative Guidance <input type="checkbox"/></p>	<p>Agencies must comply with Occupational Safety and Health Administration (OSHA) requirements in all activities. This is an agency responsibility, as OSHA requirements apply to all agency personnel - not just weatherization. The portion of OSHA standards which apply to weatherization field staff can be found in Construction Industry OSHA Safety and Health Standards (29 CFR 1926/1910). A Health and Safety Plan should be developed by each agency, using agency specific information.</p> <p>Because of the wide range of activities involved in weatherizing a house, ensuring crew health and safety requires a broad knowledge of the appropriate OSHA requirements. Some of these requirements include, but are not limited to: personal protective equipment, techniques for safe lifting, electrical equipment safety, ladder safety, and general worker protection. OSHA standards should be consulted for further details. OSHA Standards can be obtained by contacting:</p> <p style="text-align: center;">Iowa Division of Labor 1000 East Grand Des Moines, Iowa 50319</p> <p>Local agencies must have a written safety plan in effect. A copy of the safety plan must be provided to all weatherization personnel. All agency weatherization personnel must receive orientation training on the agency's safety plan. Weatherization workers will receive the required OSHA training course by January 1, 2012.</p> <p>Contractors, employed by local agencies, are also expected to comply with OSHA requirements. Current contractors will receive the required training by January 1, 2012. Any new contractors will be required to have the OSHA training before they are eligible to receive a bid.</p>
<p>Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.</p>	
<p>DOE and/or other funds will be used to address this issue</p>	
<p>Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.</p>	

N/A
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.
N/A
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.
N/A
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.
N/A
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
All weatherization crews, contractors and evaluators must have the required training before they are allowed at a job site. Iowa weatherization recommends that all inspectors also receive the training.
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
N/A
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A
OSHA and MSDS Compliance: Provide a narrative describing procedures for implementation of OSHA and MSDS requirements related to crew and worker safety, how the 10 and 30 hour training requirements will be met, and what the process is for determining if crews are utilizing good safe work practices according to all requirements (EPA, OSHA, etc.).
<p>Crew based agencies must have Material Safety Data (MSD) Sheets on all weatherization materials used by their crews on file at the agency. MSD Sheets can be obtained by requesting them from the material supplier or by contacting the manufacturer of the material. Contractor based agencies should stipulate in their contracts with contractors that the contractors will be responsible for supplying Material Safety Data Sheets to the agency upon request by the agency.</p> <p>On-going health and safety training for agency staff is provided by DCAA. Training required in WPN 11-6 will be developed and implemented this year. Training sessions will be repeated as necessary for new staff.</p> <p>DCAA will monitor both job sites and agency files for compliance with OSHA requirements. Agencies must provide DCAA with OSHA certificate of completions for all workers and job site supervisors, both crew based and contractor based.</p>

Pests	
Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input checked="" type="checkbox"/>	
Alternative Guidance <input type="checkbox"/>	
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
Pest removal is only allowed in cases where the infestation would prevent weatherization	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
If pests cannot be reasonably removed, or where removal poses a safety concern for workers, work should be deferred on the house.	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	

If pest cannot be removed, the client will be informed of the issue and instructed as to possible remedies.
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A

Radon

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is “required” or “not allowed” through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6 <input type="checkbox"/>	Radon abatement is not an allowable activity under the program. Where there is a previously identified radon problem in a home, work that may exacerbate the problem should be limited. Houses with previously identified radon problems should not be left with an increased negative pressure in the contaminated area than existed before weatherization work began. This is determined by setting the house up in worst-case. The Work Standards describes worst-case testing methods. Iowa will not test for radon. Tests would have to be performed as a part of every audit. In order to properly test for radon, all agency auditors and inspectors would have to be trained and licensed to perform radon testing, or a licensed contractor would have to be hired to perform the tests before and after weatherization work. Either of these methods would result in large increases in health and safety costs.
Alternative Guidance <input type="checkbox"/>	

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

DOE and/or other funds will be used to address this issue.

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

Previously identified cases of high radon levels will result in deferral.

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

Exposed dirt floors will be covered with vapor barrier to lessen the possibility of radon entering the house.

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

Major radon problems should be referred to the appropriate local environmental agency.

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

Major radon problems should be referred to the appropriate local environmental agency.

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and safety categories, like OSHA, require training.

Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. **Note:** Some health and safety categories, like mold and moisture, require client education.

Clients in high radon areas will receive printed information on radon and its sources.

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

N/A

Refrigerant

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is “required” or “not allowed” through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6 <input checked="" type="checkbox"/>	
Alternative Guidance <input type="checkbox"/>	

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

DOE and/or other funds will be used to address this issue.

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

Refrigeration appliances that are replaced must be disposed of according to the environmental standards in the Clean Air Act (1990), Section 608, as amended by the Final Rule, 40 CFR 82, May 14, 1993. The party recovering the refrigerant must possess an EPA-approved Section 608 Type II license or an approved universal certification.

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

N/A

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

N/A

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and safety categories, like OSHA, require training.

N/A

Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. **Note:** Some health and safety categories, like mold and moisture, require client education.

N/A

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

Refrigeration appliances removed from client houses must be taken off the grid and the refrigerant must be disposed of according to environmental standards.

Smoke, Carbon Monoxide Detectors, and Fire Extinguishers

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6

Alternative Guidance

X

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

DOE and/or other funds will be used to address this issue

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

N/A

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

N/A

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

N/A

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

N/A

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and safety categories, like OSHA, require training.

N/A

Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. **Note:** Some health and safety categories, like mold and moisture, require client education.

Verbal and written instructions are to be given to the client as to the use and maintenance of the alarm.

Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

N/A

Smoke/CO Detector Installation: Provide a narrative describing smoke/CO Detector installation parameters and procedures.

CO ALARMS

Carbon monoxide alarms are installed in the following situations:

- o When a deferral occurs because a dwelling contains an unsafe combustion appliance(s), including furnaces, water heaters, stoves, and ovens.
- o When a combustion appliance is putting off carbon monoxide at an unacceptable level and the appliance either cannot be immediately be repaired/replaced or cannot be repaired/replaced by the program.
- o When a water heater has minimal draft and/or has very slight spillage and no carbon monoxide is being produced (until the problem is repaired).
- o When a dwelling that has been weatherized contains a fireplace or wood burning stove which draws combustion air from inside the dwelling.
- o When there is an attached or tuck-under garage that is used.

In addition, evaluators have the discretion to install carbon monoxide alarms for other health and safety situations.

Carbon monoxide alarms are to be installed between 4' and 6' from the floor. CO alarms installed by the program must be either lithium-ion battery operated or electric with a battery back-up. When an electric alarm is installed, it will be the evaluator's discretion to install a raceway to protect the wiring of the alarm.

Do not install the alarm in the following areas:

- o Near bathrooms or in shower areas.
- o In closets.
- o Crawlspace or unheated areas where extreme hot or cold temperatures occur.
- o Within five feet of fuel burning appliances.
- o Close to adjacent walls or in corners.
- o Near bathtubs or basins.
- o Directly above or below return air registers.
- o Behind drapes, furniture, or other objects that could block air flow to the CO alarm.

Alarms must meet UL2034-98 and/or IAS696 standards. Alarms should be warranted for a minimum of three (3) years.

Installed alarms must have the expiration date, as warranted by the manufacturer, written on the front of the alarm in permanent ink. Verbal and written instructions are to be given to the client as to the use and maintenance of the alarm.

SMOKE ALARMS

Weatherization funds will be used to purchase and install up to two (2) alarms. Additional alarms may be installed using program funds if required by local codes for single family residences (specific code requirement must be noted in the file).

When installing more than one smoke alarm, they must be on separate living levels.

Smoke alarms must be installed for the following reasons:

- o When space heaters are replaced with a vented space heater.
- o When there is a fireplace, wood burner or corn burner in the home.
- o When mobile homes are weatherized.
- o When local codes require their installation.

Areas that alarms should be installed:

- o Install at the base of the basement stairs.
- o Install within 15 feet of rooms used for sleeping purposes.
- o Install on hall ceiling as centered as possible between bedrooms.
- o Install in rooms having a space heater, if agency replaced heater.
- o Avoid placement near kitchen stoves or bathroom showers.
- o Exclude unoccupied attics.

Smoke alarms may be installed on the ceilings or in dead air space (four to six inches below the ceiling on the wall).

Smoke alarms should not be installed in front of air supply ducts.

Smoke alarms must be dual sensor alarms which contain both an ionization sensor and a photoelectric sensor and which are designed to detect and trigger an alarm in response to smoke detected through either sensing device, or a smoke alarm which has at least two sensors and which is listed to Underwriters Laboratory Standard 217, Single and Multiple Station Smoke Alarm. The alarms may be powered by 9-volt battery and emit a signal when the battery is losing power. The use of dual sensor alarms does not change the requirements for separate CO alarms as described in this section because smoke alarms and CO alarms are not installed in the same location.

Solid Fuel Heating (Wood Stoves, etc.)

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6

Alternative Guidance

Iowa Weatherization does not work on solid fuel heating system. If the solid fuel system is the primary heating source, weatherization will work on the secondary system if it does not have a common chimney.

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

Iowa Weatherization does not work on solid fuel heating system

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also

include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.
Chimneys and flues solid fuel heating systems are inspected to ensure they are in good condition and are free of obstructions.
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

Space Heaters, Stand Alone Electric

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input checked="" type="checkbox"/>	
Alternative Guidance <input type="checkbox"/>	
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
Program funds will not be used to install, repair or replace electric space heaters	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
If allowed by the client, electric space heaters will be removed.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
N/A	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
N/A	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
N/A	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	
Clients will be informed of the dangers of using electric space heaters	
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.	
N/A	

Space Heaters, Unvented Combustion

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input type="checkbox"/>	All unvented fuel-fired heating units which cannot be vented must be removed or replaced with properly vented units. No weatherization work can be completed until the problem is corrected. When a new, vented, space heater is installed, the agency must insure an operable smoke alarm exists.
Alternative Guidance <input type="checkbox"/>	
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	

DOE and/or other funds will be used to address this issue
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.
N/A
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.
Unvented space heaters will be removed with client approval.
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.
If a client refuses to allow removal of unvented space heater, all work on the house will be deferred.
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.
N/A
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
N/A
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
Clients will be informed of the dangers of using unvented space heaters
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A

Space Heaters, Vented Combustion

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input checked="" type="checkbox"/>	
Alternative Guidance <input type="checkbox"/>	
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
N/A	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
Vented space heaters will be treated as a furnace.	
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.	
N/A	
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.	
N/A	
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.	
N/A	
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.	
N/A	
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.	
N/A	

Spray Polyurethane Foam (SPF)

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 X <input checked="" type="checkbox"/>	
Alternative Guidance <input type="checkbox"/>	

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.
DOE and/or other funds will be used to address this issue
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.
N/A
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.
<p>Only use if local codes permit</p> <p>Manufacturer's guidelines must be followed for recommended use and application, temperature tolerances, shut down procedures and storage.</p> <p>When cost effective according to the NEAT Audit, the two-part closed-cell polyurethane foam may be installed at the evaluator's discretion.</p> <p>If installed in a confined space, there should be a negative pressure in the area. Follow NIOSH Std as what is defined as a confined space.</p> <p>Recommend tenants, especially children, vacate the premises while being installed and for one hour after completion.</p> <p>Installers must wear an NIOSH certified respirator as well as eye and skin protection as specified in the product MSDS.</p> <p>Clean up any overspray or excess of the two-part foam</p>
Standards for Deferral: Describe when deferral should take place for the specific health and safety category.
N/A
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.
N/A
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
N/A
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
Recommend tenants, especially children, vacate the premises while being installed and for one hour after completion.
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A

Ventilation

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. Note: Where an Action/Allowability or Testing is "required" or "not allowed" through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.	
Concur with WPN11-6 <input type="checkbox"/>	
Alternative Guidance	X
Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.	
DOE and/or other funds will be used to address this issue	
Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.	
Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. Note: Some health and safety categories, like combustion gases, require testing.	
<p>BTL, DTL, and ASHRAE 62.2-2010 are required on every home</p> <p>The BTL is expressed as a CFM₅₀ value; making it easy to determine whether the dwelling at a minimum ventilation level (MVL) for infiltration work.</p> <p>The purpose of DTL is to establish a CFM₅₀ minimum, below which the back drafting of conventionally vented combustion appliances is likely to occur.</p>	

Ventilation Systems for Acceptable Indoor Air Quality

Existing operable fans that will remain in place and serve as part of the ventilation system shall be measured for CFM airflow. This airflow shall be recorded on the appropriate form.

Bathroom Ventilation

1. Should have on-demand fans that exhaust at least 50 CFM and are controlled by an on/off switch or a time-delay-shutoff switch; or
2. Should have continuously operating 20 CFM fan.
 - a. A continuously operating bathroom fan or a programmed intermittently operating fan may serve as the whole-building ventilation.
3. If a bathroom does not have this amount of ventilation stated above, it must be provided, or Appendix A of ASHRAE 62.2-2010 must be used for sizing whole-building ventilation.
4. Installed fans must have a back-draft damper at the fan and at the duct termination.
5. The duct termination must be outdoors.
6. Fan flows of existing bathroom fans that are to be left in place must be measured or the flow rate shall be determined by the fan label according to ASHRAE 62.2-2010 requirements (see ASHRAE 62.2-2010, Section A4.2).
7. Dehumidistats may not be used in bathrooms.
- 8.

Kitchen Ventilation

2. On-demand exhaust fan:
 - a. Should have on-demand fans that exhaust at least 100 CFM and are controlled by an on/off switch.
 - b. The fan may be located anywhere in the kitchen, but a range hood or a fan location near the range is preferred.
3. Continuously-operating exhaust fan:
 - a. Should have continuously operating fan that exhausts at least 5 ACH based on kitchen volume. A continuously operating kitchen fan or a programmed intermittently operating fan may serve as the whole-building ventilation. A continuously operating kitchen fan or a programmed intermittently operating fan may serve as the whole-building ventilation.
4. If a kitchen does not have the amount of ventilation stated, it must be provided, or Appendix A of ASHRAE 62.2-2010 must be used for sizing whole-building ventilation.
5. Kitchen fans to be installed must be rated for use in the kitchen.
6. Installed fans must have a back-draft damper at the fan and at the duct termination.
7. The duct termination must be outdoors.
8. Fan flows of existing kitchen fans that are to be left in place must be measured or the flow rate shall be determined by the fan label according to ASHRAE 62.2-2010 requirements (see ASHRAE 62.2-2010, Section A4.2).
9. Outdoor make-up air should be provided for kitchen fans exhausting more than 200 CFM.

FOOTNOTE: ASHRAE 62.2-2010 Section A4.2 Airflow Rating

If airflow ratings do not exist or the duct sizing requirements of Section 5.4 cannot be verified, the airflow rate shall be measured and the alternative procedure of Section 5.4 using the airflow rating at 0.25 in. w.c. (62.5 Pa) may not be used. If airflow ratings for the existing equipment are available at 0.1 in. w.c. (25 Pa) but not at 0.25 in. w.c. (62.5 Pa), those values may be used, provided they are reduced by 25%.

Whole-Building Ventilation

Whole-building ventilation operating continuously shall be no less than 7.5 CFM per person + 1 CFM per 100 sq. ft. of conditioned floor area. Actual number of occupants is to be used.

1. This ventilation may operate intermittently, but
 - a. The CFM airflow must be increased accordingly while the fan is operating. For example, a flow rate of 25 CFM for continuous operation would be increased to 50 CFM for 30 minutes-on/30-minutes-off operation.
 - b. The fan must operate at least once every 4 hours.
 - c. The fan must be controlled automatically.
 - d. The fan control must be appropriately labeled.
2. If the bathroom and/or kitchen fans do not satisfy the requirement of 50 CFM and 100 CFM airflow rates, respectively, Appendix A of ASHRAE 62.2-2010 (Alternative Compliance Supplement) must be used when sizing the minimum whole-building airflow rate.
3. The whole-building ventilation may be a single exhaust fan; multiple exhaust fans controlled appropriately; a balanced system, such as a heat recovery ventilator; or part of the furnace air-handling system.
 - a. Local bathroom and/or kitchen exhaust fans are permitted to be part of the whole-building ventilation system.
 - b. The system must be designed to operate during all occupiable hours.
 - c. A readily available override control must be provided to the occupant.
 - d. Whole-building minimum ventilation requirements shall be determined by the ZipTest Pro 3™ software
 - e. The infiltration credit shall be calculated as part of the procedure and be based on ASHRAE 119-1988 and 136-1993, and
 - f. The alternative compliance supplement (Appendix A of ASHRAE 62.2-2010) shall be included when bathrooms or kitchens do not meet the local ventilation requirements.

Calculations for Sections e and f above are done with the Zip Test Pro 3™ software.

Whole-Building Ventilation, Discretionary Threshold

1. If the whole-building minimum ventilation requirement is 15 CFM or less, the evaluator may decide to install a whole-building ventilation system or not. The reasons for not installing a ventilation system when the minimum CFM requirement is between 1 and 15 shall be documented in the client file. This decision shall be based on:
 - a. The moisture assessment of the dwelling,
 - b. The indoor air quality assessment of the dwelling,
 - c. The health of the occupants, and
 - d. Other factors deemed significant by the evaluator.
2. If the whole building minimum ventilation requirement is greater than 15 CFM, a system supplying the minimum ventilation airflow must be installed.

Fan Sound Ratings

Fan sound ratings shall be equal to or less than the ratings in Table 4-1.

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.
Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.
Training Provision: Discuss how training will be provided for the specific health and safety category. Note: Some health and safety categories, like OSHA, require training.
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
Inform the client about the reason and the importance of using the kitchen exhaust fan while cooking and the importance of using the bathroom exhaust fan after showers or baths.
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.
N/A
ASHRAE 62.2 Compliance: Provide a narrative describing implementation of ASHRAE 62.2, which will be required during the 2012 program year. Grantees must provide justification if making changes to ASHRAE 62.2 specific to their housing stock and local considerations.

Window and Door Replacement, Window Guards

Concurrence or Alteration: Check if you concur with existing guidance from WPN 11-6 or if you are using an alternative action/allowability. Include the guidance action/allowability from WPN 11-6 or alternative guidance in the space provided. Alternatives must be explained and comply with DOE guidance. **Note:** Where an Action/Allowability or Testing is “required” or “not allowed” through WPN 11-6, the grantee must concur or choose to defer all units where the specific issue is encountered. Allowable items under WPN 11-6 leave room for determining if the issue or testing will be addressed and in what circumstances.

Concur with WPN11-6		
Alternative Guidance	X	All window and door replacements are considered as repair costs, with the exception of mobile home doors. Because of fire hazards in mobile homes, Iowa weatherization standards require two functioning exit doors. 24 CFR3280.105 (HUD) requires an exit door be within 35 feet of all bedroom doors in mobile homes. When there is not a functioning door in that area, one is installed as a health and safety measure.

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and

safety categories, like OSHA, require training.
Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. Note: Some health and safety categories, like mold and moisture, require client education.
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.

Other (copy and paste as needed)

Health and Safety Issue: Describe the health and safety category below. Methods for addressing additional energy related health and safety issues must be consistent with DOE guidance.

Animals

If there is an animal in the house or on the house grounds that is menacing, or if a worker is uncomfortable being around the animal, require the client to restrain the animal before proceeding with any work. If the client refuses to do this, defer work on the house. Document this on the Health and Safety Assessment Form.

Any bite from an animal, particularly a wild animal, should always be considered a potential for rabies exposure. If a worker is bitten by an animal, the worker should immediately and thoroughly wash the bite wound and then seek medical care. If a worker is bitten by a bat, an attempt should be made to kill the bat without destroying the head. The bat should be placed in a cloth or plastic bag and then shipped under refrigeration to the nearest health laboratory for examination for rabies. Any animal bite should be reported to the appropriate local agency personnel.

Room-to-room pressure balancing

Room-to-room pressure testing measures the pressure difference between each room in the house and the main body of the house when the air handler is running. The test can indicate the degree to which:

- o There is an imbalance of air distribution resulting from closed interior doors. The doors can act as dampers restricting the flow of air within the dwelling.
- o There is an imbalance of air distribution resulting from airflow differences between the supply side and return side of the ductwork.

When Required

Room-to-room pressure testing must be done when a dwelling has a dominate return. The test is also required for mobile homes.

By providing the room-to-room pressure balance, the return air to the furnace is unrestricted from inside the heated portion of the dwelling. Air is lazy so when the air from the rooms can't get back to the returns, it will draw air from where ever it can and in most of our homes that would be from the basement environment with all of its contaminants (radon could be one of those). It also makes the furnace run harder because it can't pull the air from where it is being supplied at through the supplies and could lead to a static pressure problem.

Pressure relief must be obtained by trimming the door by a maximum of 1½" or installing a transfer grill between rooms, when rooms are pressurized or depressurized by more than 3 Pascal (except for the bathroom).

Funding: State that DOE funds are being used or indicate that alternate funding sources will be used to address this particular health and safety category.

Beyond Scope of DOE WAP: Describe how the issue will be treated if beyond the scope of DOE WAP.

Standards for Remedy: Describe the standards for remedy of the health and safety category, including testing protocols. Also include when partial weatherization would be appropriate. **Note:** Some health and safety categories, like combustion gases, require testing.

Standards for Deferral: Describe when deferral should take place for the specific health and safety category.
See deferral policy

Standards for Referral: Describe when referral should take place for the specific health and safety category. If possible, include associated referral agencies.

Training Provision: Discuss how training will be provided for the specific health and safety category. **Note:** Some health and safety categories, like OSHA, require training.

Client Education: Discuss what specific steps will be taken to educate the client, if any, on the specific health and safety category if this is not explained elsewhere in the State Plan. **Note:** Some health and safety categories, like mold and moisture, require client education.

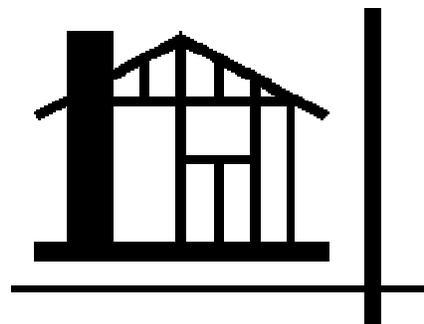
Disposal Procedures: Provide disposal procedures or indicate where these procedures can be found in the Plan or Field Standards.



NEAT AUDIT MANUAL

Iowa Weatherization Program

Department of Human Rights
Division of Community Action Agencies
Lucas State Office Building, 2nd Floor
Des Moines, Iowa 50319
Website: www.weatherization.iowa.gov



Introduction

This NEAT Audit manual provides detailed information on completing the data entry for NEAT. It does not however include instructions for gathering the evaluation information. If an agency utilizes the Standardized Evaluation form, NEAT data entry will be easier. The evaluation form was designed to provide all necessary information for the audit.

NEAT Audit Navigation Tips

KEYSTROKE EDIT KEYS

<u>Action</u>	<u>Keystroke</u>
To enter the default value (where available)	Enter
Accept an entry and move to next field	Enter or Tab
Move the cursor to next field	Enter or Tab
Move the cursor to the previous field	Shift – Tab (Hit together)
Display the next screen	Page Down key (on the General Information screen, Page Down goes to the next house record)
Display the previous screen	Page Up key (on the General Information screen, Page Up goes to the previous house record)
Delete the character to the left	Backspace
Delete the current screen (if not completed)	Escape
Delete a completed screen	Highlight vertical bar on right side of screen – hit delete
Help for a specific field	Put cursor in that field, click on help on the tool bar

GENERAL TIPS FOR NEAT

REMEMBER!!!! The NEAT Audit indicates the measures to be completed on a house by determining the SIR of all measures listed. The cumulative SIR must be greater than one in order to complete all the measures. If the cumulative SIR is less than one, and there are several repair measures, consider cutting back on the repairs to raise the SIR.

NEAT determines the R-value of insulation to be installed.

Any field outlined in black requires data. Other fields are optional (with the exception of pre-weatherization blower door readings on the Ducts & Infiltration Screen – this is required). The client name and address on the General Information tab is optional, but should be completed.

Any field shaded in gray cannot be edited.

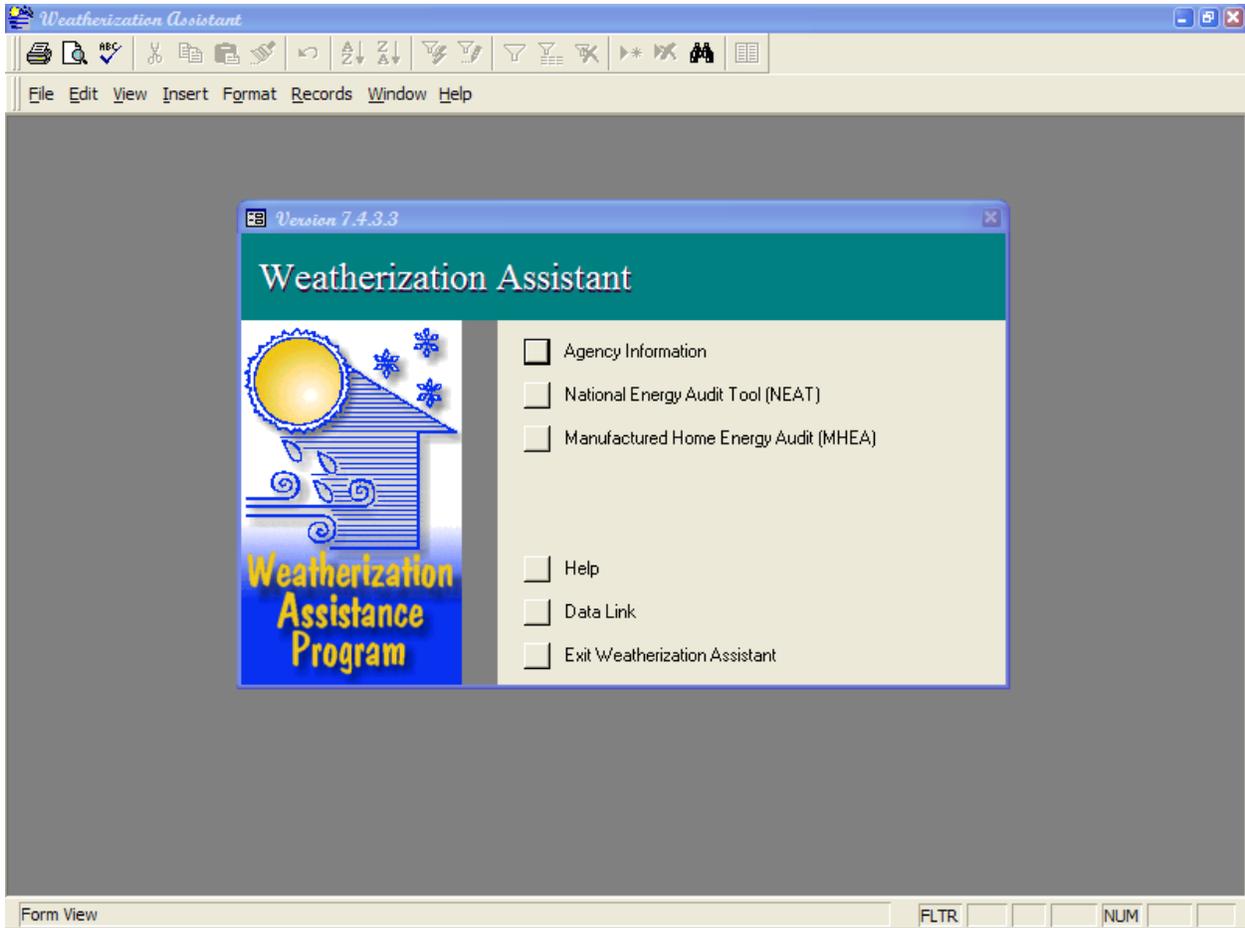
Any field with a drop list will only accept selections from that list. By hitting the first letter of your selection, NEAT automatically completes the selection.

After all the data entry is completed, click on the RUN button to complete the audit calculations. This produces, on screen, the Output Report.

The audit Input Report and Output Report must be printed and filed in the client file. To print these reports, click on the REPORT buttons  . The first button is the Input Report and the second is the Output Report.

To copy a screen record to the next record, highlight the vertical bar to the immediate left of the screen you wish to copy, click on copy on the tool bar. Go to a blank screen, highlight the vertical bar and hit paste on the tool bar. This cannot be done on the General Information screen because it creates a duplicate file number, but works well when going from one wall to another with similar characteristics. The Wall Code (or the code of whatever was copied) will need to be changed for the new screen.

NEAT Main Switchboard



From the Main Switchboard, various sections of the NEAT Audit can be accessed.

Agency Information: To enter agency specific information including: name, address, evaluator name, phone numbers, e-mail address, and a unique agency identifier.

National Energy Audit Tool (NEAT): To open the data entry screens for site-built homes.

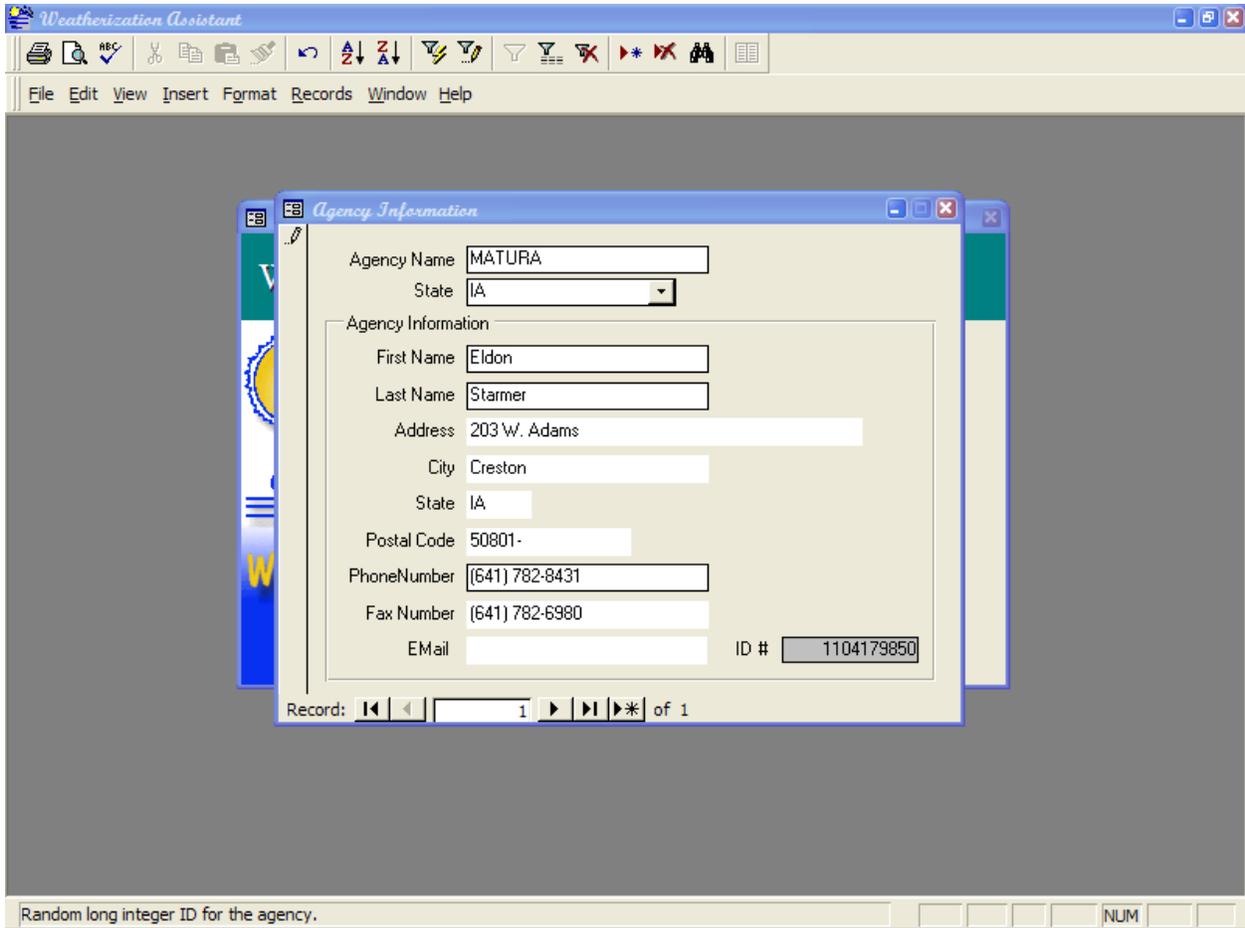
Manufactured Home Energy Audit (MHEA): To open the data entry screens for manufactured homes.

Help: Help screens for NEAT and MHEA.

Data Link: This feature allows more than one database to be accessed. Homes could be separated by agency.

Exit Weatherization Assistant: Closes the program.

AGENCY INFORMATION BUTTON:



The screenshot shows the 'Weatherization Assistant' application window. The 'Agency Information' dialog box is open, displaying the following fields and values:

Field	Value
Agency Name	MATURA
State	IA
Agency Information	
First Name	Eldon
Last Name	Stamer
Address	203 W. Adams
City	Creston
State	IA
Postal Code	50801-
PhoneNumber	(641) 782-8431
Fax Number	(641) 782-6980
E Mail	
ID #	1104179850

Record: 1 of 1

Random long integer ID for the agency. NUM

Agency Name – enter the name of the local weatherization agency.

State – enter the state.

Agency Information:

First Name – enter the first name of the evaluator.

Last Name – enter the last name of the evaluator.

Address, City, State, Postal Code – self explanatory.

Phone Number – self explanatory

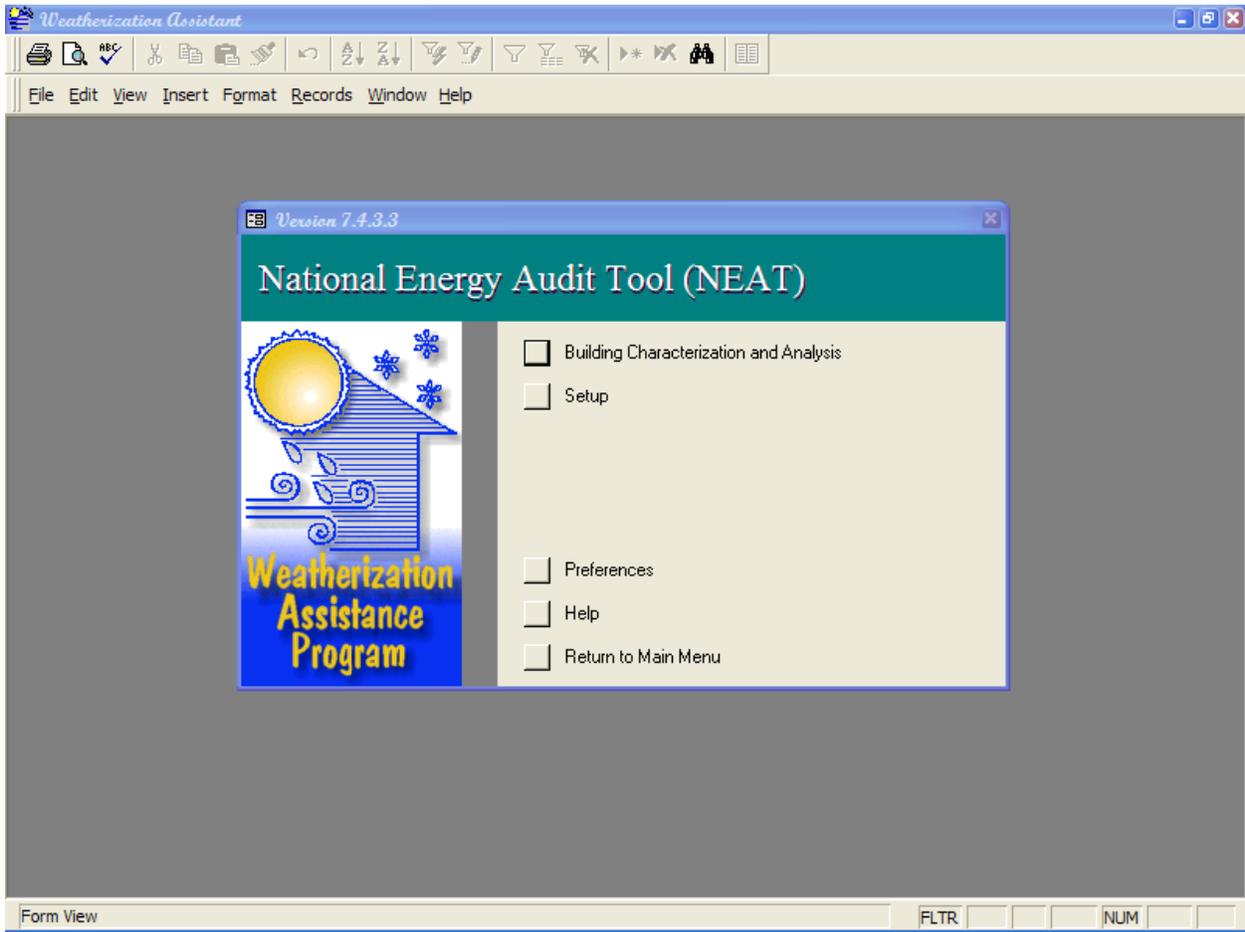
Fax Number – self explanatory

E Mail – self explanatory

ID# - unique agency identifier assigned by the program.

Close the screen to return to the NEAT Main Switchboard.

NATIONAL ENERGY AUDIT TOOL (NEAT) BUTTON:



To edit agency specific costs and state wide established measures and parameters, click on the Setup button. This section allows agencies to individualize the audit.

PARAMETER SET TAB

The screenshot shows the 'Weatherization Assistant' window with the title '[NEAT Parameter Set: <Standard>]'. The interface includes a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar. The main area is divided into 'Navigate', 'New', and 'Find' sections. Below these is a navigation pane with tabs for 'User Defined Insulation Types', 'Replacement Refrigerators', and 'Replacement Water Heaters'. Under 'User Defined Insulation Types', there are sub-tabs for 'Parameter Set', 'Material Costs', 'Fuel Costs', 'Fuel Price Indices', 'Candidate Measures', and 'Key Parameters'. The 'Parameter Set' tab is active, displaying a form with the following fields:

- Parameter Set Name: Standard
- Agency Name: MATURA (dropdown)
- Description: Default parameter set. You will want to change the name and description.
- Creation Date: 2/27/2004
- Comment: (empty text area)

At the bottom right of the form, the 'Parameter Set ID #' is displayed as 1225530947. The status bar at the bottom left shows 'Form View' and the bottom right shows 'NUM'.

The NEAT Audit comes with a standard set of parameters. These need to be changed to the established parameters for the State of Iowa.

Each agency should only have one set of parameters to be used on every house. If an agency chooses to establish a second set of parameters for comparison purposes, they must ensure that the printouts in each house file are run using the parameters set by the State.

Parameter Set Name – for the state established parameter set, use the name Standard.

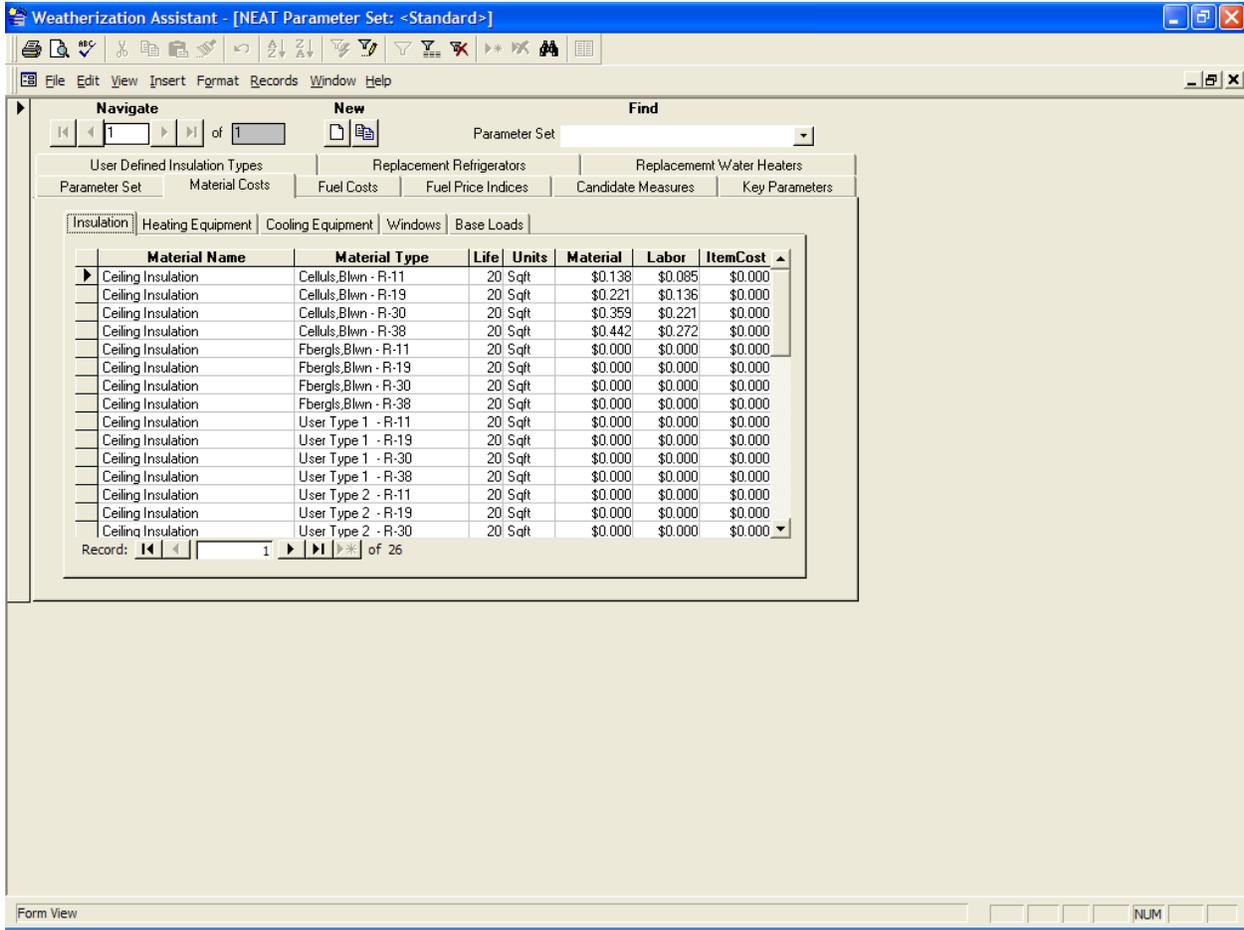
Agency Name – the drop down selection should list only the local agency.

Description – use this field to identify who made the most recent changes in the parameter set.

Creation Date – changes with each parameter change.

Comment – memo field for notes about the parameter set.

MATERIAL COSTS TAB



This section lists average, agency-specific costs for each measure. Agency-specific costs are determined every two years by the state and distributed to local agencies to be copied into these screens. There are five different tabs – Insulation, Heating Equipment, Cooling Equipment, Windows, and Base Loads.

These costs will be checked as a part of the annual state program monitoring.

FUEL COSTS TAB

Fuel	Cost	Units
Natural Gas	\$12.0000	\$/Mcf
Oil	\$2.3900	\$/gallon
Electric	\$0.1100	\$/kWh
Propane	\$1.4800	\$/gallon
Wood	\$120.0000	\$/cord
Coal	\$126.0000	\$/ton
Kerosene	\$0.8500	\$/gallon

This section lists state-wide average costs for the various types of fuel. These costs are distributed by the State on an annual basis. Occasionally costs are updated more often if they vary a great deal within the year.

FUEL PRICE INDICES TAB

Weatherization Assistant - [NEAT Parameter Set: <Standard>]

File Edit View Insert Format Records Window Help

Parameter Set: [Standard]

User Defined Insulation Types Replacement Refrigerators Replacement Water Heaters

Parameter Set Material Costs Fuel Costs Fuel Price Indices Candidate Measures Key Parameters

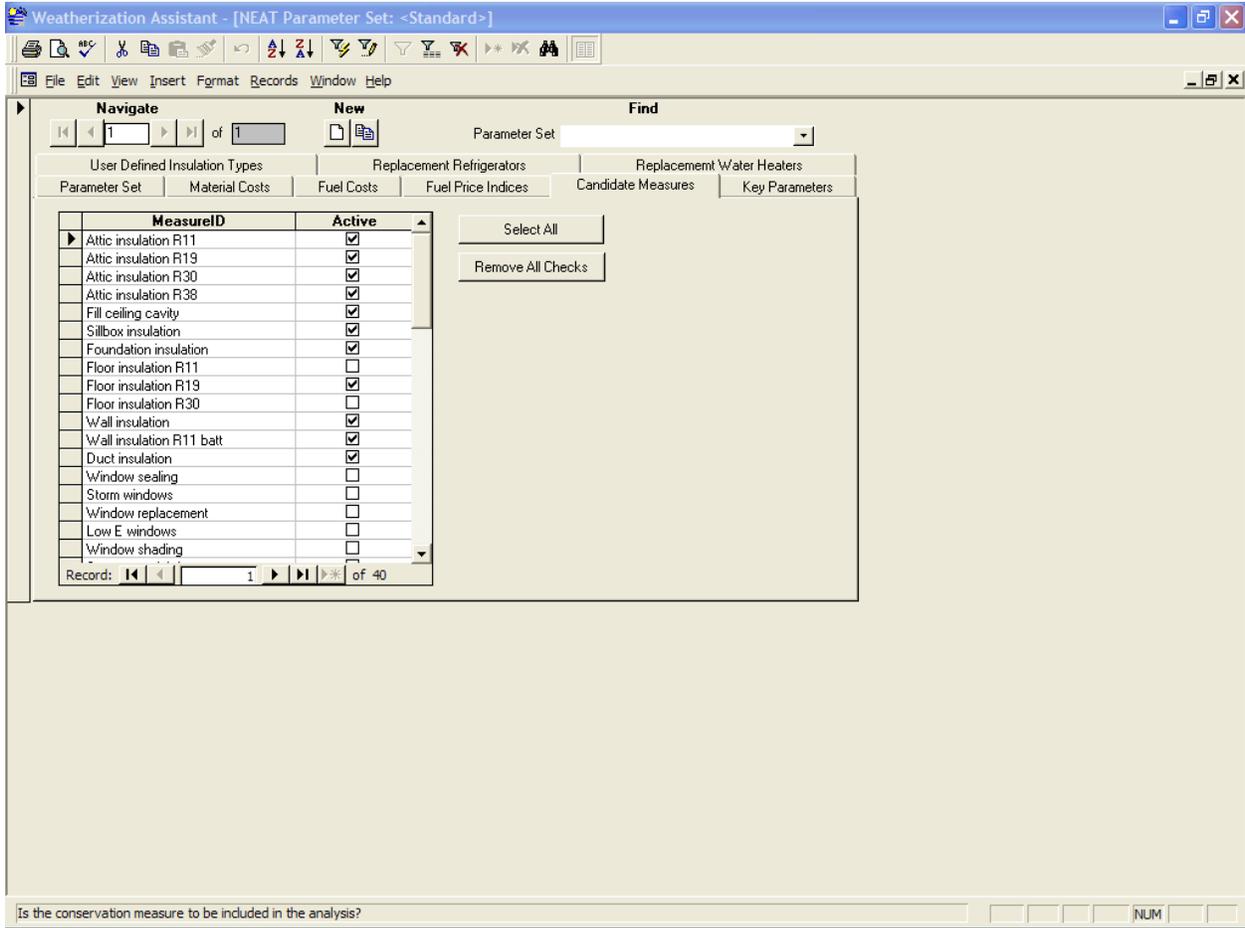
Fuel	Year	Price Index
Natural Gas	0	1.00
Natural Gas	1	0.99
Natural Gas	2	0.98
Natural Gas	3	0.97
Natural Gas	4	0.96
Natural Gas	5	0.97
Natural Gas	6	0.98
Natural Gas	7	0.99
Natural Gas	8	1.00
Natural Gas	9	1.01
Natural Gas	10	1.01
Natural Gas	11	1.02
Natural Gas	12	1.02
Natural Gas	13	1.03
Natural Gas	14	1.03
Natural Gas	15	1.02
Natural Gas	16	1.02
Natural Gas	17	1.03

Record: 1 of 182

Form View NUM

This information will not be changed without specific instructions from the State.

CANDIDATE MEASURES TAB



This is a list of all the measures NEAT will consider. Measures may be “turned off” by not checking the box in the Active column. The list of measures and which are checked follows:

MeasureID	Active
Attic insulation R11	√
Attic insulation R19	√
Attic insulation R30	√
Attic insulation R38	√
Fill ceiling cavity	√
Sillbox insulation	√
Foundation insulation	√
Floor insulation R11	√
Floor insulation R19	√
Floor insulation R30	√
Wall insulation	√
Wall insulation R11 batt	√
Duct insulation	√
Window sealing	
Storm windows	
Window replacement	
Low E windows	
Window shading	
Sun screen fabric	
Sun screen louvered	
Window film	
Thermal vent damper	
Electric vent damper	
IID	
Electric vent damper IID	
Flame retention burner	
Furnace tuneup	√
Replace heating system	√
High eff furnace	√
Smart thermostat	
Tuneup AC	
Replace AC	
Evaporative cooler	
Replace heatpump	√
Lighting retrofits	√
Refrigerator replacement	
Water heater tank insulation	
Water heater pipe insulation	
Low flow showerheads	
Water heater replacement	√

At evaluator's discretion, a set-back thermostat may be selected as a candidate measure if the evaluator determines the client is capable of re-setting the thermostat.

KEY PARAMETERS TAB

Economics

The screenshot shows the 'Weatherization Assistant' software interface. The title bar reads 'Weatherization Assistant - [NEAT Parameter Set: <Standard>]'. The menu bar includes 'File', 'Edit', 'View', 'Insert', 'Format', 'Records', 'Window', and 'Help'. The main window is divided into several sections:

- Navigate:** Includes navigation buttons and a 'Parameter Set' dropdown menu.
- New:** Contains tabs for 'User Defined Insulation Types', 'Replacement Refrigerators', and 'Replacement Water Heaters'.
- Find:** Includes a search field.
- Parameter Set:** A dropdown menu.
- Material Costs:** Includes 'Fuel Costs' and 'Fuel Price Indices'.
- Candidate Measures:** Includes 'Key Parameters'.
- Economics:** The active tab, containing sub-tabs for 'Set Points', 'Insulation and Heat Transfer', and 'Equipment'.

The 'Key Parameters' sub-tab displays a table with the following data:

Name	Value	Units
Real discount rate	3	%
Minimum acceptable SIR	1	Factor

At the bottom of the table, it says 'Record: 1 of 2'. The status bar at the very bottom of the window reads 'Numeric value of the defined parameter'.

This information will not be changed without specific instructions from the State.

Set Points

The screenshot shows the 'Weatherization Assistant' software window. The title bar reads 'Weatherization Assistant - [NEAT Parameter Set: <Standard>]'. The interface includes a menu bar (File, Edit, View, Insert, Format, Records, Window, Help) and a toolbar with various icons. Below the toolbar, there are sections for 'Navigate', 'New', and 'Find'. The 'Set Points' tab is active, displaying a table with the following data:

Name	Value	Units
▶ Heating setpoint (daytime)	68	degF
Heating setpoint (nighttime)	68	degF
Cooling setpoint (daytime)	78	degF
Cooling setpoint (nighttime)	78	degF
Night setback	6	degF

At the bottom of the window, the status bar shows 'Form View' and a 'NUM' indicator.

The information on this screen is considered the “normal”. If the client keeps the house extremely warm in the winter or cool in the summer, these numbers may be adjusted accordingly, but must be restored to the default after running the audit for that house.

Insulation and Heat Transfer

Weatherization Assistant - [NEAT Parameter Set: <Standard>]

File Edit View Insert Format Records Window Help

Navigate New Find

Parameter Set

User Defined Insulation Types Replacement Refrigerators Replacement Water Heaters

Parameter Set Material Costs Fuel Costs Fuel Price Indices Candidate Measures Key Parameters

Economics Set Points Insulation and Heat Transfer Equipment

Name	Value	Units
Avg annual outside film coeff	4	BTU/hr-sqft-F
Base value of free heat from internals	2900	BTU/hr
Uninsulated R-value for 'Other' wall type	4.42	F-sf-h/Btu
R-value for 'Other' exterior siding type	0.6	F-sf-h/Btu
R's/inch of 'Other' insulation type	3.06	F-sf-h/Btu-in
R-value added by foundation wall insul measure	12	F-sf-h/Btu
Water heater wrap added R value	6	F-sf-h/Btu
Added duct insulation R value	4	F-sf-h/Btu

Record: 1 of 8

Form View NUM

This information will not be changed without specific instructions from the State.

Equipment

Weatherization Assistant - [NEAT Parameter Set: <Standard>]

File Edit View Insert Format Records Window Help

Parameter Set: [Standard]

Equipment

Name	Value	Units
Furnace replacement AFUE	81	%
Boiler replacement AFUE	80	%
High efficiency furnace replacement AFUE	92	%
Heat content for natural gas	1	therms/ccf
Window A/C replacement SEER	10	Btu/wh
Central A/C replacement SEER	13	Btu/wh
Heat pump replacement SEER (Cooling)	13	Btu/wh
Heat pump replacement HSPF	7.5	Btu/wh
SEER used to impute cooling savings	13	na
Low flow shower head flow rate	1.8	gal/min
Refrigerator defrost cycle energy	0.08	kWh

Record: 1 of 11

Form View

The values on this screen should be as follows and will be changed only with specific instructions from the state.

Name	Value	Units
Furnace replacement AFUE	81	%
Boiler replacement AFUE	80	%
High efficiency furnace replacement AFUE	92	%
Heat content for natural gas	1	therms/ccf
Window A/C replacement SEER	10	Btu/wh
Central A/C replacement SEER	13	Btu/wh
Heat pump replacement SEER (Cooling)	13	Btu/wh
Heat pump replacement HSPF	7.5	Btu/wh
SEER used to impute cooling savings	13	na
Low flow shower head flow rate	1.8	gal/min
Refrigerator defrost cycle energy	0.08	kWh

USER DEFINED INSULATION TYPES TAB

Weatherization Assistant - [NEAT Parameter Set: <Standard>]

File Edit View Insert Format Records Window Help

Navigate New Find

Parameter Set Material Costs Fuel Costs Fuel Price Indices Candidate Measures Key Parameters

User Defined Insulation Types Replacement Refrigerators Replacement Water Heaters

User Defined Ceiling Insulation Type 1 Name Fg Batt

User Defined Ceiling Insulation Type 1 Rs/inch 3.09

User Defined Ceiling Insulation Type 2 Name User Type 2

User Defined Ceiling Insulation Type 2 Rs/inch 3.33

User Defined Wall Insulation Type 1 Name Fg Batt

User Defined Wall Insulation Type 1 RValue 11.0

User Defined Wall Insulation Type 2 Name Stucco

User Defined Wall Insulation Type 2 RValue 5.0

Name of second user defined wall insulation type

Since weatherization traditionally uses cellulose insulation for insulating attics and sidewalls, this screen allows the use of other defined types.

User Defined Ceiling Insulation Type 1 Name – fiberglass batt should be filled in the name field.

User Defined Ceiling Insulation Type 1 Rs/inch – the R value per inch for fiberglass batt is 3.09.

User Defined Ceiling Insulation Type Name – undefined

User Defined Ceiling Insulation Type 1 Rs/inch – undefined

User Defined Wall Insulation Type 1 Name – fiberglass batt should be filled in the name field.

User Defined Wall Insulation Type 1 RValue – r-value 11 for fiberglass batt

User Defined Wall Insulation Type 2 Name – stucco should be filled in the name field.

User Defined Wall Insulation Type 2 RValue – r-value 13 for stucco

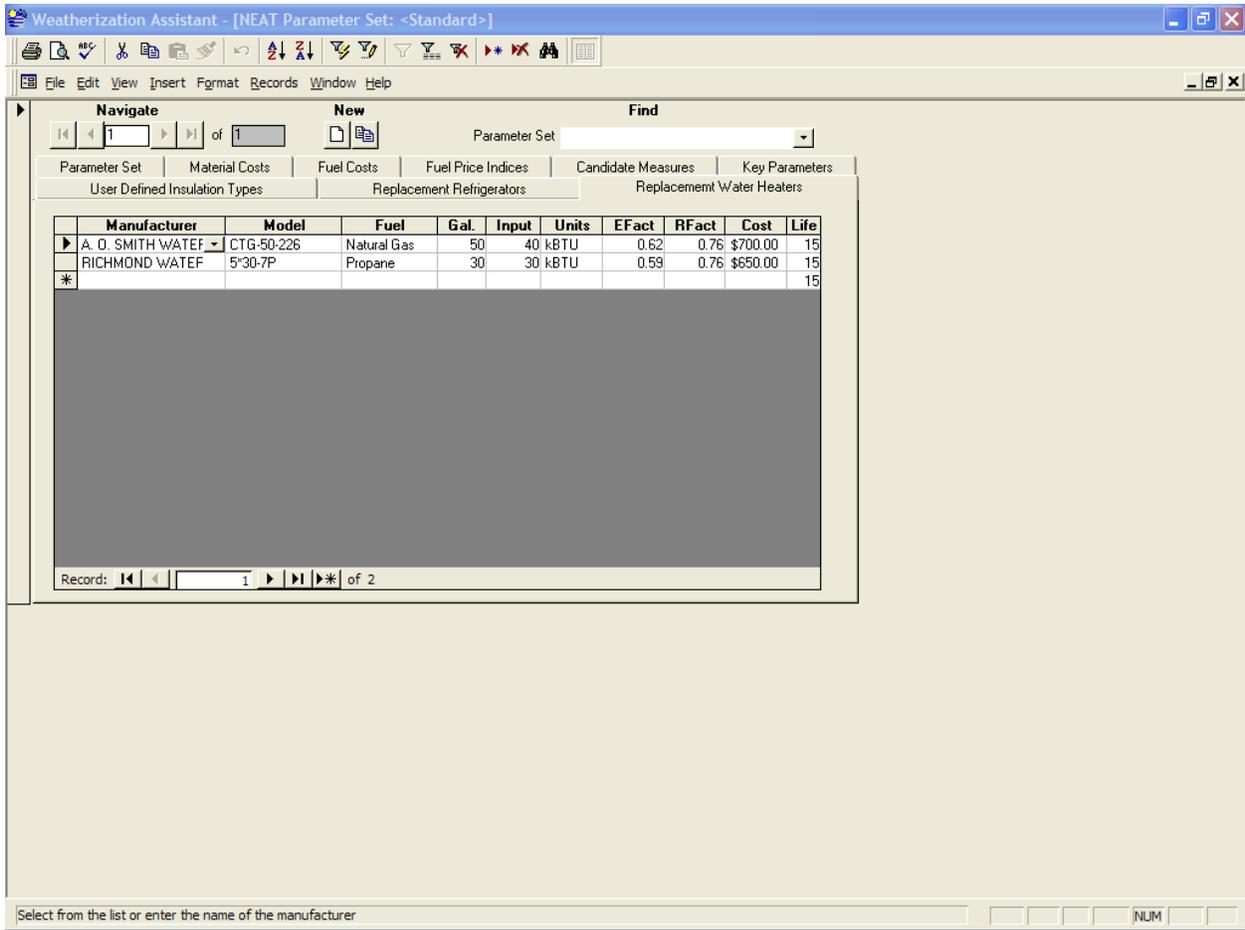
REPLACEMENT REFRIGERATOR TAB

The screenshot displays the 'Weatherization Assistant' software window. The title bar reads 'Weatherization Assistant - [NEAT Parameter Set: <Standard>]'. The menu bar includes 'File', 'Edit', 'View', 'Insert', 'Format', 'Records', 'Window', and 'Help'. The toolbar contains various icons for navigation and editing. The main window is divided into several sections:

- Navigate:** Includes navigation arrows and a '1 of 1' indicator.
- New:** Includes a 'Parameter Set' dropdown menu.
- Find:** Includes a search input field.
- Parameter Set:** A dropdown menu with 'Standard' selected.
- Material Costs:** A tabbed section with 'Replacement Refrigerators' selected.
- Table:** A data table with the following columns: Manufacturer, Model, Capacity, kWh/Yr, Cost, Life, Height, Width, and Depth. The 'Life' column contains the value '15'. The rest of the table is obscured by a grey rectangle.
- Records:** A status bar at the bottom of the table area showing 'Record: 1 of 1'.
- Form View:** A status bar at the very bottom of the window.

Iowa Weatherization Program does not use NEAT to determine the replacement eligibility of refrigerators. The BART program is used for that purpose. This screen may be useful for determining electric usage of existing appliances. In cases where the existing refrigerator cannot be moved to complete the electric usage monitoring, the database in NEAT may be used to estimate usage based on manufacturer and model number.

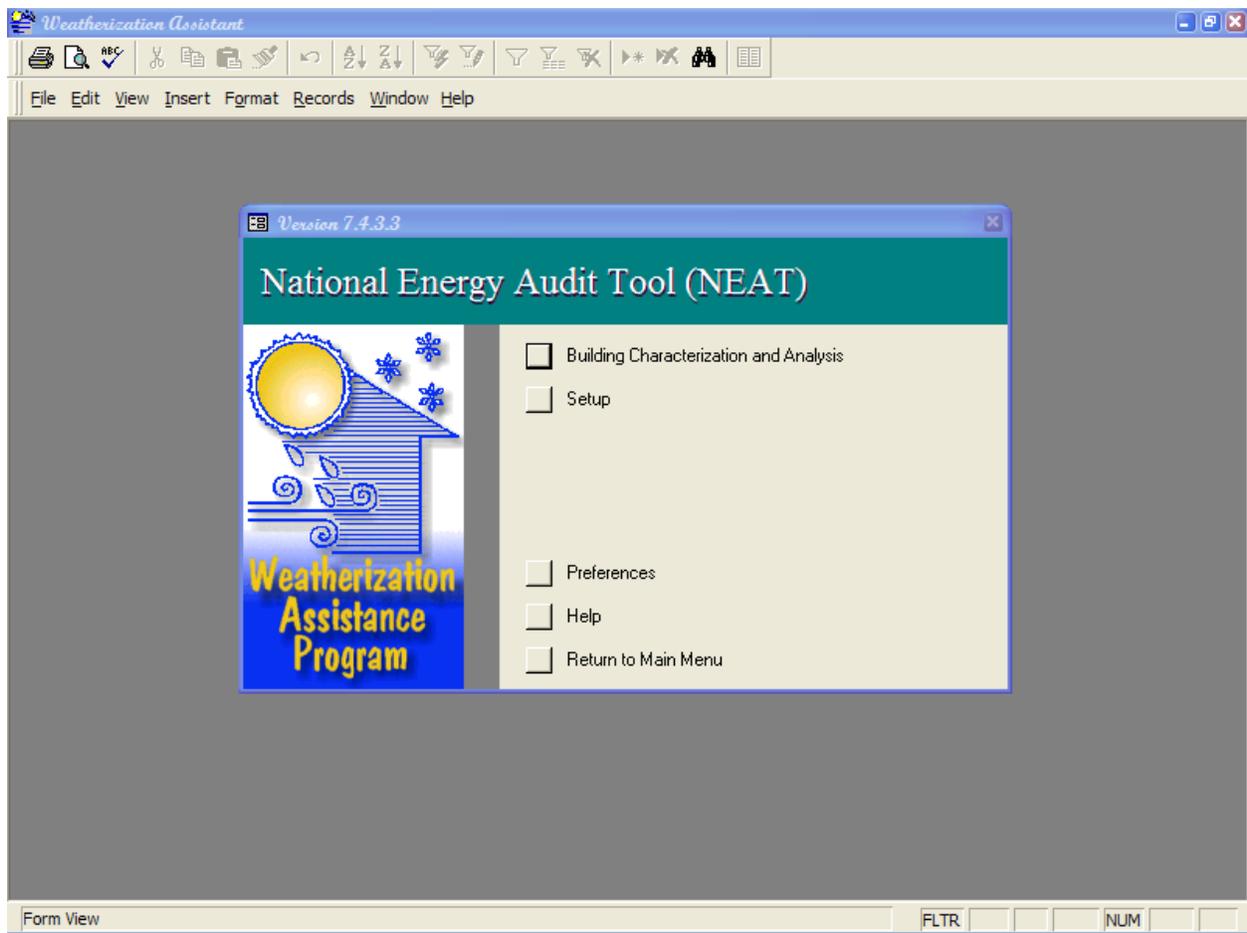
REPLACEMENT WATER HEATER TAB



If the local agency chooses to use NEAT to determine the cost effectiveness of replacing an existing water heater, this screen will be used. Local agencies must have a list of water heaters and costs set in this section to select from when completing the NEAT audit. This database is based on manufacturer and model number.

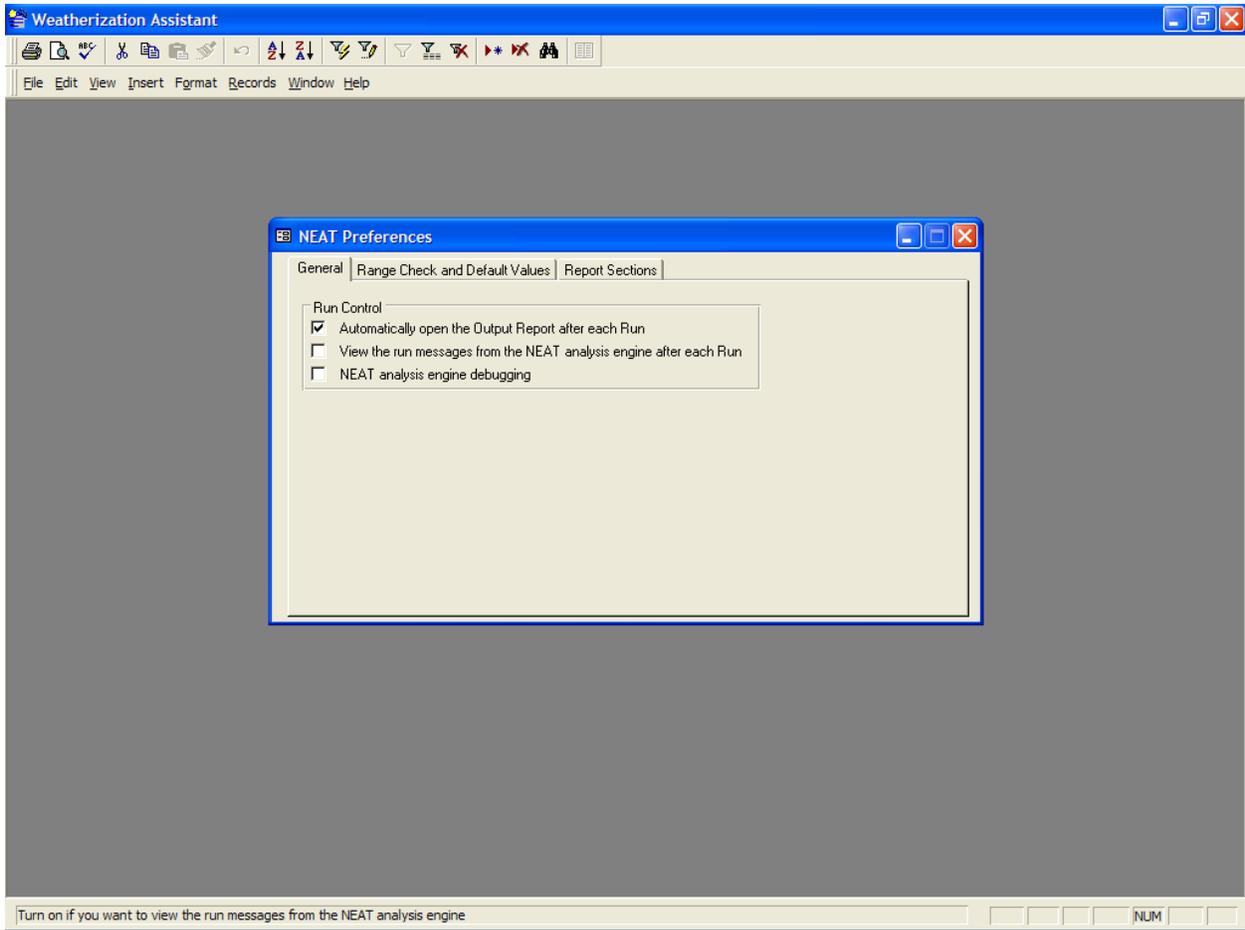
If the manufacturer and model number are not in the existing database, local agencies may enter information based on local availability.

Close the Setup screens to return to the NEAT Main Menu.



Click on Preferences to enter that section. Generally agencies would not need to look at the Preferences section of NEAT, but it is available for review.

GENERAL TAB



The General tab allows agencies to choose whether the Output report will be created whenever the Run button is selected. By checking this option, agencies can run the audit and review the Output report in one step.

RANGE CHECK AND DEFAULT VALUES TAB

The screenshot shows the 'Weatherization Assistant' application window. A 'NEAT Preferences' dialog box is open, with the 'Range Check and Default Values' tab selected. The dialog contains a table with the following data:

Form	Field	Min	Max	Default
General Info.	Number of Conditioned Stories	1	4	1
General Info.	Living Space Floor Area (Sq. Ft.)	700	3600	1200
General Info.	Average Number of Occupants	1	10	2
Walls	Wall Area (sq. ft.)	20	4000	
Walls	R Value	0	30	
Walls	Added Cost (\$)	0	500	
Windows	Number of Windows	1	15	1
Windows	Percent Shaded	0	100	20
Windows	Storm Window Width (in)	12	100	
Windows	Storm Window Height (in)	12	100	
Windows	Storm Window Cost (\$)	0	1000	
Doors	Number of Doors	1	8	1
Doors	Door Area (sq. ft.)	10	40	20
Doors	Storm Door Width (in)	24	100	
Doors	Storm Door Height (in)	72	100	82

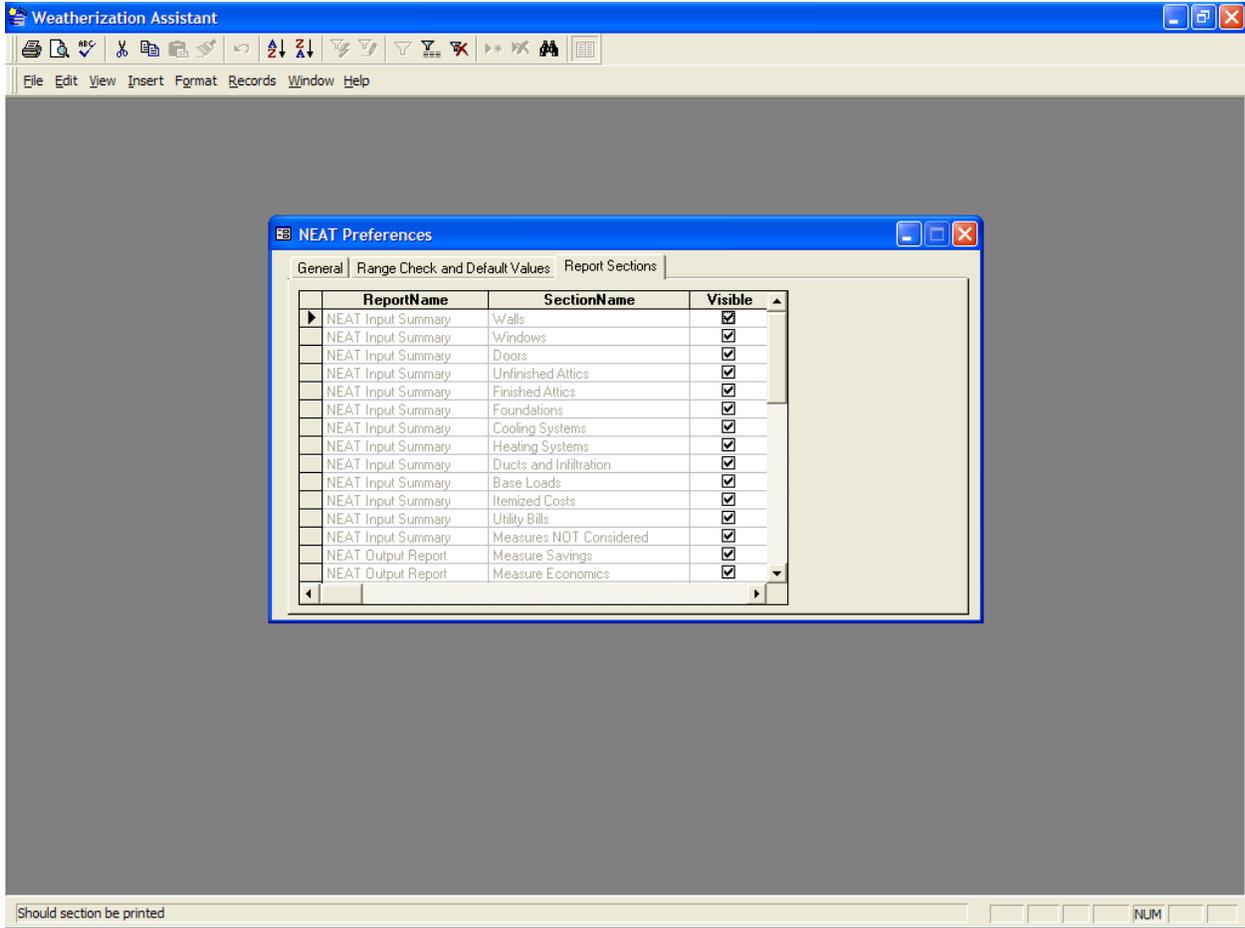
Record: 2 of 85

The default value assigned if the user 'tabs past' or otherwise leaves a blank

This section lists a set of fields which have either a predetermined acceptable range or default value.

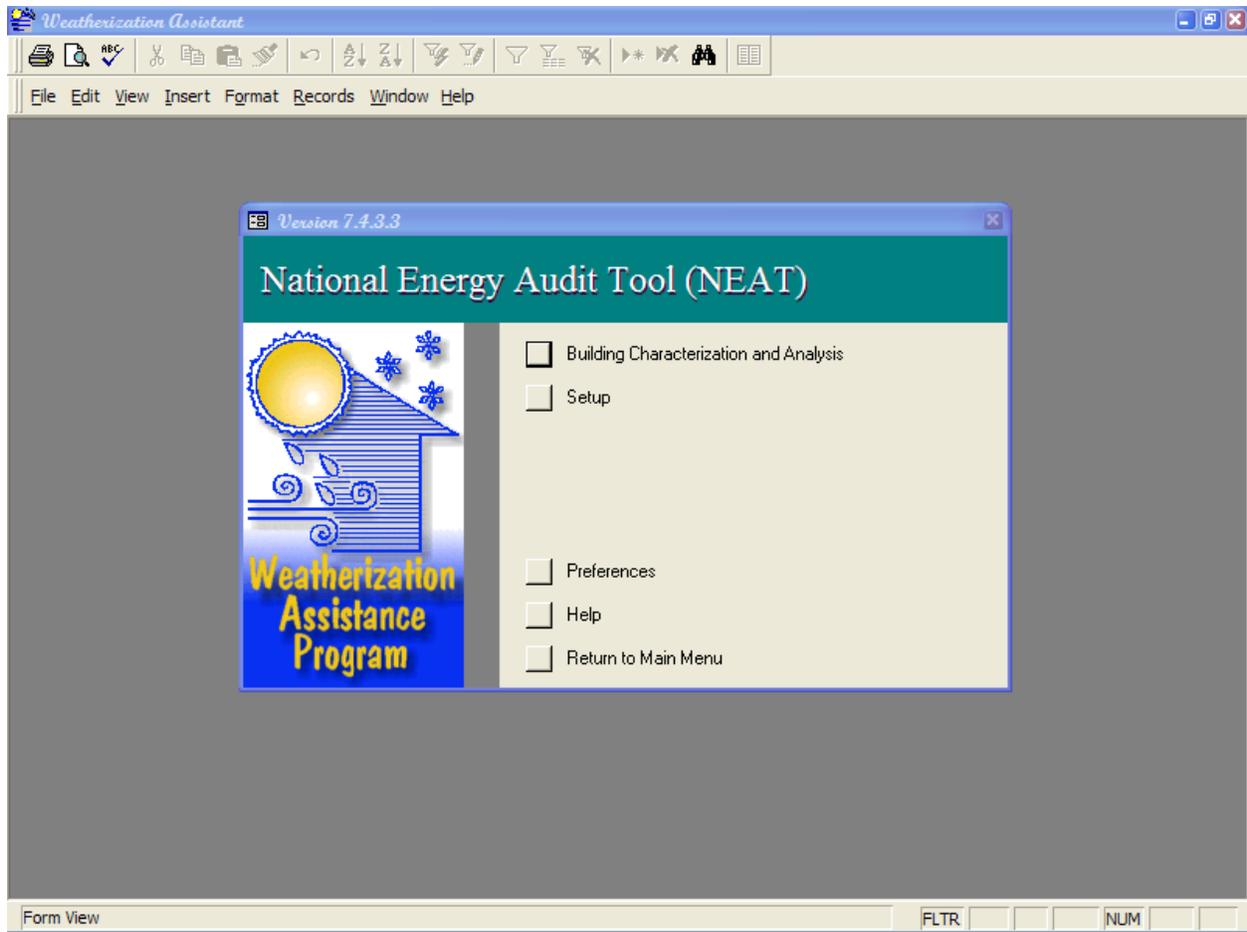
This information should not be edited unless creating error messages during data entry. Occasionally an error message will pop up about an entry being out of range. If it happens on a regular basis, agencies may want to check this screen to see if the range has been corrupted.

REPORTS SECTIONS TAB



This section lists all the section options available for data entry and output report results. All items should be checked. If not, the unchecked item will not show up on the screens or the reports.

Close the Preferences screen to return to the Main Menu



To enter the NEAT Audit, click on Building Characterization and Analysis.

GENERAL INFO TAB:

Client Information:

Client Name – self explanatory

Address – self explanatory

Audit Information:

Audit Date – date of evaluation

Auditor – name of evaluator

Job Identifier – enter a unique identifier for this job. Usually will be the Weatherization File Number.

House Data: These will not necessarily be the same numbers as used for the TI-86 and blower door calculations.

Number of Conditioned Stories – enter the number of conditioned stories. Use 1.5 for split level homes or 1½ story homes. Do not include a basement unless more than 50% of the basement walls are exposed (above grade).

Living space floor area – enter the total square feet of heated area. Include the basement and/or finished attic if these areas are intentionally heated.

Average Number of Occupants – enter the number of people living in the home.

Agency Name – should be your agency – once set, NEAT will default to your agency. If multiple agency names or parameter sets are established during set up be sure they agree before proceeding. Otherwise, when the job is run, an error message will appear.

Analysis Control:

Weather File – select the weather location for your agency from the table. Once selected, NEAT will default to the correct weather file unless changed.

Agency	Weather Location
Community Action of Siouxland Mid-Sioux Opportunity, Inc.	Sioux City
West Central Development Corp.	Omaha, NE.
North Iowa Community Action Northeast Iowa Community Action Operation New View Operation Threshold Upper Des Moines Opportunity	Mason City
Hawkeye Area Community Action Program Community Action of Eastern Iowa	Moline, Ill.
Community Action Agency of Southeast Iowa	Burlington
Red Rock Area Community Action Mid-Iowa Community Action Polk County Weatherization Program New Opportunities, Inc. S.I.E.D.A. South Central Iowa Community Action MATURA Action Corporation	Des Moines

Parameter Set – the parameters are set for your agency during the setup process; make sure your agency is selected. NEAT will default to the correct set once selected. To check which parameter set is being used, double click in the Parameter Set box. It will open up the parameter being used.

Include Billing Adjustment – not required

Impute Cooling – not required. This box may be checked if the client does not have air conditioning. This may allow NEAT to recommend more savings for cooling measures.

WALLS TAB:

Each wall screen includes three separate sections – walls, windows and doors. The window and door information must correspond with the wall described on each screen. **Walls with different construction or insulation levels must be given separate wall codes.**

Wall Section:

Wall Code – enter a unique wall identifier or hit enter to use the default code.

Orientation – enter direction the wall faces. Walls with the same orientation, but with different exterior types must be listed separately.

Area – enter the gross wall area in square feet.

Measure # – enter a measure number starting with 1. Assign the same measure number to all walls with similar characteristics (exposure, existing insulation, etc).

Exposure – describe the exposure of each wall using the following: Exposed, Buffered, or Attic

- o Buffered walls are located in an enclosed garage or porch. If garage or porch walls are balloon framed to an exposed upstairs wall, list as exposed.
- o Enter vented attic walls as exposed walls.
- o Enter kneewalls as buffered walls if insulating with cellulose. If the agency is insulating with fiberglass, the kneewall information will be included on the Finished Attic Tab.

Exterior type – describe the exterior of the wall using the following: Wood, Metal or vinyl, Stucco, Brick or stone, None, or Other.

Wall type – describe the construction of the wall using the following: Balloon frame, Platform frame, Masonry or stone, Concrete block, Adobe, or Other.

Existing Insulation Type – describe the existing type of insulation using the following: None, Blown cellulose, Blown fiberglass, Rockwool, Fiberglass batts, Polystyrene board, or Other.

R-Value – enter the r-value of the existing insulation or press enter to accept the default. If none, this field will not show.

Added Insulation Type – indicate the type of insulation to be added to the walls using the following: None, Blown cellulose, User type 1 or User type 2 (User type 1 and User type 2 are defined in setup). If the walls can be reinsulated, the cost must be included in the Infiltration Costs on the Duct and Infiltration Screen.

Added Insulation Cost – do not use this field

Window Section:

Windows having similar characteristics (frame type, glazing type, etc.) can be grouped together and average size used. Remember the windows must be in the wall being described to the left because the area of the windows will be deducted from the gross wall area to calculate needed insulation.

Window Code – enter a unique window identifier or hit enter to use the default code.

Number of Windows Having this Description – enter total number of windows with the same characteristics.

Percent Shaded – enter the percent of the window which is shaded by overhangs or porches or hit enter to accept the default of 20%. Unless obviously shaded, use the default.

Frame Type – describe the type of window frame using the following: Wood/vinyl, Metal, or Improved Metal.

Glazing Type – describe the type of window using the following: Single, Single w/wood storm, Single w/metal storm, Double glazed, or Single w/bad storm.

Retrofit Status – describe work to be completed on the window by using the following: Optional, Weatherization, Replace or Add Storm. Use optional as a default

Leakiness – describe condition of window as: Very tight, Tight, Medium, Loose, Very loose. Use medium as a default

Width – enter, in inches, the average width of windows described.

Height – enter, in inches, the average height of windows described.

Storm Cost if Different than in Setup Materials – do not use this field

Door Section:

Doors having similar characteristics (type and size) can be grouped together. Remember the door must be in the wall being described to the left because the area of the door will be deducted from the gross wall area to calculate needed insulation.

Door Code – enter a unique door identifier or hit enter to use the default code.

Door Type – describe the type of existing door using: Wood hollow core, Wood solid core, Steel insulated, Sliding single door, Sliding double door.

Number – enter the number of doors described.

Area – enter the average size of the doors in square feet.

- 36 x 80 = 20 sq ft
- 32 x 80 = 18 sq ft
- 30 x 80 = 17 sq ft

Storm Door

- **Condition** – describe the condition of the existing storm door using: Adequate, Deteriorated, or None.
- **Width** – width of existing storm door – do not use this field.
- **Height** – height of existing storm door – do not use this field.

WINDOWS TAB:

If the window information was entered with the walls, this will not be used.

DOORS TAB:

If the door information was entered with the walls, this will not be used.

UNFINISHED ATTIC TAB:

The screenshot displays the 'Unfinished Attics' tab in the Weatherization Assistant software. It shows two records for attics. Record 1 (Attic Code A1) is a 'Floored' attic with 16 inch joist spacing and 1200 sq. ft. area. Record 2 (Attic Code A2) is an 'Unfloored' attic with 16 inch joist spacing and 200 sq. ft. area. The interface includes fields for 'Existing Insulation' (Type and Depth) and 'Added Insulation' (Measure #, Insulation Type, Max. Depth, and Added Cost). The status bar at the bottom indicates 'Form View' and 'NUM'.

Attic Description:

Attic Code – enter a unique attic identifier or hit enter to accept the default.

Attic Type – describe the attic using the following: Unfloored, Floored, Cathedral/flat. If floored, but the ceiling is too weak to hold dense pack insulation, refer to the Iowa Work Standards Section 5014.01 for guidance.

Joist Spacing – enter inches between ceiling joists – usually 16 or 24.

Area – enter the area of the attic in square feet.

Existing Insulation:

Type – describe the existing type of insulation using the following: None, Blown cellulose, Blown fiberglass, Blown rockwool, Fiberglass batts, or Other. If unknown, use None.

Depth – enter, in inches, the depth of the existing insulation. If none, this field will not show.

Added Insulation:

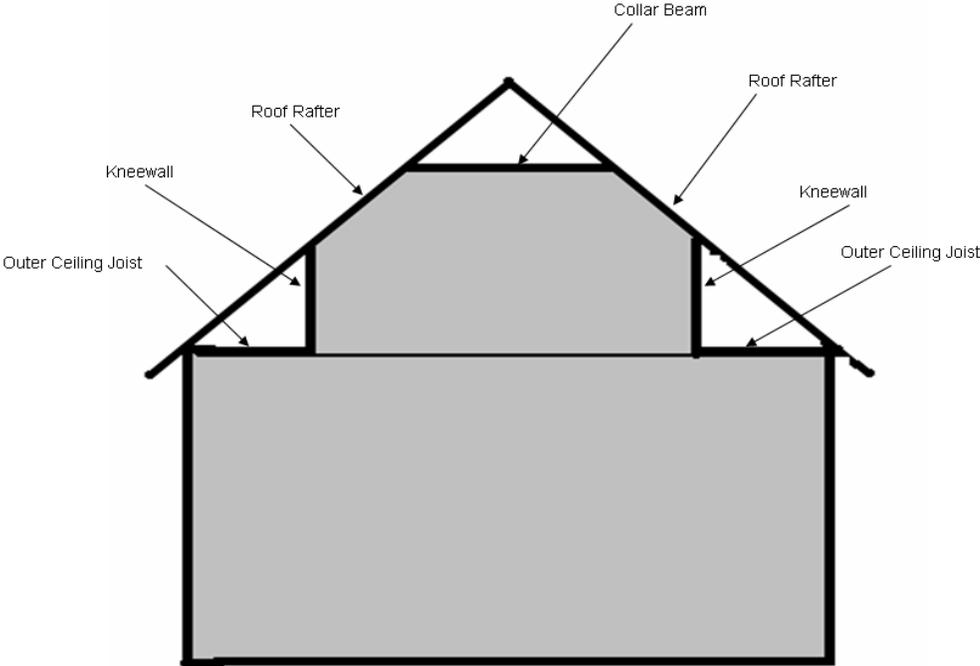
Measure # - enter a measure number starting with 1. Assign the same measure number to all attics with similar characteristics.

Insulation Type – enter the type of insulation to be added using the following: None, Blown cellulose, Blown fiberglass, User type 1 or User type 2 (User type 1 and User type 2 are defined in setup). Floored, cathedral and flat roofs must be dense packed whenever possible.

Max Depth – if this is a floored attic or an attic of restricted height (less than 15”), enter the total maximum depth of the attic. If this is an open blow attic, leave this field blank.

Added Cost – do not use this field. Venting, attic access, etc. will be listed on the Itemized Cost screen.

FINISHED ATTIC EXAMPLE



Select one of the four Finished Attic component types shown in the illustration. Note, only one entry per type is allowed. Thus, all attic segments which match a common finished attic component type must be combined into a single entry by adding their areas.

FINISHED ATTIC TAB:

There are three screens shown here. Depending on the Attic Code selected (Outer ceiling joist, Collar beam, Kneewall, or Roof rafter), different fields are available. Each type of finished attic will have a different measure number.

The screenshot shows the 'Weatherization Assistant' software window. The title bar reads 'Weatherization Assistant - [NEAS Job: <00-00-0000> Client: <Jane Doe>]'. The menu bar includes File, Edit, View, Insert, Format, Records, Window, and Help. The toolbar contains various icons for navigation and editing. The main window is divided into several tabs: Heating Systems, Ducts & Infiltration, Base Loads, Itemized Costs, and Utility Bills. Under 'Heating Systems', there are sub-tabs for General Info., Walls, Windows, Doors, Unfinished Attics, Finished Attic (selected), Foundations, and Air Conditioning. The 'Finished Attic' tab is active, displaying the following fields:

- Attic Code:** Outer Ceiling Joist (dropdown)
- Attic Type:** Unfloored (dropdown)
- Area:** 300 (text input)
- Existing Insulation:**
 - Type:** Blown Cellulose (dropdown)
 - Depth:** 1 (text input)
- Added Insulation:**
 - Measure #:** 1 (dropdown)
 - Type:** Blown Cellulose (dropdown)
 - Max. Depth:** (text input)
 - Added Cost:** (text input)
- Comment:** (text area)

At the bottom of the form, there is a 'Record:' indicator showing '2' of 3 records. The status bar at the very bottom indicates 'Form View' and 'NUM'.

This screen is for either Attic Code outer ceiling joist or collar beam.

Attic Code:

Attic Type – enter description of attic using the following unfloored or floored. If some of both types of attic is present in the house, two different finished attic records would be used.

Area – enter the area of the attic described in square feet.

Existing Insulation:

Type – enter type of existing insulation: None, Blown cellulose, Blown fiberglass, Blown rockwool, Fiberglass batts, or Other.

Depth – enter depth of existing insulation. If none, this field will not show.

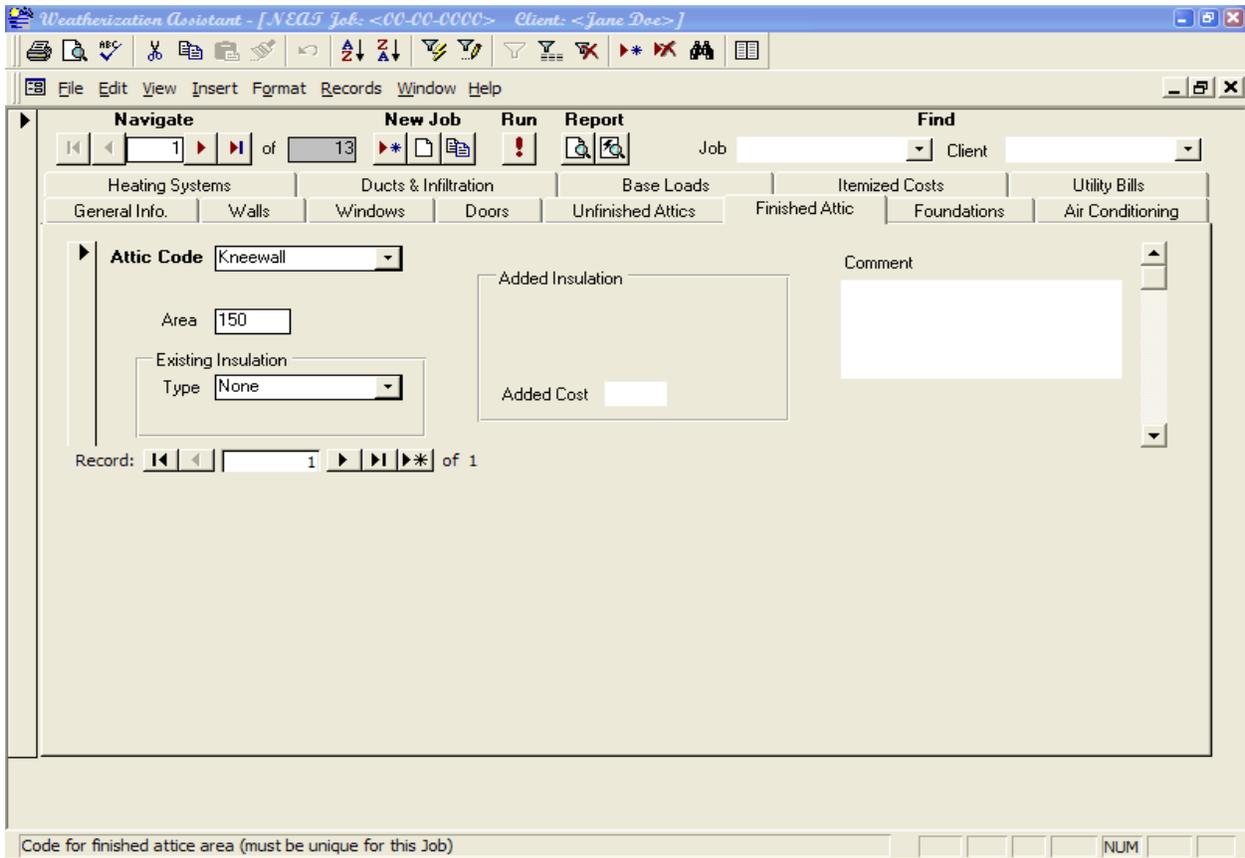
Added Insulation:

Measure # – enter a measure number starting with 1. Assign a different measure number to each type of finished attic.

Type – enter type of insulation to be added using the following: None, Blown cellulose, Blown fiberglass, User type 1 or User type 2 (User type 1 and User type 2 are defined in setup).

Max Depth – if this is a floored attic or an attic of restricted height (less than 15”), enter the total maximum depth of the attic. If this is an open blow attic, leave this field blank.

Added Cost – do not use this field



This screen is for kneewall areas. If cellulose is to be used, enter the kneewall in the wall screen.

Attic Code:

Area – enter the area of the kneewall in square feet.

Existing Insulation:

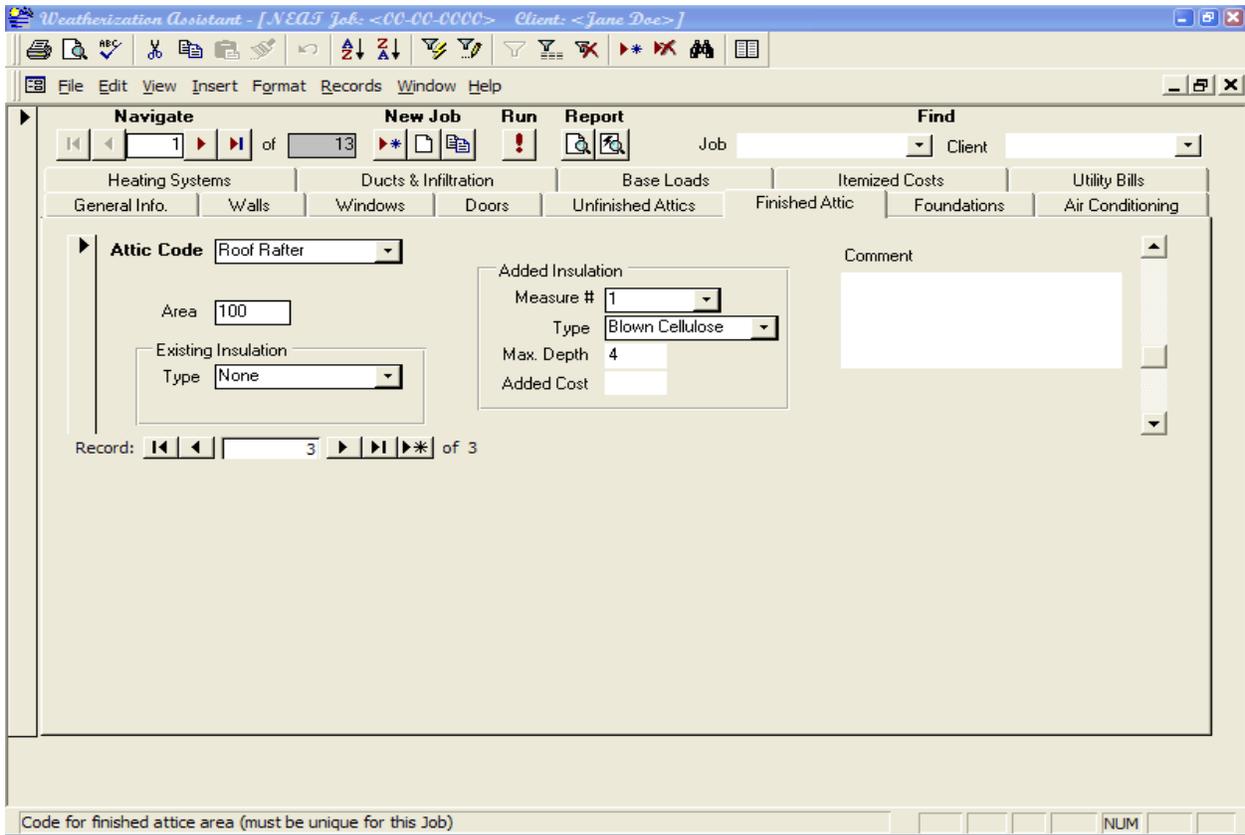
Type – enter the type of existing insulation using the following: None, Blown cellulose, Blown fiberglass, Blown rockwool, Fiberglass batts, or Other.

Depth – enter depth of existing insulation. If none, this field will not show.

Added Insulation:

NEAT always assumes fiberglass batts on the kneewall. This cannot be changed. If cellulose is to be used, enter the kneewall in the wall screen.

Added Cost – do not use this field



This screen is for roof rafter (or sloped) areas.

Attic Code:

Area – enter the area of the roof rafter in square feet.

Existing Insulation:

Type – enter the type of existing insulation using the following: None, Blown cellulose, Blown fiberglass, Blown rockwool, Fiberglass batts, or Other.

Depth – enter depth of existing insulation. If none, this field will not show.

Added Insulation:

Measure # – enter a measure number starting with 1. Assign a different measure number to each type of finished attic. Roof rafters must be dense packed or sealed at one or both ends, whichever is possible.

Type – enter type of insulation to be added using the following: None, Blown cellulose, Blown fiberglass, User type 1 or User type 2 (User type 1 and User type 2 are defined in setup).

Max Depth – if this is a floored attic or an attic of restricted height (less than 15”), enter the total maximum depth of the attic. If this is an open blow attic, leave this field blank.

Added Cost – do not use this field

FOUNDATIONS TAB:

The screenshot displays the 'Foundations' tab in the Weatherization Assistant software. The interface includes a menu bar (File, Edit, View, Insert, Format, Records, Window, Help), a toolbar, and a main workspace. The 'Foundations' tab is selected, showing the following fields and values:

- Foundation Code: F1
- Type: Unintentionally Conditioned
- Foundation Insulation Mode: Wall Only
- Area (sqft): 1200
- Ceiling R Value: 0
- Perimeter Length (ft): 140
- Perimeter Exposed (%): 100
- Measure #: 1
- Wall Height: 7
- Wall Exposed (%): 10
- Wall R Value: (empty)
- Added Cost: \$9,999.00

A comment field is also present at the bottom of the main workspace. The bottom status bar shows 'Short name for the foundation space (must be unique for this Job) [Default F2]'.

Foundation Description:

Foundation Code – enter a unique identifier for each foundation type or hit enter to accept the default code.

Type – describe the type of foundation using the following:

- Conditioned – intentionally heated living space.
- Non-conditioned – no heat source other than condition through uninsulated walls and floors.
- Vented non-conditioned – are directly vented to the outside, even if a furnace or uninsulated ductwork is present.
- Unintentionally conditioned – contains a furnace, water heater and uninsulated duct work. This can include a basement or crawlspace with an open register where the foundation is considered the thermal boundary.
- Uninsulated slab – no opening below the house floor, just a slab (usually concrete).
- Insulated slab – occasionally a slab perimeter is insulated – very rare.
- Exposed floor – cantilevered floors.

Foundation Insulation Mode – describe where insulation would be installed.

- For a basement area, select Walls Only.
- For a crawlspace, select either Walls Only or Floor Only based on the thermal boundary.

Area – enter the total area, in square feet, of the floor directly above the foundation you are describing.

Ceiling R-Value – enter the r-value of the existing insulation in the ceiling over the basement or crawlspace you are describing - no insulation = 0.

Perimeter Length – enter the length in feet of floor perimeter exposed to outside air.

Perimeter Exposed – enter the percent of floor perimeter exposed to outside air with uninsulated bandjoist.

Measure # – enter a measure number starting with 1. Assign a different measure number to each foundation description.

Wall Height – enter the height of the foundation wall from the interior ground or basement floor to the bottom of the floor joist. Estimate an average if the height is not uniform. The entry must be greater than zero. If the wall height is less than two feet, not foundation wall or floor insulation will be considered.

Wall Exposed – enter the percent of the basement or crawlspace wall exposed to the outside air.

Wall R-Value – enter the r-value of existing insulation on the basement or crawlspace wall.

Added Cost – use only if basement – if the foundation area being described is a basement, enter 9999.

AIR CONDITIONING TAB:

Air Conditioner Description:

AC Code – enter a unique identifier for each air conditioner or hit enter to accept the default.

AC Unit Type – describe the air conditioner using the following: Central, Room, Heat pump, Evaporative.

Manufacturer (optional) – enter the manufacturer name.

Model (optional) – enter the model number of the unit.

Area Cooled – enter, in square feet, the total area cooled by the unit.

Size – enter the size of the unit in kBtu per hour. One ton equals 12,000 BTU (12 kBtu)

SEER – If known, enter the SEER. To convert the EER noted on a window air conditioner to SEER use this formula: $SEER = (1.2 \times EER) - 0.7$.

Year Purchased – if the SEER (or EER) is not known, enter the year manufactured.

HEATING SYSTEM TAB:

Weatherization Assistant - [NEAS Job: <00-00-0000> Client: <Jane Doe>]

File Edit View Insert Format Records Window Help

Navigate 1 of 13 New Job Run Report Find

General Info. Walls Windows Doors Unfinished Attics Finished Attic Foundations Air Conditioning Heating Systems Ducts & Infiltration Base Loads Itemized Costs Utility Bills

System Code HS1 Heat Supplied (%) 100 Uninsulated Supply Duct Length

Equipment Type Forced Air Furnace Manufact. Model Comment

Fuel Natural Gas Location Unintentionally Heated

FURNACE DETAILS

Input Units KBTU per Hour Input Rating 100 Output Capacity 80 SSSystem Efficiency 80 Condition Poor SmartThermostat? []

Automatic Vent Damper Present? [] Recommended? []

Pilot Light/IID Pilot Light? [x] On in Summer? [x] Power Burner? []

System Retrofit Status: High Efficiency Replacement System Efficiency 92 Labor Cost \$500.00 Material Cost \$1,500.00

Record: 1 of 1

Name of manufacturer NUM

System Description:

System Code – enter a unique identifier or hit enter to accept the default.

Equipment Type – describe the existing type of heating system using the following: Gravity furnace, Forced air furnace, Steam boiler, Hot water boiler, Fixed electric resistance, Portable electric resistance, Heat pump, Vented space heater, Unvented space heater, Other.

Fuel – type of fuel used for heating: Natural gas, Oil, Electric, Propane, Wood, Coal, Kerosene.

Location – describe where the heating system sits using the following: Heated space, Unheated space, Unintentionally heated space.

Heat Supplied – enter the percent of heat supplied by this unit. If there is only one heating system, it would be 100%.

Manufacturer (optional) – enter the manufacturer name.

Model (optional) – enter the unit model number.

Uninsulated Supply Duct Length – enter the linear feet of uninsulated supply duct outside the thermal barrier.

Furnace Details:

Input Units - enter the input units based on fuel type. If unknown, use No Input.

- o Natural gas – kBTU per hour
- o Oil – gallons per hour
- o Electric – this field will not be available.
- o Propane – kBTU per hour

- Wood – pounds per hour
- Coal – pounds per hour
- Kerosene – gallons per hour

Input Rating – enter the input rating of the existing heating system in units per hour. This information is usually found on a plate attached to the unit.

Output Capacity – enter the output rating of the existing heating system in units per hour. This information is usually found on a plate attached to the unit.

SSSystem Efficiency – unless you actually test the steady state efficiency of the heating unit, just hit enter to accept the calculated rating.

Condition – enter the condition of the existing unit using the following: Poor, Fair, Good.

Smart Thermostat – if a programmable thermostat has been installed, check this box if the client uses it to set the temperature back at night. If this is checked and the client doesn't set it back, the NEAT audit will assume a set back and calculate a 6° set back every night.

Automatic Vent Damper:

Present – if there is an existing automatic vent damper, check this box. An induced power draft furnace is considered to have an automatic vent damper.

Recommended – do not check this

Pilot Light/IID:

IID – check if the existing system has an intermittent ignition device (electronic igniter like spark or glow igniter).

Pilot Light – check this if the system has a standing pilot light.

On in Summer – check this if the standing pilot light is left on during the summer months.

Power Burner:

Check this if there is an existing power burner. This is only available for natural gas or propane heating systems.

System Retrofit:

Status – select one of the following regarding tune-up or replacement of the primary heating system. If the system will be replaced for health and safety reasons (cracked heat exchanger) enter it under one of the mandatory replacement selections. If checking to see if replacement would be cost effective, enter it as Optional.

- Optional – treats system tune-up and replacement like any other measure and ranks it in order of computed SIR.
- Tune-up Performed – indicates a tune-up has already been performed and the efficiency entered for the system reflects this tune-up.
- Tune-up Mandatory – system tune-up will be placed at the top of the list, regardless of the computed SIR, thus affecting savings of all measures following it.
- Replacement Mandatory – system replacement will be placed at the top of the list, regardless of the computed SIR, thus affecting savings of all measures following it.
- High Efficiency Replacement Mandatory
- Don't Replace – select this if there is a reason the furnace should not be replaced.

System Efficiency – enter the steady state efficiency rating of the replacement furnace.

Labor Cost – enter the agency's average labor costs for furnace replacement or hit enter to accept the default value.

Materials Cost – enter the agency's average material costs for furnace replacement or hit enter to accept the default value.

DUCTS & INFILTRATION TAB:

Weatherization Assistant - [NEAT Job: <00-00-0000> Client: <Jane Doe>]

File Edit View Insert Format Records Window Help

Navigate New Job Run Report Find

General Info. Walls Windows Doors Unfinished Attics Finished Attic Foundations Air Conditioning
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Evaluate Duct Sealing?

WHOLE HOUSE INFILTRATION REDUCTION WITH BLOWER DOOR

	Pre Infiltration Reduction	Post Infiltration Reduction/Target
Whole House Leakage (CFM)	3600	1850
at Pressure Differential (Pa)	50	50
Infiltration Reduction Cost (\$)	\$150.00	

Comment:

The minimum recommended CFM at 50pa is: 1352 CFM

Do you want to enter data for evaluating duct sealing using one of three methods

Evaluate Duct Sealing:

Do not check this box

Whole House Infiltration Reduction w/Blower Door:

Whole House Leakage – enter the beginning blower door reading in the Pre-Infiltration Reduction column. Enter the estimated ending blower door reading in the Post-Infiltration Reduction/Target column. The Iowa Weatherization Program requires the input of pre- and post-weatherization blower door readings for the NEAT Audit. The initial reading must be actual data obtained at the time of evaluation. The post- reading for NEAT data may be based on an estimation or come from the following table.

At Pressure Differential – hit enter to accept the default value of 50 Pascals. If 50 Pascals was not achieved during the initial blower door reading, enter the actual house pressure achieved unless using the TI86 calculation to convert the pressure differential to 50 Pascals.

Infiltration Reduction Costs – enter the estimated costs for all infiltration measures. Costs must be entered to get SIR credit for infiltration work. If pressure points will be insulated (but not the whole wall) the pressure point insulation costs are to be included here. If the wall is to be reinsulated for infiltration purposes, the costs should be included here.

The chart is an average CFM reduction recorded for several years based on the volume of the house. Across the top of the chart is the house volume down the left side is the pre WX blower door reading, follow the pre blower door reading across to the closest volume number of the house and this is the average post CFM reduction.

ESTIMATED POST-WX BLOWER DOOR READINGS											
based on volume of house											
House Volume	6000	8000	10000	12000	14000	16000	18000	20000	22000	24000	26000
Pre-wx blower door											
1000	700	800	850	950	1000	1000	1000	1000	1000	1000	1000
1200	800	900	950	1050	1100	1150	1200	1200	1200	1200	1200
1400	900	1000	1050	1150	1200	1250	1350	1400	1400	1400	1400
1600	1000	1100	1150	1200	1300	1350	1450	1500	1600	1600	1600
1800	1100	1200	1250	1300	1400	1450	1550	1600	1700	1750	1800
2000	1200	1250	1350	1400	1500	1550	1650	1700	1800	1850	1950
2200	1300	1350	1450	1500	1600	1650	1750	1800	1900	1950	2050
2400	1400	1450	1550	1600	1700	1750	1850	1900	2000	2050	2150
2600	1500	1550	1650	1700	1800	1850	1950	2000	2100	2150	2250
2800	1600	1650	1750	1800	1900	1950	2050	2100	2200	2250	2350
3000	1700	1750	1850	1900	2000	2050	2150	2200	2300	2350	2400
3200	1800	1850	1850	2000	2100	2150	2250	2300	2350	2450	2500
3400	1900	1950	2050	2100	2200	2250	2350	2400	2450	2550	2600
3600	2000	2050	2150	2200	2300	2350	2400	2500	2550	2650	2700
3800	2100	2150	2250	2300	2400	2450	2500	2600	2650	2750	2800
4000	2200	2250	2350	2400	2450	2550	2600	2700	2750	2850	2900
4200	2300	2350	2400	2500	2550	2650	2700	2800	2850	2950	3000
4400	2400	2450	2500	2600	2650	2750	2800	2900	2950	3050	3100
4600	2450	2550	2600	2700	2750	2850	2900	3000	3050	3150	3200
4800	2550	2650	2700	2800	2850	2950	3000	3100	3150	3250	3300
5000	2650	2750	2800	2900	2950	3050	3100	3200	3250	3350	3400

BASE LOADS TAB:

This tab includes three sections: Refrigerator, Water Heater and Lighting.

Refrigerator Tab: The Iowa Weatherization Program does not use the refrigerator section to determine replacements. This section may be used to determine appliance usage (based on manufacturers' data) if it is not possible to meter the appliance. The BART program is used to determine cost effectiveness of refrigerator/freezer replacements.

Water Heater Tab

The screenshot displays the 'Weatherization Assistant' software window. The title bar shows '[NEAT Job: -00-00-0000> Client: <Jane Doe>]'. The menu bar includes File, Edit, View, Insert, Format, Records, Window, and Help. The main interface has a 'Navigate' section with a page indicator (1 of 24) and buttons for 'New Job', 'Run', and 'Report'. Below this is a 'Find' section with 'Job' and 'Client' dropdown menus. A series of tabs are visible: General Info, Walls, Windows, Doors, Unfinished Attics, Finished Attic, Foundations, Air Conditioning, Heating Systems, Ducts & Infiltration, Base Loads, Itemized Costs, and Utility Bills. The 'Water Heater' tab is selected. It contains a section for 'Existing Equipment Identification or Pick from Database' with fields for Manufacturer, Model, Fuel (set to Electric), Location (set to Unheated Spac), and Gallons (set to 30). A 'Comment' field is also present. A large text box on the right contains the message: '*** No replacement fields are required because the water heater replacement candidate measure is turned off for the Parameters connected to this Job. ***'. A status bar at the bottom reads 'Select the manufacturer, or enter a string' and includes a 'NUM' field.

The water heater information is optional and needs to be used only to justify replacement as cost effective. If the water heater is being replaced for health and safety reasons, this screen will not be used.

In order to determine cost effectiveness of the replacement, a database of available replacement models must be completed during the set-up process.

Existing Equipment Identification:

If manufacturer and model are selected from the list, the fields for fuel, gallons, rated inputs and input units will be completed automatically.

Manufacturer (optional) – enter the manufacturer name of the existing unit or select from the list.

Model (optional) – enter the model number of the existing unit or select from the list.

Fuel – enter type of fuel used by existing unit: Natural Gas, Electric or Propane.

Location – describe where the heating system sits using the following: Heated space, Unheated space, Unintentionally heated space.

Gallons – indicate the size of the existing water heater in gallons.

Rated Input – enter the input information from the manufacturer's plate on the existing unit.

Input Units - enter the input units based on fuel type.

- Natural gas – kBTU
- Electric – kW
- Propane – kBTU

Insulation Type – select one of two insulation types in the existing unit: Fiberglass or Polyurethane. Often a plate can be removed to check for the type of existing insulation.

Insulation Thickness – enter, in inches, the thickness of the existing insulation.

Supply Pipe Insulation – check this box if the first three feet of water pipe, both entering and leaving the water heater, are insulated.

Replacement:

Pick from Pre-defined Replacements – select from the list of available replacement units. The Manufacturer, Model, Fuel, Rated Input, Input Units, Gallons, and Energy Factors will be completed automatically.

Material Cost – enter the estimated replacement cost of the new unit.

Other Costs – do not use this field

Lighting Tab

Weatherization Assistant - [NEAT Job: <00-00-0000> Client: <Jane Doe>]

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Navigate 1 of 13 New Job Run Report Find

General Info. Walls Windows Doors Unfinished Attics Finished Attic Foundations Air Conditioning
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Refrigerator Water Heater Lighting

Existing Incandescent Lighting

Light Code LT1
Room Living Room
Location Table
Lamp Type Standard
Quantity 2
Watts 60
Hours/Day 6

Replacement Compact FL

CF Watts 13
Added Costs

Comment

Record: 1 of 1

General comment NUM

This screen is for lighting measures charged to DOE or HEAP funds. All lighting measures must be entered in NEAT and have an individual SIR of 1 or greater.

Lighting measures charged to a secondary utility company do not need to be entered into NEAT.

Existing Incandescent Lighting:

Light Code – enter a unique identifier or hit enter to accept the default code. Use a different code for bulbs with different watts.

Room (optional) – enter room where bulbs should be replaced by selecting from the list.

Location (optional) – enter location of the bulb to be replaced by selecting from the list.

Lamp Type – select either standard or flood.

Quantity – enter the number of bulbs to be replaced.

Watts – enter the number of watts of the existing bulbs.

Hours/Day – enter the number of hours per day the bulb is used.

Replacement Compact FL:

CF Watts – this will be completed automatically based on the watts of the existing bulbs. Do not attempt to change this field because it will not work correctly.

Added Costs – do not use this field

ITEMIZED COSTS TAB:

Weatherization Assistant - [NEAS Job: <00-00-0000> Client: <Jane Doe>]

File Edit View Insert Format Records Window Help

Navigate New Job Run Report Find

General Info. Walls Windows Doors Unfinished Attics Finished Attic Foundations Air Conditioning
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Description: steel insulated door - door b
Cost: \$300.00 Include in SIR?
Material: _____ Comment: _____

Description: glass replacement - window 3
Cost: \$50.00 Include in SIR?
Material: _____ Comment: _____

Description: _____
Cost: _____ Include in SIR?
Material: _____ Comment: _____

Record: 3 of 3

Long description of itemized cost item (must be unique for this Job) NUM

All incidental repair costs must be recorded on the itemized costs screen and included in the SIR. Other costs, such as health & safety and general health and safety repair, may be recorded here, but should not be included in the SIR.

Repair costs may be totaled and entered as one item or listed individually as shown above.

Itemized Costs:

Description – enter either a general category, such as Repair Items, or individual materials, such as Glass replacement.

Cost – enter the cost associated with the description item.

Material (optional) – list materials to be included. If entering the total repair, please use this section.

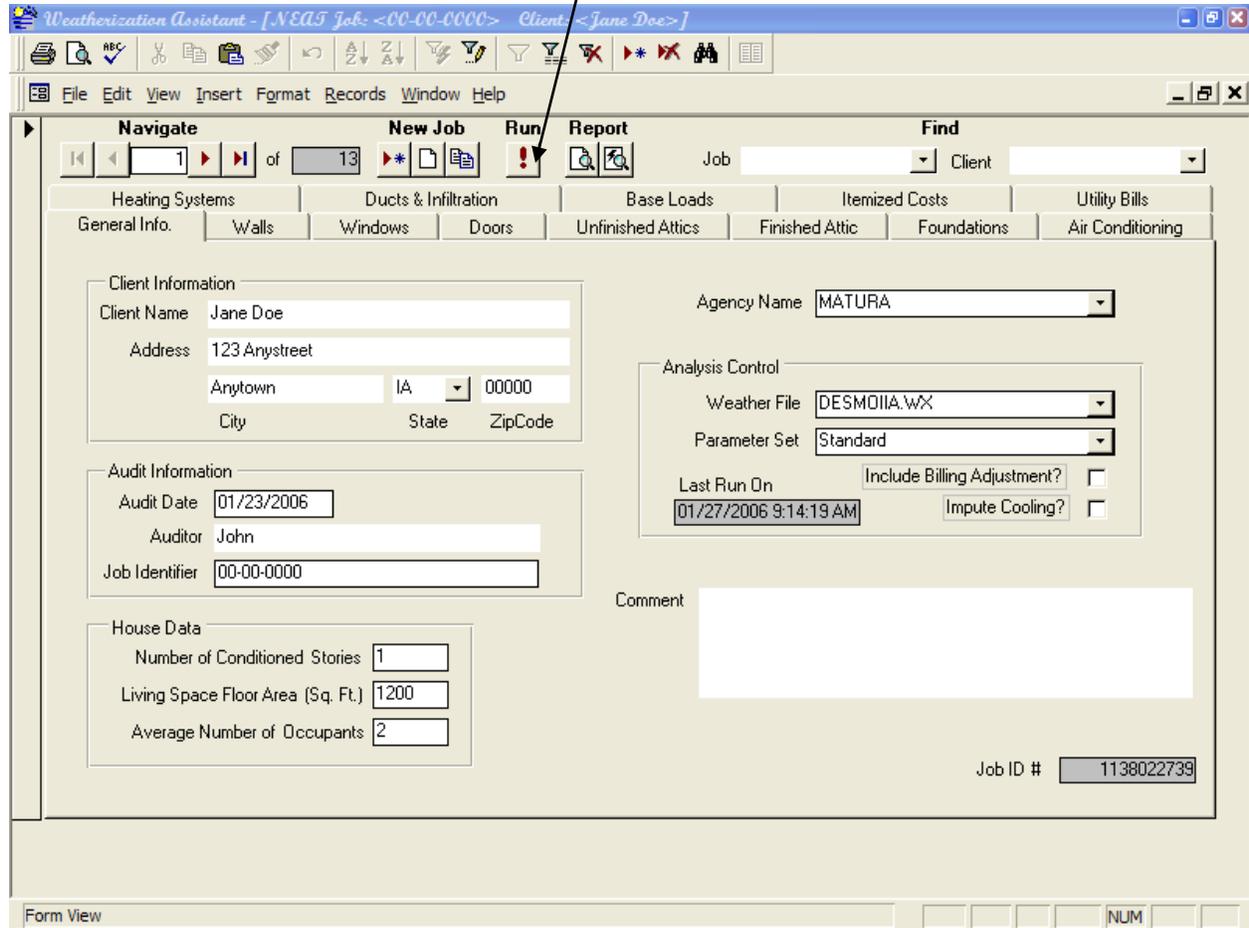
Energy Savings (optional) – estimate the annual energy saving resulting from the measure. Since repair and health & safety measure cannot be credited with energy savings, this field should be left blank.

Include in SIR – check this box to have the item included in the SIR. All incidental repairs must be included, health & safety measures should not be.

UTILITY BILLS TAB:
This tab will not be used.

TO RUN THE AUDIT CALCULATIONS:

After all the data is entered, click on the Run Button at the top of the screen to run the audit calculations.



This allows the on-screen review of the output report to determine measures required and cumulative SIR before proceeding.

INPUT – OUTPUT REPORTS:

To create the Input Report, click on the left button under Reports. The right button creates the Output Report.

Weatherization Assistant - [NEAT Job: <00-00-0000> Client: <Jane Doe>]

File Edit View Insert Format Records Window Help

Navigate New Job Run Report Find

Job [] Client []

Heating Systems Ducts & Infiltration Base Loads Itemized Costs Utility Bills

General Info. Walls Windows Doors Unfinished Attics Finished Attic Foundations Air Conditioning

Client Information

Client Name Jane Doe

Address 123 Anystreet

Anytown IA 00000

City State ZipCode

Agency Name MATURA

Analysis Control

Weather File DESMOIIA.WX

Parameter Set Standard

Last Run On 01/27/2006 9:14:19 AM

Include Billing Adjustment?

Impute Cooling?

Comment

Job ID # 1138022739

Form View NUM

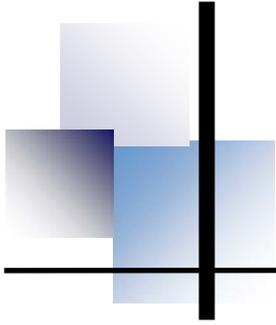
The Input and Output Reports must both be filed in the client file. A sample of both reports follows.

Note on the Output Report the section **Energy Saving Measure Economics**. The SIR calculations are in this section. Some of the waivers and other forms required by Weatherization ask for the cumulative SIR. It is in the right hand column in this section of the report.

All repairs, listed on the Itemized Costs screen, are shown as the first measures on the Output Report. These have no SIR, but the costs will affect the cumulative SIR.

If the SIR for any measure is 1.\$, that means that there are no material costs associated with this measure in the Program Setup and the program is not calculating the cumulative SIR correctly.

Close the audit screens to return to the NEAT Main Menu.



REFRIGERATION APPLIANCE REPLACEMENT OPERATIONS MANUAL

Iowa Weatherization Program

Department of Human Rights
Division of Community Action Agencies
Lucas State Office Building, 2nd Floor
Des Moines, Iowa 50319
Website: www.weatherization.iowa.gov



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- 2.50 Disposal

3.00 Refrigeration Appliance Replacement Protocol

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4.00 Refrigeration Appliance Removal Protocol

Appendix

- Work Flowchart
- Annual Consumption Conversion Table
- Replacement Ratings Report
- BEEP Appliance Rating Tool (BART) Manual

1.00 INTRODUCTION

Electric baseload usage accounts for over 40 percent of a household's energy use. This includes lights, refrigerators and freezers, and other electrical appliances. The Iowa Weatherization Program allows for the straight removal of inefficient refrigerators and freezers and the replacement of inefficient refrigerators and freezers with high efficiency units.

The program can achieve significant savings from removing or replacing inefficient refrigerators and freezers. For example, the average annual savings for the removal of inefficient refrigerators and freezers is \$158 and \$130 respectively and the average annual savings for the replacement of refrigerators and freezers is \$102 and \$78 respectively. Refrigerator and freezer replacements also have a very good savings to investment ratios. The savings to investment ratio (SIR) for refrigerator replacements is 1.80 and the SIR for freezer replacements is 2.13.

The Department of Energy (DOE) allows for the replacement of inefficient refrigerators but not freezers. Therefore, DOE funds may be used to pay for the replacement of inefficient refrigerators but not freezers. The Iowa Weatherization Program allows for the use of HEAP funds to pay for freezer replacements. Certain utility funds may also be used to pay for freezer replacements as well as refrigerator replacements.

Developing a refrigerator/freezer replacement program involves both administrative and technical/field processes by agencies. The administrative activities include contracting with appliance vendors to provide and deliver the appliances to clients' homes and entering key information about the appliances in a software program that is used in the replacement assessment. The technical/field activities include metering the existing appliances, using a replacement protocol to determine whether it is cost effective to replace them, and educating the clients about the benefits of removing and/or replacing the inefficient appliances.

2.00 POLICIES AND STANDARDS

2.10 Refrigerator Replacement

All refrigerators located in an intentionally or unintentionally conditioned area must be metered. Appliances in unconditioned areas may be metered and replaced if: (1) the new unit will be installed in an intentionally or unintentionally conditioned area, or (2) a 2-for-1 replacement will occur with the new unit being installed in an intentionally or unintentionally conditioned area. If a refrigerator cannot be metered because it cannot be moved, the estimated usage for that make and model may be found in the look-up table in the NEAT Audit.

Replacement model(s), including side-by-sides, must meet or exceed the Federal National Appliance Energy Conservation Act (NAECA) minimum efficiency level. The NAECA level is a DOE requirement. The Baseload Appliance Rating Tool (BART) is used to determine whether an appliance meets the NAECA efficiency level so all models that are potential replacement appliances must be "run through" the BART program.

There is a difference between the NAECA minimum efficiency standards and the Energy Star criteria for refrigerators. To meet the Energy Star standard and be eligible for the Energy Star label, appliances must use 10% less energy than the NAECA minimum efficiency level. Therefore, an appliance that meets the Energy Star criteria is more efficient than an appliance that meets the NAECA minimum efficiency level.

All replacement refrigerators must meet the UL-250 standard.

For situations where a straight one for one replacement is made, the replacement refrigerator must not be larger than the size of the old refrigerator. For situations where two

(2) or more refrigerators will be replaced by one (1) new one or where a refrigerator and freezer will be replaced by one (1) refrigerator, the new refrigerator may be larger than the ones being replaced if needed in order to meet capacity needs.

The program will not pay extra for any additional features such as ice makers. The client is responsible for completing the hook-up of any ice maker included with a new appliance.

The color must be white or off-white, unless there is no difference in price for one of a different color. Note: Other colors are allowed if the client pays the additional cost.

2.20 Freezer Replacement

Freezer replacements are not allowed by DOE. Therefore, freezer replacements must be charged to the HEAP Contract or to a utility contract that covers the measure. Freezers may be installed when they are determined to be a cost effective replacement choice by the Baseload Rating Tool (BART) Program.

All freezers located in an intentionally or unintentionally conditioned area must be metered. Appliances in unconditioned areas may be metered and replaced if: (1) the new unit will be installed in an intentionally or unintentionally conditioned area, or (2) a 2-for-1 replacement will occur with the new unit being installed in an intentionally or unintentionally conditioned area. If a freezer cannot be metered because it cannot be moved, the estimated usage for that make and model may be found in the look-up table in the NEAT Audit.

2.30 General Replacement Policies

The number of appliances that may be installed is limited to what is allowed by the BART replacement protocol. For example, if a house contains 2 refrigerators and 1 freezer and the replacement protocol allows for the replacement of all three appliances, then all three may be replaced.

If a home has multiple appliances, all appliances in intentionally or unintentionally conditioned areas must be metered. If an appliance cannot be metered because it cannot be moved, the estimated usage for that make and model may be found in the look-up table in the NEAT Audit.

If an appliance installed by the agency does not work well or fails within the first five years, it may be replaced one time within the 5-year period with program funds.

Appliances located in an unheated porch or garage should still be metered and considered for replacement.

Costs for replacements are limited to what is allowed by the replacement protocol and other limitations described above.

Appliance replacement in rental units is allowed only when the renter owns the existing appliance.

Appliance repair is not allowed.

Removal and proper disposal of all replaced appliances is required.

The replacement policies and guidance cannot cover all possible situations. In some cases, common sense must be used to determine whether an appliance replacement is appropriate. For example, if a household has a second refrigerator that is seldom used or is used to store very little, it would not make sense to replace it with a new appliance. Instead,

efforts should be made to encourage the client to allow the straight removal of the appliance.

2.40 Refrigerator/Freezer Removal

Program funds may be used to pay for the straight removal and disposal of refrigerators and freezers. This is the more cost effective of the two refrigeration appliance measures since the only cost to the program is for the removal and disposal of the appliance. There is no replacement cost.

2.50 Disposal

Appliances that are removed must be disposed of according to the environmental standards in the Clean Air Act (1990), Section 608, as amended by Final Rule, 40 CFR 82, May 14, 1993. The entity recovering the refrigerant must possess an EPA-approved Section 608 Type I license or an approved universal certification.

3.00 REFRIGERATION APPLIANCE REPLACEMENT PROTOCOL

This section addresses the processes and procedures for replacing refrigerators and freezers.

The appliance replacement protocol involves both administrative and technical/field processes. These processes rely on several tools used by both office and field personnel. A discussion of the processes and tools follows. The processes are described in the same order as the flow of work. A flowchart illustrating the workflow is in the Appendix.

3.10 Administrative Processes

3.11 Selection of Potential Replacement Appliances

The first step in the process is getting appliance vendors to agree to participate in the appliance replacement program. Agency staff need to contact appliance vendors in their area to ask them if they will participate. Vendors agreeing to participate will need to do the following:

- Provide a price quote on various brands/models and styles of refrigeration appliances.
- Guarantee the price quoted for a specified period of time.
- Agree to deliver the appliance(s) chosen to the household.
- Remove all appliances designated for removal.
- Destroy all appliances that are removed, per applicable regulations.
- Provide normal covered service on the replacement appliances after the sale.

3.11.1 Refrigeration Appliance Data Sheet

Agencies will have participating vendors complete a Refrigeration Appliance Data Sheet (Appliance Data Sheet). The form will be completed for each brand/model of appliance for which the vendor is providing a price quote. The form specifies the style of the appliance, the features of the appliance, the size of the appliance, etc. This information will be input into the BART Program by the agency. Some of the information will be used to show the various choices of models that could be used as replacements. Some of the information is used in determining the cost effectiveness of replacing an appliance. A copy of the Appliance Data Sheet is in the Forms section of the Weatherization General Appendix.

3.11.2 Vendor Agreement

Agencies will also have participating vendors agree to and sign a Vendor Agreement which certifies that the vendor agrees to the prices quoted and to the conditions listed above. A copy of a Vendor Agreement is in the Forms section of the Weatherization General Appendix.

3.12 Baseload Appliance Rating Tool (BART)

Agencies enter information from the Appliance Data Sheets and the Vendor Agreements into the Baseload Appliance Rating Tool (BART). BART is an ACCESS-based software program. Once the required information is entered, BART does the following:

- Determines which appliances meet the DOE requirements and are therefore eligible as replacement units.
- Calculates a replacement rating for the “replacement” units.
- Generates the Replacement Ratings Report.

Refer to the Baseload Appliance Rating Tool (BART) Operations Manual for instructions on using the BART Program.

3.13 Replacement Ratings Report

The Replacement Ratings Report lists the candidate replacement appliances and the appliances’ specifications. It also indicates whether the appliances meet DOE requirements (“DOE qualified”) and lists the replacement ratings for the appliances. The Replacement Ratings Report is used by the evaluators to determine which appliances qualify as replacement appliances. A copy of a Replacement Ratings Report is in the Appendix.

3.13.1 DOE Qualified Appliances

There may not be a label on some refrigerators stating they meet the NAECA minimum efficiency level. It’s also possible vendors won’t know which refrigerators meet this standard. Agencies will be able to determine which refrigerators meet the standard from the Replacement Ratings Report. It is the NAECA minimum efficiency level that is built into the BART software program. When the required appliance information from vendors is entered into the BART Program, BART will calculate the efficiency and determine whether a refrigerator meets the NAECA standard. Those meeting the standard will show a “Y” (yes) in the “DOE Qualified” column on the Replacement Ratings Report. If a refrigerator does not meet the NAECA standards, an “N” appears in the column and the refrigerator may not be used as a replacement unit.

The “DOE Qualified” column is used a little differently for freezers. At this time, DOE doesn’t allow states to use DOE funds for freezer replacements. Therefore, BART has been set up to show an “N” in the “DOE Qualified” column for all freezers. That was done to indicate that DOE funds cannot be used to cover the cost of freezer replacements. It does not mean the freezer is not energy efficient.

BART will still calculate a replacement rating for freezers. As long as the replacement rating number is less than the annual consumption of the existing freezer, a replacement can be made using HEAP funds or certain utility funds.

3.13.2 Replacement Rating

The replacement rating is a numerical rating that is applied to the replacement (new) appliances. The rating considers the energy consumption (kWh) of the appliance, the cost of the appliance, the cost of electricity, the lifetime of the appliance, and other factors. The rating is compared to the annual consumption of the existing (old) appliance to determine whether it is cost effective to replace the existing appliance with the new appliance.

This is mathematically equivalent to traditional cost-effectiveness analysis which compares the life cycle costs of existing and replacement items. However, instead of expressing the cost of the replacement appliance in life cycle cost, it is expressed as an equivalent annual fuel consumption or Equivalent Annual Consumption (EAC). Replacement of an appliance is cost-effective if the annual energy consumption of the existing appliance exceeds the equivalent annual consumption of the replacement unit. The equivalent annual consumption of the replacement unit is called the replacement rating.

3.20 Technical/Field Processes

Evaluators need to have the following items with them: several line loggers (meters), Replacement Ratings Report, Annual Consumption Conversion Table or TI-86 calculator, and Client Agreement forms.

Evaluators should tell the client the usage of their refrigerator (and freezer) will be metered to determine how energy efficient it is. The client should not be promised a new refrigerator or freezer. The determination as to whether it is cost-effective to replace an existing refrigerator or freezer is based on the results of metering the existing appliance. In order to determine whether it is cost effective to replace an existing refrigerator or freezer, the annual energy consumption of the existing appliance has to be estimated. This is done by metering the appliance.

3.21 Determining the Total Annual Consumption of Existing Appliances

3.21.1 Metering Procedures

Every refrigerator and freezer in the house needs to be metered. That is why the evaluator needs to have several line loggers with him/her.

The evaluator should ensure the meter has been reset before using it. The appliance to be metered needs to be unplugged and left unplugged for a minimum of five minutes to allow the compressor pressure to be relieved. After a minimum of five minutes the appliance should be plugged into the meter and the meter then plugged in the electrical socket.

The appliance(s) must be metered for a minimum of 120 minutes (2 hours). Therefore, the evaluator needs to record the time the logger is plugged in.

When the metering is completed, the evaluator needs to record the kWh usage from the meter and the number of minutes the appliance was metered on the evaluation form or on the client agreement form. This information is needed because it will be entered later in the WAM'S material database.

If it's not possible to move the appliance so a meter can be installed, annual consumption information can be obtained for most older appliances by using the look-up table in the NEAT Audit. The appliance manufacturer and model of the appliance have to be known in order to use the table.

3.21.2 Calculating the Annual Energy Consumption of the Existing Appliance

The kWh usage and number of minutes the appliance was metered are used to calculate the annual energy consumption of the appliance. This can be done using one of two methods. (1) The TI-86 calculator can be used to determine the annual energy consumption. The evaluator can enter the usage and meter time information into the TI-86 and a program in the TI-86 will calculate the annual

energy consumption. (2) The Annual Energy Consumption Conversion Table (Consumption Conversion Table) may also be used to calculate an annual energy consumption amount.

The Consumption Conversion Table is used to convert short-term metering results to an annual energy consumption amount. The table lists short-term kWh readings down the left side and minutes that the appliance was metered on the top. The evaluator can determine what the annual kWh consumption of the existing appliance is by finding the short-term kWh reading on the table that corresponds to the meter reading and then following a line over to the column that contains the time (in minutes) that the appliance was metered. The number at the intersection of the short-term consumption line and the time column is the annual consumption in kWh. The Consumption Conversion Table shows the kWh numbers as 2 decimal point numbers while the line loggers show kWh numbers as 3 decimal point numbers. The evaluator will need to round the 3 decimal kWh reading (the line logger reading) to the closest 2 decimal kWh number on the Conversion Table.

Refer to the Consumption Conversion Table, in the Appendix, to follow this example: A refrigerator is metered for 120 minutes (2 hours) and the line logger showed it used .431 kWh. Looking at the column on the conversion table that says, "Reading", find the reading for .43 (the line logger reading rounded to two digits). Move across that line until reaching the column that says, "120" (the time, in minutes, the appliance was metered). The number at the intersection of the line and column is the annual consumption. The number is 1,900. Therefore, the annual consumption for the refrigerator is 1900 kWh.

3.22 Determining if an Appliance can be Replaced

Once the annual energy consumption of the existing appliance(s) has been determined using the TI-86 or the Consumption Conversion Table, the evaluator can determine if it is cost effective to replace the existing appliance. This is done by comparing the annual energy consumption of the existing appliance with the replacement ratings of the replacement appliances.

The replacement ratings of the replacement appliances are found on the Replacement Ratings Report. The evaluator reviews the replacement ratings for the appliances listed on the Replacement Ratings Report to see which appliances have a lower rating than the annual energy consumption of the existing appliance. Any appliance (or combination of appliances) may be installed as long as the replacement rating for the appliance (or total replacement rating of any combination of appliances) is less than the total annual energy consumption of the existing unit (or combination of existing units).

Following are examples that describe how the evaluator determines whether an appliance replacement should be made. Assume an agency has four different refrigerators listed on the Replacement Ratings Report. (In real life, the variations in brand, style, and size would result in more than four appliances to choose from.) The characteristics of the four appliances are shown below (all values are made up and do not represent actual data). When determining which new appliances can be installed, the evaluator must ensure that the new appliance will fit into the space available.

Replacement Rating Report

ID	Rating	Brand	Style	Size
R1	1140	Whirlpool	TF	16.8
R2	1180	Amana	TF	18.2
R3	1250	Frigidaire	BF	18.8
R4	1425	Kenmore	TF	20.6

Example 1

A client's refrigerator was metered for 2 hours and showed a consumption of 0.282. This short-term reading is extrapolated to an annual energy consumption rate by using the TI-86 or the Conversion Table. The extrapolated annual energy consumption rate is 1,200.

By looking at the Replacement Rating Report, above, it can be seen that it would be cost-effective to replace the existing refrigerator with either Appliance R1, which has a replacement rating of 1,140, or Appliance R2, which has a replacement rating of 1,180. Both of these ratings are less than the annual energy consumption of the existing appliance (1,200). It would not be cost-effective to replace the existing refrigerator with either Appliance R3 or R4, since their replacement ratings are greater than the annual energy consumption of the existing refrigerator.

Example 2

The client has two appliances. The two units were metered for 2 hours, and showed consumption values of 0.252 and 0.180. These values are extrapolated to annual energy consumption rates using the TI-86 or the Conversion Table. The extrapolated rates are 1,104 kWh and 788 kWh, respectively. The total annual energy consumption of these two units is 1,892 (1,104 + 788).

In this example, neither of the existing refrigerators can be exchanged for any of the replacement units because the replacement rating for each of the replacement refrigerators exceeds the annual energy consumption for each of the existing units (1,104 and 788). However, a replacement refrigerator can be installed if both of the existing units are removed because the replacement rating of any of the refrigerators listed is less than the total annual energy consumption of the existing units (1,892). This could be a case where the client would agree to have the two refrigerators replaced by a larger more efficient unit.

3.23 Client Agreement

Once the evaluator determines whether an appliance or a combination of appliances can cost-effectively be replaced by a new appliance(s), the evaluator will discuss the possibility with the client. It may be possible to propose various combinations of appliances to be replaced. Greater energy savings are realized if multiple appliances can be replaced with one appliance.

If the client agrees to a replacement of an appliance or a combination of appliances, the evaluator will complete the Client Agreement Form and have the client sign the form. The Client Agreement Form lists the existing appliances that will be replaced and the new appliances that will be installed. The Client Agreement Form is on 3-part NCR paper. One copy of the form is given to the client, one copy is given to the appliance vendor, and one copy is retained by the agency.

A copy of the Client Agreement Form is in the Forms section of the Weatherization General Appendix.

3.24 Order Appliance

The agency will make arrangements with the appropriate vendor to deliver the appliance that was specified as a replacement and to remove and destroy the "old" appliance. When making the arrangements with the vendor, the agency will ensure the vendor understands which existing appliances are to be removed and destroyed.

4.00 REFRIGERATION APPLIANCE REMOVAL PROTOCOL

The procedure for the straight removal of inefficient refrigeration appliances consists of explaining to the client the benefits of removing an appliance that is not used or is seldom used. By metering the appliance, the evaluator can estimate how much the client can save each year by removing the appliance.

APPENDIX

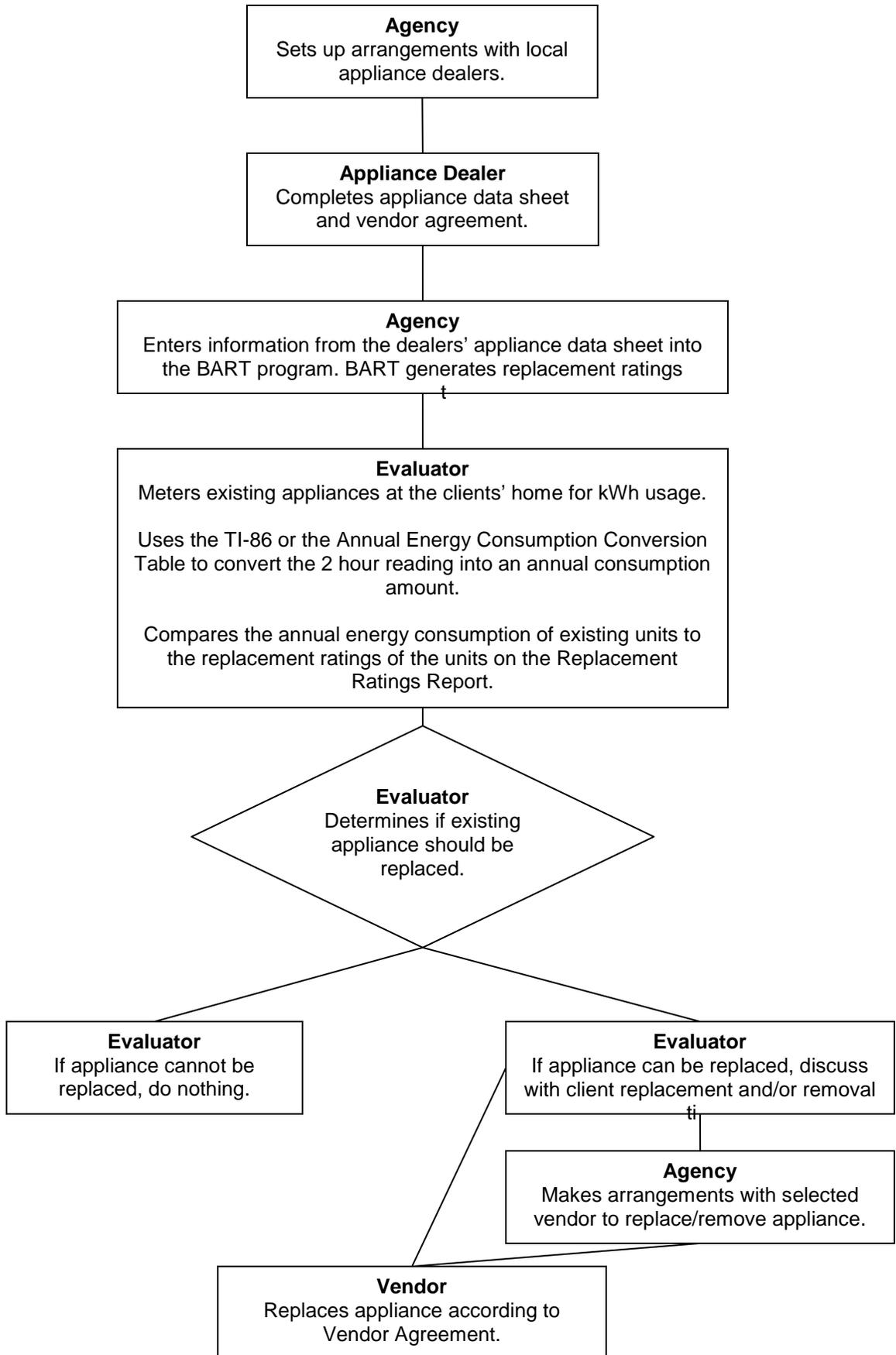


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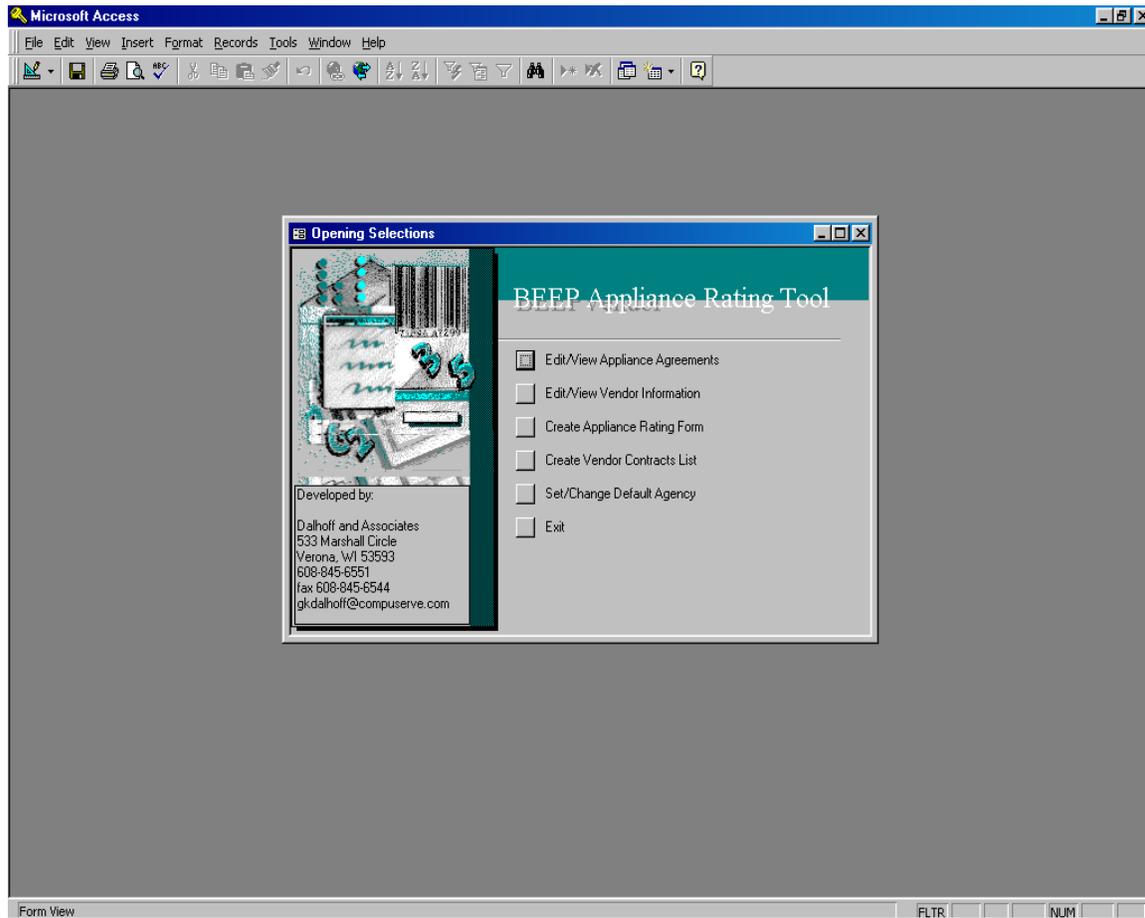
BEEP Appliance Rating Tool	1
Edit/View Appliance Agreements Menu Item	2
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Create BEEP Rating Form	5
Create Vendor Contract List Menu Item	7
Set/Change Default Agency	8
Economic and Program Cost Assumptions	9

BEEP Appliance Rating Tool

We developed the BEEP Appliance Rating Tool (BART) to simplify calculating the BEEP rating and to allow the user to print the BEEP Ratings Report¹.

BART should be installed in c:\BART so that WAMS can find it easily.

The opening screen has six choices:



¹ The BEEP Rating Tool is provided as an Access executable (.mde) file. It is designed function within Access 97. It might not work properly under Access 2000: please contact me if an agency which uses Access 2000 is having problems.

Edit/View Appliance Agreements Menu Item

The first selection, Edit/View Appliance Agreements, opens the screen below. Basic vendor agreement and appliance data is entered on this screen. This data is used for creating the BEEP Rating Report. All of the data is required, except for the begin and end dates for the agreement, and the color of the appliance.

The screenshot shows a Microsoft Access window titled "Vendor Contracts" with a form titled "Edit/View Appliance Agreements". The form contains the following fields and controls:

- Contract ID: 1F2742E (with an "Edit" button) and a "Valid Contract" checkbox (checked).
- Vendor: JCPenney (dropdown menu).
- Cost: \$750.00
- Begin Date: 1/1/2000
- Delivery Charge: \$50.00
- End Date: 1/1/2003
- Removal Charge: \$10.00
- AgencyID: 03D (dropdown menu).
- Appliance Description** section:
 - Type: Refrigerator-Freezer (dropdown menu)
 - Style: SS (dropdown menu)
 - Brand: ACME (dropdown menu)
 - Model: cc123
 - Color: White
 - Defrost: Auto (dropdown menu)
 - Annual Energy Consumption: 790 kWh
 - Max Allowable Cons (calculated): 706.3 kWh
 - Size (cu ft - calculated): 17.4
 - Fresh Vol (cu ft): 17.4
 - Freezer Vol (cu ft): 0
 - Height: 62
 - Width: 29
 - Depth: 21
 - Search EnergyStar Web Site button.
- Restrict to Valid Contracts checkbox (checked).
- Buttons: Add Record, Duplicate Record, Finished.
- Record navigation: Record: 1 of 6.

The Max Allowable Consumption is calculated for DOE qualified refrigerators (top and bottom mounted refrigerators, and side by side refrigerators, all without through-the-door ice service). It is set for 9,999 for all freezers and non-qualified refrigerators.

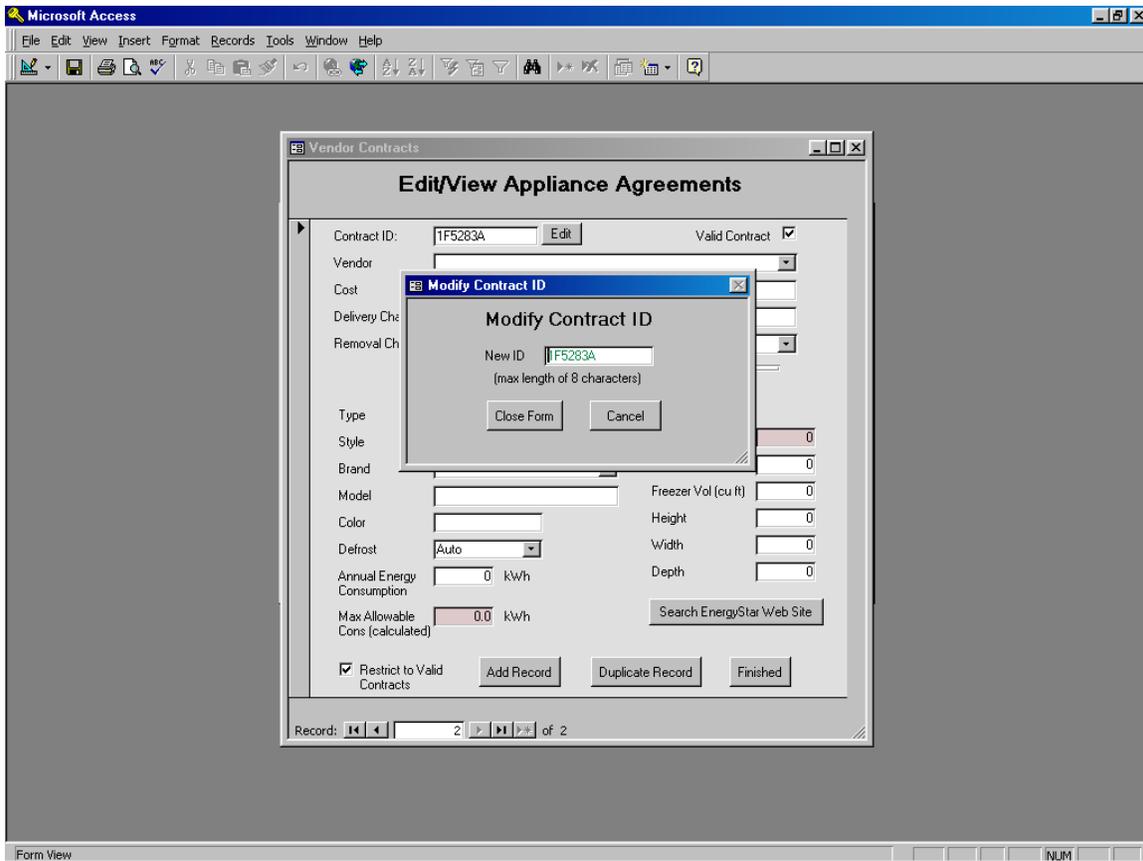
The user can add new Vendor/Appliance combinations by clicking the 'Add Record' or 'Duplicate Record' buttons. In each case, a unique Contract ID is assigned. A blank record is created if the 'Add Record' button is used, and all data (with the exception of the Contract ID) is copied if the 'Duplicate Record' button is clicked.

If a contract is no longer valid, uncheck the 'Valid Contract' checkbox. Unchecking this box will prevent this record from appearing in the BEEP Rating reports. It will continue to be shown in this screen however, unless the checkbox in the lower left corner 'Restrict to Valid Contracts' is checked.

The button "Search EnergyStar Web Site" will launch the web browser and take you to Energy Star refrigerator search page. This feature has been tested using MS Internet Explorer under Window 98.

Contract ID

The Contract ID is automatically created when a new record is added (either using the 'Add Record' or the 'Duplicate Record' buttons). A unique ID is used for each Vendor/Appliance combination. The user can edit the Contract ID by clicking the 'Edit' button next to the 'Contract ID'. Clicking the 'Edit' button opens the 'Modify Contract ID' dialog box (See next figure).



The color of the text in the 'New ID' box is green if the ID is unique, otherwise the text is red. The modified ID will not be saved unless the ID is unique: a warning appears if the user attempts to assign a duplicate Contract ID.

Pressing the 'Cancel' button will revert to the original ID.

The BEEP Rating Tool is provided with a blank record with the ID 'PlacHldr'. The user will probably wish to uncheck the 'Valid Contract' checkbox for this record, *but this should not be done until the user has added a new record to the database with either the 'Add Record' or 'Duplicate Record' buttons.*

Edit/View Vendor Information Menu Item

Vendor information is entered in if the Edit/View Vendor Information item is selected in the main menu. These data are optional, with the exception of the Vendor Name.

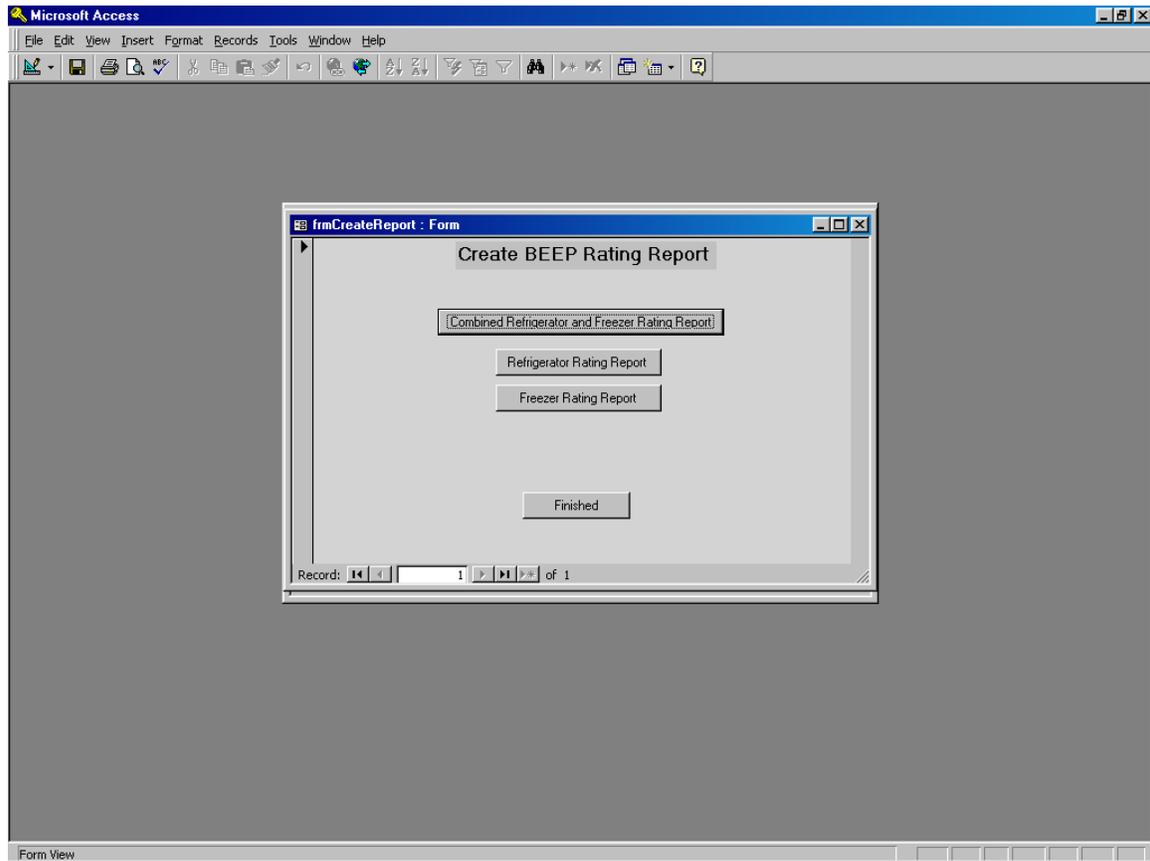
The screenshot displays the Microsoft Access application window with the 'tbVendor' dialog box open. The dialog box is titled 'Edit/View Vendor Information' and contains the following fields and controls:

Vendor	Al's Home Appliance Outlet
Address1	123
Address2	
City	Cedar Rapids
State	Iowa
Zip	55555
Contact Name	Al
Phone Number	

Below the fields are three buttons: 'Add Record', 'Delete Record', and 'Finished'. At the bottom of the dialog box, there is a record navigation bar showing 'Record: 1 of 4'.

Create BEEP Rating Form

The third menu item, 'Create BEEP Rating Form', opens a form to specify if a report should be created refrigerators, freezers, or both. Selecting any of these buttons launches a preview of the BEEP Replacement Ratings form (shown on the following page). The ratings report can be printed from the preview screen.



Microsoft Access - [rptReport]

File Edit View Tools Window Help

Fit Close

Baseload Electricity Efficiency Program Replacement Ratings Report

Contract ID	Rating	Energy Cost	DOE Qualified	Brand	Model	Style	Defrost	Size (cuft)	Height	Width	Depth	Color
Freezer												
1F276B7	1300	\$29.05	N	CORONADO	ccccf6789	CF	Auto	17.4	62	29	21	White
Refrigerator-Freezer												
1F275E7	1700	\$57.27	Y	AMANA	cc123	SS	Auto	20.4	62	29	21	White
1F27689	1700	\$58.10	Y	ADMIRAL	aa34567	SS	Auto	16.4	62	29	21	White
1F27476	1700	\$65.57	N	WELBILT	23298	SS	Auto	20.4	62	29	21	White
1F27511	1800	\$65.57	N	VIKING	v76893	SS	Auto	21.5	62	29	21	White
1F2742E	1900	\$65.57	N	ACME	cc123	SS	Auto	17.4	62	29	21	White

Common Style Codes
 Refrigerator: BF bottom freezer, TF top freezer, TI top freezer w/ice on door, SS side-by-side, SI side-by-side w/ice on door
 Freezer: CF chest freezer, UF upright freezer

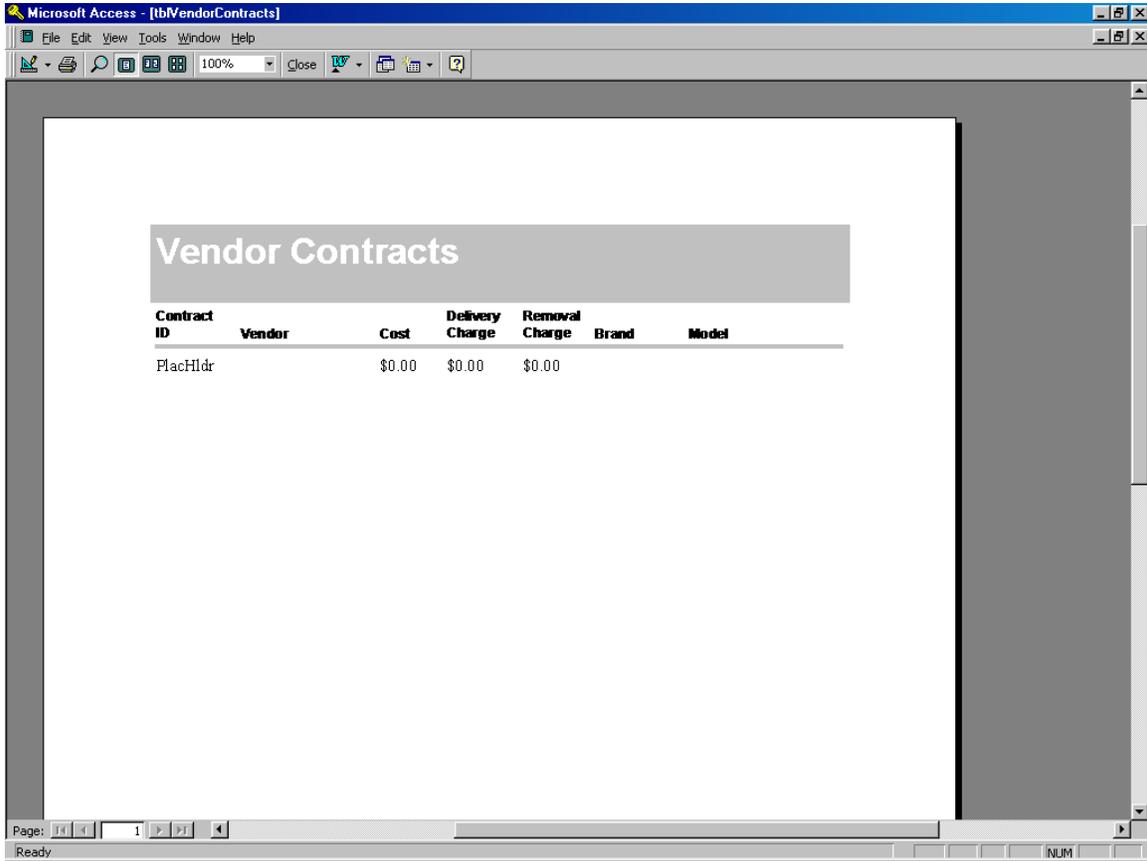
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Ready NUM

Create Vendor Contract List Menu Item

The fourth menu item, 'Create Vendor Contract List', opens a screen with a list of vendor contracts. An example (with only the initial placeholder Contract ID) is shown below:

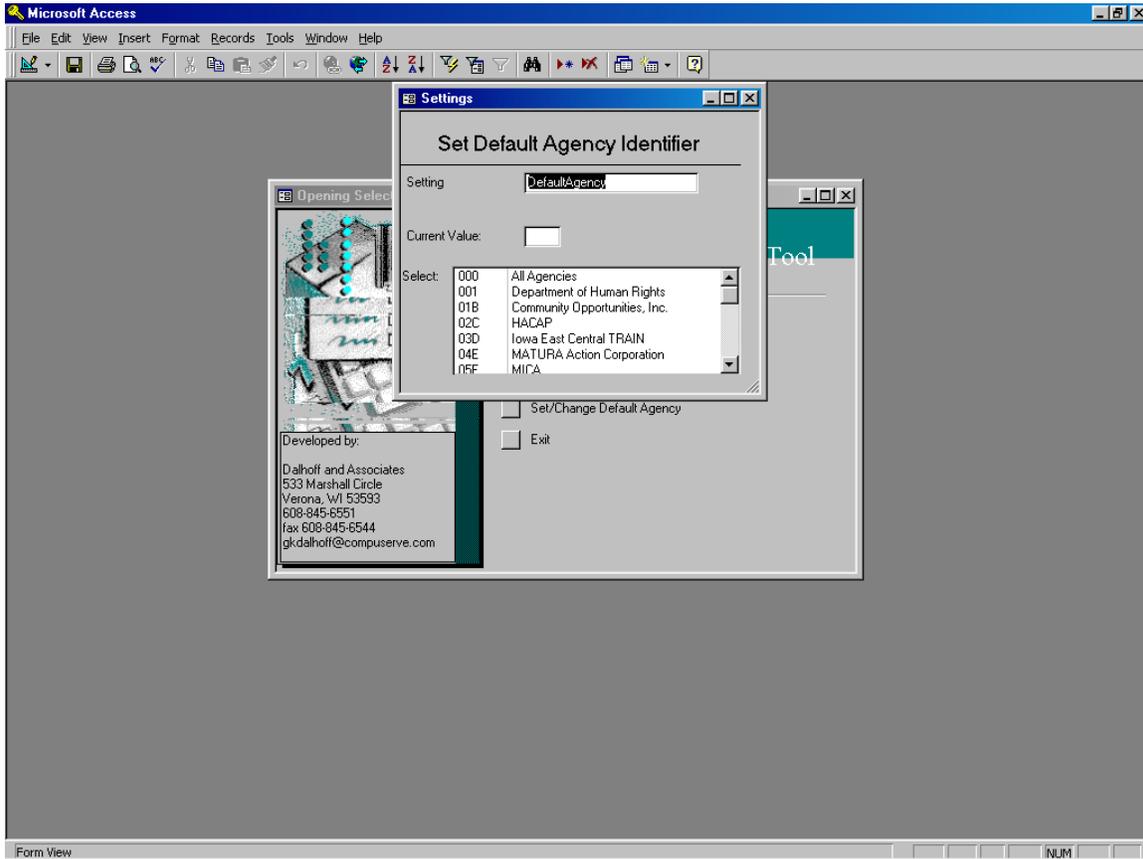


The screenshot shows a Microsoft Access window titled 'Microsoft Access - [tblVendorContracts]'. The window displays a table named 'Vendor Contracts'. The table has the following columns: Contract ID, Vendor, Cost, Delivery Charge, Removal Charge, Brand, and Model. The first row of data shows 'PlacHldr' in the Contract ID column, and '\$0.00' in the Cost, Delivery Charge, and Removal Charge columns. The other columns are empty.

Contract ID	Vendor	Cost	Delivery Charge	Removal Charge	Brand	Model
PlacHldr		\$0.00	\$0.00	\$0.00		

Set/Change Default Agency

The fifth menu item, 'Set/Change Default Agency', opens the following screen:



Simply select one of the agencies in the box, then click the 'X' in the upper right corner to close the form. This form will open each time the tool is started until a default agency is assigned. Note that the form might be partially hidden behind the main menu, in which case you can bring it forward by either selecting the menu item or by clicking on the part of the form that is exposed from behind the menu.

The 'Default Agency ID' is used to assign the agency id whenever the 'Add Record' button on the 'Edit/View Vendor Agreements' screen is clicked.

Economic and Program Cost Assumptions

A table with economic assumptions is used by the BEEP Rating System, however we do not provide access to it through menus. The table contains the values of parameters for the life cycle cost calculation (used by the BEEP Rating calculation). The table of these parameters is shown below:

Parameter	Abbreviation	Value
Administration Cost	Adm	0
Support Cost	Sup	0
Appliance Service Lifetime	LC	15
Uncertainty Factor	UF	1.0
Discount Rate	DR	0.05
Electricity Cost	FC	0.083
Administration Cost Multiplier	ACM	0
Support Cost Multiplier	SCM	0.05
Fuel Escalation Rate	FE	0.00

Administration and support costs may be calculated in two ways. The parameters Adm and Sup are fixed values per appliance. The parameters ACM and SCM are meant to be used as fractional multipliers applied to the cost of the appliances (e.g., if ACM is 0.25, the administration cost is calculated as 25% of the appliance cost). You can use the fixed and multiplier methods separately or together.

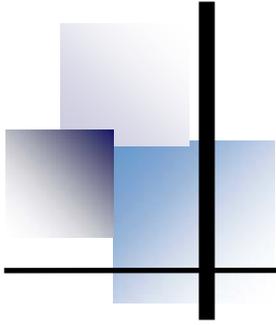
Appliance Service Lifetime: The projected duration of savings for the replacement appliances.

Uncertainty Factor: This is a multiplier on the annual energy consumption of the replacement unit. Values greater than 1.0 increase the BEEP rating. Values less than 1.0 decrease the BEEP rating. This factor is used to reduce the attractiveness of higher energy use replacement appliances.

Discount rate: Used to assess the time value of future energy consumption. 5% is typically used for a societal discount rate.

Fuel escalation rate: The annual rate of fuel price change over the life of the appliances.

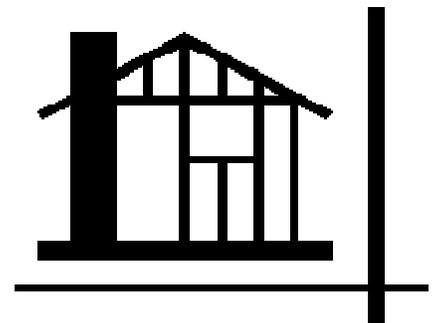
Electricity cost: The cost per KWH



LEAD PAINT PROTOCOL

Iowa Weatherization Program

Department of Human Rights
Division of Community Action Agencies
Lucas State Office Building, 2nd Floor
Des Moines, Iowa 50319
Website: www.weatherization.iowa.gov



LEAD PAINT PROTOCOL

INTRODUCTION

Lead is highly toxic, especially to young children. It can harm a child's brain, kidneys, bone marrow, and other body systems. At high levels, lead can cause coma, convulsions, and death. Even low levels of lead in infants, children, and pregnant women are associated with impaired cognitive function, behavior difficulties, fetal organ development and other problems. Low levels of lead in children can cause reduced intelligence and impaired hearing.

The most common source of lead exposure for children is lead paint in older homes and the contaminated dust and soil it generates. For this reason, it is very important that weatherization work is done in a lead-safe way.

AUTHORITY

The lead paint notification requirement is an EPA requirement and is addressed in 40 CFR (Code of Federal Regulations) Part 745, titled, "Lead; Requirements for Hazard Education Before Renovation of Target Housing."

The Iowa Department of Public Health (IDPH) is responsible for applying the notification requirement in Iowa. IDPH has promulgated rules for the application of the EPA notice requirement for Iowa. The IDPH rules are contained in 641 Chapter 69 of the Iowa Administrative Code (IAC). Chapter 69 is titled, "Renovation, Remodeling, and Repainting – Lead Hazard Notification Process." IDPH officials have told us that the requirements in Chapter 69 of the IAC are at least as stringent as the EPA requirements contained in 40 CFR Part 745. Therefore, the weatherization program only needs to be concerned with compliance with Chapter 69 of the IAC. Copies of Chapter 69 and 70 of the IAC are included in this section.

HOUSING COVERED BY THE REQUIREMENT

The notification requirement applies to all renovation activities in target housing (pre-1978) or child-occupied facility (see Chapter 69 for definition of child-occupied facility). Renovation activities are those that result in a modification of an existing structure that results in the disturbance of an area of painted or stained surface exceeding the square footage defined in 641 - Chapter 70 of the Iowa Administrative Code

IAC 641 - Chapter 69: Renovation, Remodeling and Repainting Lead Hazard Notification Process:

LEAD PAINT NOTIFICATION

All Weatherization Assistance Program activities involving renovation work on pre-1978 target housing or child-occupied facility (see Chapter 69 for definition of child-occupied facility) are subject to the provisions of the Federal Environmental Protection Agency (EPA) and the Iowa Department of Public Health (IDPH) regulation that require that a notification be given to the occupants of the housing, informing them about the hazards of lead paint and the paint dust.

Renovation activities are those resulting in a modification of an existing structure that results in the disturbance of an area of painted or stained surface exceeding the square footage defined in 641 - Chapter 70 of the Iowa Administrative Code.

The notification pamphlet from the Iowa Department of Public Health is titled *Lead Poisoning: How to Protect Iowa Families*. A copy of this pamphlet is available on their website

http://www.idph.state.ia.us/eh/lead_poisoning_prevention.asp

Renovate Right is the federal version. DOE recommends providing the *Renovate Right* pamphlet, however; one of the two pamphlets must be provided to the owner, operator or occupants of the home prior to commencing the work but not more than 60 days prior to commencing the work.

PROVIDING NOTIFICATION

The person actually doing the renovation work is the one who must comply with the notification requirement. For crew-based agencies, this means agency's Certified Renovators. For contractor-based agencies, this means the Certified Renovator working for the contractors. The contractor-based agency may provide the notification if it wishes, however, it does not exempt the contractor from the requirement to provide notification. The agency needs to have a copy of the contractor supplied notification in their files.

Owner-Occupied

If the renovation work is done in an owner-occupied home, the Certified Renovator doing the work must provide the notification pamphlet to the owner of the house prior to starting the work but no more than 60 days prior to starting the work. The Certified Renovator must also obtain a written acknowledgement from the owner that the owner was provided the pamphlet.

Rental Dwelling

If the renovation work is done in a rental dwelling, the Certified Renovator doing the work must provide the notification pamphlet to the owner of the house and to an adult occupant of the house prior to starting the work but no more than 60 days prior to starting the work. The Certified Renovator must also obtain written acknowledgements from both the owner of the house and an adult occupant of the house that they were provided the pamphlets.

Common Area – Multi-Unit Housing

If the renovation work is done in the common areas (i.e. exterior, interior lobby, or hallways) of a multi-unit dwelling, the Certified Renovator doing the work must provide the notification pamphlet to the owner of the dwelling prior to starting the work but no more than 60 days prior to starting the work. The Certified Renovator doing the work must obtain a written acknowledgement from the owner that the owner was provided the pamphlet. The Certified Renovator doing the work must also provide written notification to each occupant in the dwelling of the work that will be done and make the pamphlet available upon request prior to the start of the renovation work. The notification to the occupants must describe the general nature and locations of the planned work, the expected starting and ending dates, and a statement of how the occupants can obtain a copy of the pamphlet from the Certified Renovator doing the work.

Child-occupied facilities

If the renovation work is done in a child-occupied facility, the Certified Renovator doing the work must provide the notification pamphlet to the owner or operator of the building prior to starting the work but no more than 60 days prior to starting the work. The worker must also obtain a written acknowledgement from the owner or operator that the owner or operator was provided the pamphlet.

WRITTEN ACKNOWLEDGEMENT

The acknowledgement must include the language somewhere in it: "I have received the pamphlet entitled *Lead Poisoning: How to Protect Iowa Families* or the federal pamphlet, *Renovate Right*, prior to the start of renovation, remodeling, or repainting and am aware of the potential health risk associated with remodeling, renovating, or repainting housing containing lead-based paint or lead-based paint hazards".

IDPH has developed four (4) forms for acknowledgement. These forms include:

- 1) Notification for Single Family Dwellings
- 2) Emergency Renovation for Single Family Dwelling
- 3) Notice to Owners for Work in Common Areas in Multi-Family Housing, and
- 4) Notice to Residents for Work in Common Areas in Multi-Family Housing.

DCAA requires the use of these forms for the written acknowledgement requirement. Copies of each of these forms are included at the end of this section and on the Members Only page of the DCAA website www.weatherization.iowa.gov. THE EPA Renovate Right pamphlet includes the acknowledgement. The written acknowledgement obtained by the Certified Renovator, must include the owner, operator or occupant's

name as applicable. An acknowledgement of the receipt of the information pamphlet must include the address of the house being worked on, the signature of the owner or occupant, as applicable, and the date of the signature.

The written acknowledgement the Certified Renovator must obtain from the homeowner, landlord and renter (for rental dwellings) and landlord (for multi-unit dwellings) and owner or operator of child-occupied facilities must include the owner, operator or occupant's name, as applicable. An acknowledgement of the receipt of the information pamphlet must include the address of the house being worked on, the signature of the owner or occupant, as applicable, and the date of the signature.

Form #1 also includes the certificate of mailing option in case the Certified Renovator cannot obtain a written acknowledgement from the homeowner, landlord and renter (for rental dwellings) and landlord (for multi-unit dwellings) and owner or operator of child-occupied facilities. The certification must include the address of the unit worked on, the date and method of delivery of the pamphlet, the name of the person delivering the pamphlet, the reason (i.e. occupant refused to sign, no adult occupant available, etc.), and the signature of the person that will do the work and the date of the signature. The Certified Renovator must send the pamphlet by certified mail at least 7 days prior to beginning work. The Certified Renovator must keep documentation concerning the mailing to document receipt of the pamphlet.

RECORD KEEPING REQUIREMENT

The agency and person doing the renovation, remodeling and repainting must keep the following records for at least 3 years.

The records should include when applicable:

- All weatherization house files must include a copy of the notification using one of the four forms listed above.
- Copies of signed, dated acknowledgements as required by sub-rule 69.3(2) from each owner and occupant of a dwelling unit where renovation, remodeling or repainting was conducted, or
- Copies of signed, dated acknowledgements as required by sub-rule 69.4(2) from each owner of multifamily target housing where renovation, remodeling, or repainting was conducted in common areas, and
- Copies of all signed, dated statements of notification, as well as copies of all notification materials given to all owners and occupants and acknowledgements as required by sub-rule 69.4(2) from each owner and occupant of multifamily target housing where renovation, remodeling, or repainting was conducted in common areas, or
- Copies of signed, dated acknowledgements as required by 641—69.7(135) from the owner and, if different, operator of a child-occupied facility where renovation, remodeling, or repainting was conducted, and
- Copies of all notification materials given to the parents or guardians of children using a child-occupied facility or the signs posted in areas where the signs can be seen by the parents or guardians of children using the child-occupied facility as required by sub-rule 69.7(9). IAC 2/10/10 Public Health [641] Ch 69, p.11, or
- Certifications of attempted delivery as described in 641—69.6(135), or
- Certificates of mailing as described in sub-rules 69.3(3) and 69.4(3). Chapter 69 641-69.12(135).
- If the notification was handled by a contractor, the contractor must keep the original for three years.
- The address or location and age of the target housing or child-occupied facility where remodeling, renovation or repainting was conducted.
- A list of all known occupants of the dwelling units where renovation, remodeling, or repainting was conducted at the commencement of the work.
- Lead Free Surfaces: All work that is presumed to be lead free must be tested lead free by a certified person (see Chapter 70 for certification requirement to perform lead free testing) and if found to be free of lead-base paint; the work is exempt of the work standard practices, but not exempt of the record keeping requirements.

- Reports showing that a lead inspector/risk assessor or elevated blood level (EBL) inspector/risk assessor (certified pursuant to 641—Chapter 70) has made a written determination that the components affected by the renovation are free of lead-based paint.

Note: all the requirements can be found in Chapter 69 Renovation, Remodeling and Repainting.

IAC 641 - Chapter 70: Lead Base Paint Activities:

TRAINING

All contractors and crews working on targeted housing (Pre-1978 construction) or child-occupied facility (see Chapter 69 for definition of child-occupied facility) must take the Iowa Department of Public Health Lead- Safe Renovator training program. The training must be provided by a trainer certified with the IDPH. The Lead-Safe Renovator course consists of eight hours of instruction time with two of those hours, hands-on training and a 40 question test that the participants must score at least 80 percent (32 questions correct) in order to pass. If a person has already taken the Lead-Safe Work Practice course and can show proof they passed the course, he or she will need to take the four hour Lead-Safe Renovator course with two of those hours being hands-on training.

The course is designed for workers who perform renovation, remodeling and repainting or standard treatment for federally assisted activities pursuant to 24 Code of Federal Regulations (CFR) Part 35. Students successfully completing this course meet the performance standard of HUD's Lead Paint Regulation 24 CFR Part 1330 (a) (4).

The course does not train people to perform lead-paint abatement, although it will prepare workers to perform Lead-Safe Work Practices and LSW (Lead-Safe Weatherization). Persons completing this course are not qualified to perform lead-base paint abatement. Courses for these activities are available from accredited lead training providers.

DOE does not allow funding for lead-base paint abatement.

The Occupational Safety and Health Administration (OSHA) have regulations governing work involving lead containing material. Included in the regulations are action levels and permissible exposure limits (PEL) for exposure to lead concentrations. An exposure in excess of the PEL requires the use of safety equipment such as respirators, protective clothing, head covering (hat, hood), eye and ear protection and hand and feet protection.

WORK COVERED BY THE REQUIREMENT

Any activity that disturbs a painted or stained surface on residential structures built before 1978 may cause lead hazards. State health and occupational laws require that certain steps be taken whenever lead-painted or presumed lead-painted surfaces are disturbed. These steps are known as "lead-safe" work practices. Designed to protect clients and workers, "lead-safe" work practices should always be used when working on residences built before 1978. Components are structural elements or fixtures of a house that are distinguished from each other by form, function, and location. Thus, doors, windows, siding, etc. would be considered as separate components.

For purposes of this section, the person doing the renovation work will be referred to as the renovator. For crew-based agencies this would be a weatherization staff person (most likely the crew leader). For contractor-based agencies, this would be the contractor or a worker that works for the contractor.

Lead-safe work practices are ways to contain lead hazards inside a work area (also known as containment) when disturbing lead-based or presumed lead-based paints and coatings. These-practices include things that should not be done, "THE DON'Ts", and things that should be done, "THE DO'S", whenever disturbing paint on buildings built before 1978.

The Don'ts

- Do not turn leaded paint into leaded dust by scraping, sanding, or planing lead-based paint or presumed lead-based paint (unless needed around electrical outlets).

- Do not machine sand, grind or conduct abrasive blasting of lead-based paint or presumed lead-based paint unless using a High Efficiency Particulate Air (HEPA) filter exhaust control system with your tools.
- Do not use a torch (open-flame burning) or a high-temperature heat gun (above 1100 F) to remove paint, coatings, or glazing compound.
- Do not smoke, eat, drink, chew tobacco or gum, nor apply cosmetics while working with leaded or presumed leaded materials.
- Do not allow children or pets in the work area until you have finished and the area is thoroughly cleaned.
- Do not saw lead-painted or presumed lead-painted materials (doors, jambs, windows, etc.) inside of a house or apartment, unless it will be adequately contained.
- Do not track leaded dust from the work area to other areas.
- Do not use reusable painter's tarps or drop cloths.
- Do not leave anything for the occupants to clean up.
- Do not use the occupant's broom, dustpan, or vacuum cleaner to clean up.
- Do not take lead home on your clothes, shoes, tools, or vehicle—you can poison your family with the dust you generate at the job if you bring it home.

The Do's

- Always use lead-safe work practices when disturbing lead-based paint or presumed lead-based paint.
- Use wet sanding, scraping methods.
- Confine dust and debris in as small an area as possible by containing it. Use disposable 6-mil polyethylene (poly) sheeting under all work areas where you might generate dust and debris.
- Wear shoe/boot covers in the work area. When moving from a work area to a non-work area, remove your shoe/boot covers or wipe the tops and bottoms of your shoes/boots off before stepping off the 6-mil poly sheeting.
- Clean the work area as often as needed to maintain the work area as free as possible from dust and debris. Dispose of leaded material in 6-mil poly trash bags.
- When cleaning, vacuum all work areas with a HEPA vacuum that is equipped with a beater bar, then wash or wipe down the work area with a detergent solution. Starting from the highest point and working your way down.
- Use shrouds on power tools attached to a HEPA vacuum when generating dust.
- Practice good hygiene by washing your hands and face before eating, drinking, or anything that will bring your hands in contact with your mouth.
- Change your work clothes and shoes, clean your tools, and wash exposed areas of your body thoroughly before going home.

All renovation work that is done on Pre-78 home which disturbs an area of painted or stained surface exceeding the square footage defined in 641 - Chapter 70 of the Iowa Administrative Code, should be performed according to the work standard practice of 70.6(11). DCAA recommends every agency and their contractors become familiar with work practice standards in Chapter 70.

Job Site

All Lead-Safe Weatherization (LSW) work should be performed by a Certified Renovator appointed by a Firm. A renovator must be on job site during all job site preparation and during clean-up. When not on the job site, workers will need to be able to get in touch with the renovator in charge of the renovation project and he or she would need to be able to be present at the job site within two hours, if called upon.

On-the-job Training

All workers conducting renovation, remodeling and repainting work on the job site, must have on-the-job training by the certified renovator assigned to that job site if they are not Certified Renovators or have not passed the Lead-Safe Renovator training. The training should be specific to the work the worker is doing and must include at least the following topics:

- An overview of the requirements described in this chapter.
- An overview of the health effects of lead poisoning.

- Methods to prevent taking lead dust home from the worksite.
- How and why to properly set up a work area for lead-safe renovations.
- How and where to properly post signage.
- Personal protection.
- How and why to properly set up containment.
- How and why to minimize dust and debris.
- Proper cleaning techniques and time lines for cleaning in renovation activities.
- How to properly handle and control waste generated from renovation activities.
- An overview of the post-renovation cleaning verification and clearance testing.
- An overview of the pre-renovation notification requirements found in 641—Chapter 69.
- Prohibited work practices. Chapter 70, 70.6(11)d(3)

Lead Free Surfaces

All work that is presumed to be lead free must be tested lead free by a certified person (see Chapter 70 for certification requirement to perform lead free testing) and if found to be free of lead base paint, the work is exempt of the work standard practices, but does not exempt the record keeping. The Lead Test Kit Documentation Form must be completed and attached to the Iowa Lead-Safe renovation Report to verify lead free surfaces.

Recognized test kits

Renovators may use recognized test kits to check whether the surface that is being disturbed is free of lead paint. Keep in mind that the result of the test only applies to the surface that has been tested and if multiple surfaces are going to be disturbed during weatherization work, then a test will need to be done on each surface.

Test results are only valid when manufacturing directions are followed. Test results must be from an EPA or IDPH recognized test kit. A list of EPA approved test kits is available at <http://www.epa.gov/earth1r6/6pd/lead/index.htm>.

Work Standard Procedures

A containment area must be built when disturbing an area of painted or stained surface on a pre-1978 building exceeding the square footage defined in 641 - Chapter 70 of the Iowa Administrative Code, unless the surface is tested lead free as described above. The following items are not a complete list of work activities which may create lead hazards, so always remember to follow the work practice standards whenever you disturb painted or stained surfaces on pre-1978 buildings: walls, windows, doors, jambs and threshold.

Work areas are to be properly contained before the work begins. To be effective, the containment must:

- Isolate debris from leaving the work sight
- Be monitored and maintained
- Installed in a manner where it does not impede the workers or occupant egress in the case of an emergency.

Signs should be posted at:

- Every entrance of the work site
- Should be able to be read from a distance of 20 ft
- Signs should be in appropriate language of the occupant
- Contain the language: “Warning, Lead Work Area, Poison, Do Not Enter Work Area Unless Authorized, No Smoking, Eating or Drinking” and the work area properly contained.

Interior Renovation: Containment shall include:

- The removal or covering of all objects from the work area, including but not limited to furniture, rugs, and window coverings. Objects that are not removed from the work area must be covered with plastic sheeting or other impermeable material with all seams and edges taped or otherwise sealed.

- Closing and covering all duct openings in the work area. Ducts must be covered with plastic sheeting or other impermeable material that is taped down.
- Closing windows and doors in the work area. Doors must be covered with plastic sheeting or other impermeable material. Doors used as an entrance to the work area must be covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.
- Covering the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area six feet beyond the perimeter of the surfaces undergoing renovation or a sufficient distance to contain the dust, whichever is greater.
- Ensuring that all personnel, tools, and other items, including the exteriors of containers of waste, are free of dust and debris before leaving or being removed from the work area. Chapter 70, 70.6(11)a(4)

Exterior Renovations: Containment shall include:

- Closing all doors and windows within 20 feet of the renovation. On multistory buildings, all doors and windows within 20 feet of the renovation on the same story as the renovation shall be closed, and all doors and windows on all stories below the renovation that are the same horizontal distance from the renovation shall be closed.
- Ensuring that doors within the work areas that will be used while the renovation is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.
- Covering the ground with plastic sheeting or other disposable impermeable material extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground cover. Exterior ground cover should include a curb system, anchors or weights to ensure the covering remains effective even during weather conditions such as high wind.
- Vertical containment. In certain situations, such as where other buildings are in close proximity to the work area, when conditions are windy, or where the work area abuts a property line, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall erect a system of vertical containment designed to prevent dust and debris from migrating to adjacent property or contaminating the ground, other buildings, or any object beyond the work area. Chapter 70, 70.6(11)a(5)
- Remove all toys and cover all playground equipment within 20 feet of the work area.

CLEANUP

In addition to not creating leaded dust and debris problems in the first place, a thorough cleaning is an important part of the lead-safe weatherization process.

Lead-safe cleaning is required after all renovation work has been completed. The use of a HEPA vacuum with HEPA filter and beater bar, two bucket wet cleaning method and wiping down walls and other vertical hard surfaces with wet wipes or cloth are some of the methods used to perform Lead-Safe cleaning.

For interior renovations:

Simply cleaning an area with a broom and dustpan is not adequate to protect your workers or clients and may actually spread the leaded dust around. Standard “shop-vacs” and regular vacuums cannot control fine dust particles and should not be used. The following cleaning methods should be used after you have finished your work tasks:

- The collection of all paint chips and debris and, without dispersing the paint chips and debris, seal the materials in heavy-duty bags.
- The removal of the protective sheeting used. The sheeting shall be misted and then the sheeting shall be folded dirty side inward. All sheeting shall be taped shut or otherwise sealed inside heavy-duty bags. Sheeting used to separate work areas from non-work areas must remain in place until after the cleaning and removal of other sheeting. All sheeting shall be disposed of as waste.

- For interior renovations, all objects and surfaces in the work area and within two feet of the work area must be cleaned from high to low in the following manner:
 - Walls must either be vacuumed with a HEPA vacuum or wiped with a wet cloth, beginning at the ceiling and working toward the floor.
 - All remaining surfaces including objects and fixtures must be thoroughly vacuumed with a HEPA vacuum. For carpeted floors and rugs, the HEPA vacuum must be equipped with a beater bar.
 - All remaining surfaces, except for carpeted or upholstered surfaces, must also be wiped with a damp cloth. Uncarpeted floors must be thoroughly mopped using a method that keeps the wash water separate from the rinse water, such as the two-bucket mopping method, or using a wet mopping system. Chapter 70, 70.6(11)a(11).

Take precautions not to track leaded dust from the work area to unprotected areas around the work area. Wipe the tops and bottoms of your shoes/boots or change disposable shoe/boot covers whenever moving off of the work area poly sheeting.

For exterior renovations:

- Collect paint chips and debris and, without dispersing the paint chips and debris, seal the materials in heavy-duty bags.
- Remove the protective sheeting used. The sheeting shall be misted and then the sheeting shall be folded dirty side inward. All sheeting shall be taped shut or otherwise sealed inside heavy-duty bags. Sheeting used to separate work areas from non-work areas must remain in place until after the cleaning and removal of other sheeting. All sheeting shall be disposed of as waste.

Lead-safe cleaning supplies and equipment (not limited to):

- HEPA vacuum with beater bar
- Spray/mister bottles
- Cleaning detergent
- 6-mil poly sheeting
- 6-mil poly trash bags
- Disposable rags/towels
- Duct tape and painter's tape (2 inch)
- Mop buckets
- Mop handle with mop head, or a wet mop with dispenser
- Disposable work clothes/booties
- Wet wipes
- Dry wipes
- Verification card

Post Renovation Cleaning Verification (required for all houses requiring LSWP for interior work)

Verification testing must be done by the Certified Renovator utilizing the Post-Renovation Cleaning Verification Documentation Form.

Certification cards must be an EPA approved card and no expired cards can be used to perform the cleaning verification procedure.

Interior testing must be done on windows sill, window trough, uncarpeted flooring and countertops. The Renovator must complete a visual inspection first, followed by wiping the surface with a wet wipe and then comparing the color of the wipe to a certification card. The procedure can be found on pg 66 of Chapter 70 (1).

Exterior cleaning verification is a visual inspection done by the Renovator. The Renovator is to determine if debris, dust and residue exist in and below the area (windows, siding and ground). If debris, dust and residue exist, then

the area needs to be re-cleaned and another visual inspection needs to be done. When all debris, dust and residue have been removed the area passes inspection.

Waste Disposal

The EPA Office of Solid Waste has determined that lead-base paint and lead contaminated soil is considered as household waste, and are therefore excluded from the definition of hazardous waste. It can therefore be disposed of in a landfill or construction and demolition landfill.

Waste needs to be collected, seal and disposed of at the end of each day. The waste needs to be sealed so that no debris is released when waste is being transported. If the waste is stored in large containers, those containers will need to be secured.

Personal Protection Equipment (not limited to)

- Respirator with P or N 100 filters
- Protective clothing
- Gloves
- Booties
- Painters Cap
- Wet wipes
- Rags/Paper towels
- Eye/ear protection
- Tack pads

DOE/DCAA REQUIREMENTS AND RECOMMENDATIONS

- DOE requires all inspectors be Certified Lead Renovators.
- DCAA recommends all evaluators be Certified Lead Renovators. At a minimum all evaluators are required to take and pass the lead renovation course.
- DCAA requires all crew supervisors be Certified Lead Renovators. All crew members must take and pass the lead renovator course. DCAA recommends all agency crew members be Certified Lead Renovators.
- DCAA requires all weatherization contractors (including HVAC, Electrical, and Plumbing) have a Certified Lead Renovator on staff (usually the on-site supervisor). All other contractor employees working on Weatherization Program homes must be certified renovators, pass the 4 or 8 hour renovator course, or receive on-the-job training in lead safe work practices by the on-site Certified Renovator.
- DCAA requires all new weatherization inspectors hired by agencies and new contractors must be registered for certification training within 60 days of hire.
- Lead Abatement workers or contractors do not need a separate lead-safe renovator certification. However, they do need to take and pass the 4-hour lead-safe renovator refresher in order to be qualified to do renovator work.

REPORTING DOCUMENTATION NEEDED IN HOUSE FILE

- Iowa Lead-Safe Renovation Report (required for all pre-1978 houses where LSWP are required):
 - Weatherization house files must include a copy of this form, including all pictures, as applicable.
 - If the contractor serves as the lead renovator, the contractor must keep the original for three years.
 - A copy of the completed form must be provided to the owner of the property and all other parties checked in Section B of the form within 30 days of completion of renovation
- Lead Test Kit Documentation Form
 - All results – positive and negative must be included.
 - A copy of this form must be attached to the Iowa Lead-Safe Renovation Report, if applicable.
 - Only required if pre-renovation testing is used.
- Iowa Lead-Safe Training Documentation Form
 - Required whenever someone other than the on-site Certified Renovator works on the project.

- Iowa Post-Renovation Cleaning Verification Documentation Form (required for all houses requiring LSWP for interior work)
 - Weatherization house files must include a copy of this form, if applicable.
 - If the contractor serves as the lead renovator, the contractor must keep the original for three years.
 - A copy of this form must be attached to the Iowa Lead-safe Renovation Report, if applicable.
- Notification Form
- Pictures of containment

CHAPTER 69
RENOVATION, REMODELING, AND REPAINTING—
LEAD HAZARD NOTIFICATION PROCESS

641—69.1(135) Applicability. This chapter applies to all persons who perform renovation, remodeling, or repainting for compensation in target housing or a child-occupied facility.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.2(135) Definitions.

“Arithmetic mean” means the algebraic sum of data values divided by the number of data values. For example, the sum of the concentration of lead in several soil samples divided by the number of samples is the arithmetic mean.

“Certificate of mailing” means certified mail with return receipt or its equivalent.

“Chewable surface” means an interior or exterior surface painted with lead-based paint that a young child can mouth or chew.

“Child-occupied facility” means a building, or portion of a building, constructed prior to 1978, that is described by all of the following: (1) The building is visited on a regular basis by the same child, who is less than six years of age, on at least two different days within any week. For purposes of this chapter, a week is a Sunday through Saturday period. (2) Each day’s visit by the child lasts at least 3 hours, and the combined annual visits total at least 60 hours. A child-occupied facility may include, but is not limited to, a child care center, preschool, or kindergarten classroom. A child-occupied facility also includes common areas that are routinely used by children who are less than six years of age, such as restrooms and cafeterias, and the exterior walls and adjoining space of the building that are immediately adjacent to the child-occupied facility or the common areas routinely used by children under the age of six years. “Child-occupied facility” also includes any building where lead-based paint activities are conducted immediately prior to or during the conversion of the building to a child-occupied facility.

“Common area” means a portion of the building that is generally accessible to all occupants. This includes, but is not limited to, hallways, stairways, laundry and recreational rooms, playgrounds, community centers, garages, and boundary fences.

“Compensation” means payment or reimbursement for services performed. Compensation is not limited to monetary considerations and includes payment of rent for rental units, receipt of a salary from the owner or manager of target housing, and receipt of a salary from the owner or operator of a child-occupied facility.

“Components” means specific design or structural elements or fixtures of a building, residential dwelling, or child-occupied facility that are distinguished from each other by form, function, and location. These include, but are not limited to, interior components such as ceilings, crown moldings, walls, chair rails, doors, door trim, floors, fireplaces, radiators and other heating units, shelves, shelf supports, stair treads, stair risers, stair stringers, newel posts, railing caps, balustrades, windows and trim (including sashes, window heads, jambs, sills or stools and troughs), built-in cabinets, columns, beams, bathroom vanities, countertops, and air conditioners; and exterior components such as painted roofing, chimneys, flashing, gutters and downspouts, ceilings, soffits, fascias, rake boards, cornerboards, bulkheads, doors and door trim, fences, floors, joists, latticework, railings and railing caps, siding, handrails, stair risers and treads, stair stringers, columns, balustrades, windowsills or stools and troughs, casing, sashes and wells, and air conditioners.

“Department” means the department of public health.

“Dripline” means the area within three feet surrounding the perimeter of a building.

“Dust-lead hazard” means surface dust in residential dwellings or child-occupied facilities that contains a mass-per-area concentration of lead equal to or exceeding 40 micrograms per square foot on floors, 250 micrograms per square foot on interior windowsills, and 400 micrograms per square foot on window troughs based on wipe samples. A dust-lead hazard is present in a residential dwelling or child-occupied facility when the weighted arithmetic mean lead loading for all single-surface or composite samples of floors and interior windowsills is equal to or greater than 40 micrograms per

square foot on floors, 250 micrograms per square foot on interior windowsills, and 400 micrograms per square foot on window troughs based on wipe samples. A dust-lead hazard is present on floors, interior windowsills, or window troughs in an unsampled residential dwelling in a multifamily dwelling if a dust-lead hazard is present on floors, interior windowsills, or window troughs, respectively, in at least one sampled residential unit on the property. A dust-lead hazard is present on floors, interior windowsills, or window troughs in an unsampled common area in a multifamily dwelling if a dust-lead hazard is present on floors, interior windowsills, or window troughs, respectively, in at least one sampled common area in the same common area group on the property.

“Dwelling unit” means a single, unified combination of rooms designed for use as a dwelling by one family.

“Emergency renovation, remodeling, or repainting” means renovation, remodeling, or repainting activities necessitated by nonroutine failures of equipment or a structure that were not planned but resulted from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard or threatens equipment or property with significant damage.

“Friction surface” means an interior or exterior surface that is subject to abrasion or friction including, but not limited to, certain window, floor, and stair surfaces.

“Hazardous lead-based paint” means lead-based paint that is present on a friction surface where there is evidence of abrasion or where the dust-lead level on the nearest horizontal surface underneath the friction surface (e.g., the windowsill or floor) is equal to or greater than the dust-lead hazard level, lead-based paint that is present on an impact surface that is damaged or otherwise deteriorated from impact, lead-based paint that is present on a chewable surface, or any other deteriorated lead-based paint in any residential building or child-occupied facility or on the exterior of any residential building or child-occupied facility.

“Housing for the elderly” means retirement communities or similar types of housing reserved for households composed of one or more persons 62 years of age or older or an age recognized as elderly by a specific federal housing assistance program.

“Impact surface” means an interior or exterior surface that is subject to damage by repeated sudden force such as certain parts of door frames.

“Lead-based paint” means paint or other surface coatings that contain lead equal to or in excess of 1.0 milligram per square centimeter or more than 0.5 percent by weight.

“Lead-based paint hazard” means hazardous lead-based paint, a dust-lead hazard, or a soil-lead hazard.

“Living area” means any area of a residential dwelling used by at least one child six years of age or less including, but not limited to, living rooms, kitchen areas, dens, playrooms, and children’s bedrooms.

“Mid-yard” means an area of a residential yard approximately midway between the dripline of a residential building and the nearest property boundary or between the driplines of a residential building and another building on the same property.

“Multifamily dwelling” means a structure that contains more than one separate residential dwelling unit, which is used or occupied, or is intended to be used or occupied, in whole or in part, as the home or residence of one or more persons.

“Person” means individual, corporation, limited liability company, government or governmental subdivision or agency, business trust, estate, trust, partnership, or association, or any other legal entity.

“Play area” means an area of frequent soil contact by children of less than six years of age as indicated by, but not limited to, factors including the following: the presence of play equipment (sandboxes, swing sets, and sliding boards), toys, or other children’s possessions, observations of play patterns, or information provided by parents, residents, caregivers, or property owners.

“Regulated entity” means any individual or company that is regulated by the department by virtue of these rules, the Iowa Code, or other official regulatory promulgation.

“Renovation, remodeling, repainting” means modifying any existing structure or portion of a structure where painted surfaces are disturbed, unless the activity fits the criteria of lead abatement as defined in 641—70.2(135) and is performed by a certified lead abatement contractor as defined in 641—70.2(135). This includes, but is not limited to, removing walls, ceilings, and other painted

building components; window replacement; floor refinishing; and sanding, scraping, stripping, water blasting, or otherwise removing paint.

“Residential dwelling” means (1) a detached single-family dwelling unit, including the surrounding yard, attached structures such as porches and stoops, and detached buildings and structures including, but not limited to, garages, farm buildings, and fences, or (2) a single-family dwelling unit in a structure that contains more than one separate residential dwelling unit, which is used or occupied, or intended to be used or occupied, in whole or part, as the home or residence of one or more persons.

“Soil-lead hazard” means bare soil on residential real property or on the property of a child-occupied facility that contains total lead in excess of 400 parts per million for the dripline, mid-yard, and play areas. A soil-lead hazard is present in a dripline, mid-yard, or play area when the soil-lead concentration from a composite sample of bare soil is equal to or greater than 400 parts per million.

“Target housing” means housing constructed prior to 1978 with the exception of housing for the elderly or for persons with disabilities, unless at least one child under the age of six years resides or is expected to reside in the housing, and housing which does not contain a bedroom.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.3(135) Notification required in target housing. A person who performs renovation, remodeling, or repainting of target housing for compensation, except for emergency renovation, remodeling, or repainting of target housing, and except for minor repair and maintenance activities that disrupt less than 1.0 square feet of painted surface, must do the following prior to commencing the work:

69.3(1) Provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the owner and adult occupant of each dwelling unit where renovation, remodeling, or repainting will be performed. The pamphlet shall be provided no more than 60 days prior to commencing the work.

69.3(2) Obtain a signed, dated acknowledgment from the owner and known adult occupant of each dwelling unit where renovation, remodeling, or repainting will be performed affirming that they have received the pamphlet prior to the start of renovation, remodeling, or repainting and are aware of the potential health hazards from remodeling, renovating, or repainting housing containing lead-based paint. The acknowledgment shall be obtained no more than 60 days prior to commencing the work.

a. The acknowledgment shall include the owner’s and occupant’s names and the address of the residential dwelling undergoing renovation, remodeling, or repainting.

b. The acknowledgment shall include the following language:

I have received the pamphlet entitled Lead Poisoning: How to Protect Iowa Families or the federal pamphlet, Renovate Right, prior to the start of renovation, remodeling, or repainting and am aware of the potential health risk associated with remodeling, renovating, or repainting housing containing lead-based paint or lead-based paint hazards.

c. Below the statement, the acknowledgment shall require the signature of the owner and occupant, along with their dates of signature.

d. If a signature cannot be obtained from an adult occupant, the person must certify in writing that the pamphlet has been delivered to the dwelling and that a written acknowledgment could not be obtained from an adult occupant. Such certification must include the address of the unit to be remodeled, renovated, or repainted, the date and method of delivery of the pamphlet, the name of the person delivering the pamphlet, the reason for lack of acknowledgment (e.g., occupant refuses to sign, no adult occupant available), the signature of the person conducting the renovation, remodeling, or repainting, and the date of signature.

e. The type shall be clear and legible.

f. The acknowledgment may be included as a separate sheet or as a part of any written contract or service agreement. The acknowledgment must be completed prior to commencing the work.

g. If the parties use a written contract or agreement which is written in a language other than English, the acknowledgment text shall be written in the same language as the text of the contract or agreement.

69.3(3) In lieu of delivering the pamphlet and written acknowledgment, the person conducting the renovation, remodeling, or repainting may obtain a certificate of mailing the pamphlet and written acknowledgment at least seven days prior to beginning the work.

69.3(4) If the general nature, location, and expected starting and ending dates of the planned renovation, remodeling, or repainting change after the initial notification has been conducted, the person conducting the renovation, remodeling, or repainting shall provide further notification to the owners and occupants providing revised information on the ongoing or planned activities. This subsequent notification must be provided before the person conducting the renovation, remodeling, or repainting initiates work beyond that which was described in the original notice.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.4(135) Notification required in multifamily housing. A person who performs renovation, remodeling, or repainting of common areas for compensation, except for emergency renovation, remodeling, or repainting of target housing, and except for minor repair and maintenance activities that disrupt less than 1.0 square feet of painted surface, must do the following prior to commencing the work:

69.4(1) Provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the owner of the multifamily target housing where renovation, remodeling, or repainting will be performed. The pamphlet shall be provided no more than 60 days prior to commencing the work.

69.4(2) Obtain a signed, dated acknowledgment from the owner of the multifamily target housing where renovation, remodeling, or repainting will be performed affirming that the owner has received the pamphlet prior to the start of renovation, remodeling, or repainting and is aware of the potential health hazards from remodeling, renovating, or repainting housing containing lead-based paint. The acknowledgment shall be obtained no more than 60 days prior to commencing the work.

a. The acknowledgment shall include the owner's name and the address of the multifamily dwelling undergoing renovation, remodeling, or repainting.

b. The acknowledgment shall include the following language:

I have received the pamphlet entitled Lead Poisoning: How to Protect Iowa Families or the federal pamphlet, Renovate Right, prior to the start of renovation, remodeling, or repainting and am aware of the potential health risk associated with remodeling, renovating, or repainting housing containing lead-based paint or lead-based paint hazards.

c. Below the statement, the acknowledgment shall require the signature of the owner, along with the date of signature.

d. The type shall be clear and legible.

e. The acknowledgment may be included as a separate sheet or as a part of any written contract or service agreement. The acknowledgment must be completed prior to commencing the work.

f. If the parties use a written contract or agreement which is written in a language other than English, the acknowledgment text shall be written in the same language as the text of the contract or agreement.

g. Notify each occupant of the multifamily housing, in writing, of the intended remodeling, repainting, or renovation, and make the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, available upon request. At a minimum, this notification shall be accomplished by distributing written notice to each occupant of the target housing. The notice shall describe:

(1) The general nature and location of the planned renovation, remodeling, or repainting activity.

(2) The expected starting and ending dates of the planned renovation, remodeling, or repainting activity.

(3) A statement of how the owners and occupants can obtain the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, at no charge from the person conducting the renovation, remodeling, or repainting activity.

h. These activities shall be conducted by the person planning to perform the renovation, remodeling, or repainting, or by the owner on behalf of this person.

i. The person planning to perform the renovation, remodeling, or repainting must prepare, sign, and date a statement describing the steps performed to notify all occupants of the intended renovation, remodeling, or repainting, and to provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, at no charge upon request. Regardless of who performs the notification activities required in this subrule, the person planning to conduct the renovation, remodeling, or repainting shall be responsible for ensuring compliance with this subrule and shall be liable for any failures to comply with the notification requirements in this subrule.

69.4(3) In lieu of delivering the pamphlet and written acknowledgment to the owner, the person conducting the renovation, remodeling, or repainting may obtain a certificate of mailing the pamphlet and written acknowledgment at least seven days prior to beginning the work.

69.4(4) If the general nature, location, and expected starting and ending dates of the planned renovation, remodeling, or repainting change after the initial notification has been conducted, the person conducting the renovation, remodeling, or repainting shall provide further notification to the owners and occupants providing revised information on the ongoing or planned activities. This subsequent notification must be provided before the person conducting the renovation, remodeling, or repainting initiates work beyond that which was described in the original notice.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.5(135) Emergency renovation, remodeling, or repainting in target housing. A person who performs emergency renovation, remodeling, or repainting of target housing for compensation, except for minor repair and maintenance activities that disrupt less than 1.0 square feet of painted surface, must do the following as soon as reasonably possible:

69.5(1) Provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the owner of the target housing where renovation, remodeling, or repainting is performed.

69.5(2) Notify each owner and occupant of the target housing, in writing, of the remodeling, repainting, or renovation, and make the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, available upon request. At a minimum, this notification shall be accomplished by distributing written notice to each owner and occupant of the target housing. The notice shall describe:

- a.* The general nature and location of the renovation, remodeling, or repainting activity.
- b.* The starting and ending dates of the renovation, remodeling, or repainting activity.
- c.* A statement of how the owners and occupants can obtain the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, at no charge from the person conducting the renovation, remodeling, or repainting activity.

69.5(3) These activities shall be conducted by the person performing the renovation, remodeling, or repainting, or by the owner on behalf of this person. The person planning to perform the renovation, remodeling, or repainting must prepare, sign, and date a statement describing the steps performed to notify all occupants of the intended renovation, remodeling, or repainting, and to provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, at no charge upon request. Regardless of who performs the notification activities required in this rule, the person conducting the renovation, remodeling, or repainting shall be responsible for ensuring compliance with this rule and shall be liable for any failures to comply with the notification requirements in this rule.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.6(135) Certification of attempted delivery in target housing. When an adult occupant is unavailable for signature or refuses to sign the acknowledgment of receipt of the pamphlet, the person conducting the renovation, remodeling, or repainting is permitted by subrule 69.3(2) to certify delivery for each instance. The certification shall include the address of the unit undergoing renovation, remodeling, or repainting, the date and method of delivery of the pamphlet, name of the person delivering the pamphlet, reason for lack of acknowledgment (e.g., occupant refuses to sign, no adult occupant available), the signature of the person conducting the renovation, remodeling, or repainting, and the date of signature.

69.6(1) Unavailable for signature.

a. If an adult occupant is unavailable for signature, the certification shall contain the following language:

I certify that I have made a good-faith effort to deliver the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the unit listed below at the dates and times indicated, and that an adult occupant was unavailable to sign the acknowledgment. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

b. Below the statement, the certification shall require the printed name and signature of the person conducting the renovation, remodeling, or repainting, the address of the unit, the attempted delivery dates and times, and the date of signature.

69.6(2) Refused to sign.

a. If the occupant refuses to sign the acknowledgment, the certification shall contain the following language:

I certify that I have made a good-faith effort to deliver the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the unit listed below at the dates and times indicated, and that the occupant refused to sign the acknowledgment. I further certify that I have left a copy of the pamphlet at the unit.

b. Below the statement, the certification shall require the printed name and signature of the person conducting the renovation, remodeling, or repainting, the address of the unit, the attempted delivery dates and times, the location where the pamphlet was left at the unit (e.g., taped to the door, slipped under the door), and the date of signature.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.7(135) Notification required in child-occupied facilities. A person who performs renovation, remodeling, or repainting of child-occupied facilities for compensation, except for emergency renovation, remodeling, or repainting of child-occupied facilities, and except for minor repair and maintenance activities that disrupt less than 1.0 square feet of painted surface, must do the following prior to commencing the work:

69.7(1) Provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the owner of the building where renovation, remodeling, or repainting will be performed. The pamphlet shall be provided no more than 60 days prior to commencing the work.

69.7(2) Obtain a signed, dated acknowledgment from the owner of the building where renovation, remodeling, or repainting will be performed affirming that the owner has received the pamphlet prior to the start of renovation, remodeling, or repainting and is aware of the potential health hazards from remodeling, renovating, or repainting buildings containing lead-based paint. The acknowledgment shall be obtained no more than 60 days prior to commencing the work.

a. The acknowledgment shall include the owner's name and the address of the child-occupied facility undergoing renovation, remodeling, or repainting.

b. The acknowledgment shall include the following language:

I have received the pamphlet entitled Lead Poisoning: How to Protect Iowa Families or the federal pamphlet, Renovate Right, prior to the start of renovation, remodeling, or repainting and am aware of the potential health risk associated with remodeling, renovating, or repainting buildings containing lead-based paint or lead-based paint hazards.

c. Below the statement, the acknowledgment shall require the signature of the owner along with the date of signature.

d. If a signature cannot be obtained from the owner, the person must certify in writing that the pamphlet has been delivered to the building and that a written acknowledgment could not be obtained from an owner. Such certification must include the address of the building to be remodeled, renovated, or repainted, the date and method of delivery of the pamphlet, the name of the person delivering the

pamphlet, the reason for lack of acknowledgment (e.g., owner refuses to sign, owner not available), the signature of the person conducting the renovation, remodeling, or repainting, and the date of signature.

e. The type shall be clear and legible.

f. The acknowledgment may be included as a separate sheet or as a part of any written contract or service agreement. The acknowledgment must be completed prior to commencing the work.

g. If the parties use a written contract or agreement which is written in a language other than English, the acknowledgment text shall be written in the same language as the text of the contract or agreement.

69.7(3) In lieu of delivering the pamphlet and written acknowledgment, the person conducting the renovation, remodeling, or repainting may obtain a certificate of mailing the pamphlet and written acknowledgment to the owner at least 7 days prior to beginning the work.

69.7(4) If the general nature, location, and expected starting and ending dates of the planned renovation, remodeling, or repainting change after the initial notification has been conducted, the person conducting the renovation, remodeling, or repainting shall provide further notification to the owners providing revised information on the ongoing or planned activities. This subsequent notification must be provided before the person conducting the renovation, remodeling, or repainting initiates work beyond that which was described in the original notice.

69.7(5) If the operator of the child-occupied facility is not the owner of the building, provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the operator of the child-occupied facility where renovation, remodeling, or repainting will be performed. The pamphlet shall be provided no more than 60 days prior to commencing the work.

69.7(6) If the operator of the child-occupied facility is not the owner of the building, obtain a signed, dated acknowledgment from the operator of the child-occupied facility where renovation, remodeling, or repainting will be performed affirming that the operator has received the pamphlet prior to the start of renovation, remodeling, or repainting and is aware of the potential health hazards from remodeling, renovating, or repainting buildings containing lead-based paint. The acknowledgment shall be obtained no more than 60 days prior to commencing the work.

a. The acknowledgment shall include the name of the operator of the child-occupied facility and the address of the child-occupied facility undergoing renovation, remodeling, or repainting.

b. The acknowledgment shall include the following language:

I have received the pamphlet entitled Lead Poisoning: How to Protect Iowa Families or the federal pamphlet, Renovate Right, prior to the start of renovation, remodeling, or repainting and am aware of the potential health risk associated with remodeling, renovating, or repainting buildings containing lead-based paint or lead-based paint hazards.

c. Below the statement, the acknowledgment shall require the signature of the operator of the child-occupied facility along with the date of signature.

d. If a signature cannot be obtained from the operator of the child-occupied facility, the person must certify in writing that the pamphlet has been delivered to the building and that a written acknowledgment could not be obtained from the operator of the child-occupied facility. Such certification must include the address of the building to be remodeled, renovated, or repainted, the date and method of delivery of the pamphlet, the name of the person delivering the pamphlet, the reason for lack of acknowledgment (e.g., operator of the child-occupied facility refuses to sign, operator of the child-occupied facility not available), the signature of the person conducting the renovation, remodeling, or repainting, and the date of signature.

e. The type shall be clear and legible.

f. The acknowledgment may be included as a separate sheet or as a part of any written contract or service agreement. The acknowledgment must be completed prior to commencing the work.

g. If the parties use a written contract or agreement which is written in a language other than English, the acknowledgment text shall be written in the same language as the text of the contract or agreement.

69.7(7) In lieu of delivering the pamphlet and written acknowledgment, the person conducting the renovation, remodeling, or repainting may obtain a certificate of mailing the pamphlet and written acknowledgment to the operator of the child-occupied facility at least 7 days prior to beginning the work.

69.7(8) If the general nature, location, and expected starting and ending dates of the planned renovation, remodeling, or repainting change after the initial notification has been conducted, the person conducting the renovation, remodeling, or repainting shall provide further notification to the operator of the child-occupied facility providing revised information on the ongoing or planned activities. This subsequent notification must be provided before the person conducting the renovation, remodeling, or repainting initiates work beyond that which was described in the original notice.

69.7(9) Provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, and information regarding the general nature and locations of the renovation, remodeling, or repainting and the anticipated completion date to the parents and guardians of children using the child-occupied facility where renovation, remodeling, or repainting will be performed. The pamphlet and information shall be provided no more than 60 days prior to commencing the work. The person conducting the renovation, remodeling, or repainting shall provide this information using one of the following methods:

a. Mail or hand-deliver the pamphlet and information to each parent or guardian of each child using the child-occupied facility (the pamphlet and information may not be sent home with the child); or

b. While the renovation, remodeling, or repainting is ongoing, post informational signs describing the general nature and locations of the renovation, remodeling, or repainting and the anticipated completion date. These signs must be posted in areas where they can be seen by the parents of the children frequenting the child-occupied facility. The signs must be accompanied by a posted copy of the pamphlet or information on how interested parents or guardians can review a copy of the pamphlet or obtain a copy from the person conducting the renovation, remodeling, or repainting at no cost to the parents or guardians.

69.7(10) The activities in subrule 69.7(9) shall be conducted by the person planning to perform the renovation, remodeling, or repainting or by the owner or operator of the child-occupied facility on behalf of this person. Regardless of who performs the notification activities required in subrule 69.7(9), the person conducting the renovation, remodeling, or repainting shall be responsible for ensuring compliance with this rule and shall be liable for any failures to comply with the notification requirements in this rule.

69.7(11) The person conducting the renovation, remodeling, or repainting shall prepare, sign, and date a statement describing the steps performed to notify all parents and guardians of the intended renovation, remodeling, or repainting and to provide the pamphlet to them.

69.7(12) If the general nature, location, and expected starting and ending dates of the planned renovation, remodeling, or repainting change after the initial notification has been conducted, the person conducting the renovation, remodeling, or repainting shall provide revised information on the ongoing or planned activities to the parents and guardians of children frequenting the child-occupied facility providing revised information on the ongoing or planned activities. This subsequent notification must be provided before the person conducting the renovation, remodeling, or repainting initiates work beyond that which was described in the original notice.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.8(135) Emergency renovation, remodeling, or repainting in child-occupied facilities. A person who performs emergency renovation, remodeling, or repainting of child-occupied facilities for compensation, except for minor repair and maintenance activities that disrupt less than 1.0 square feet of painted surface, must do the following as soon as reasonably possible:

69.8(1) Provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the owner of the building where renovation, remodeling, or repainting is performed.

69.8(2) Notify each owner and, if different, the operator of the child-occupied facility, in writing, of the remodeling, repainting, or renovation, and make the pamphlet, Lead Poisoning: How to Protect

Iowa Families, or the federal pamphlet, Renovate Right, available upon request. At a minimum, this notification shall be accomplished by distributing written notice to each owner and, if different, operator of the child-occupied facility. The notice shall describe:

- a. The general nature and location of the renovation, remodeling, or repainting activity.
- b. The starting and ending dates of the renovation, remodeling, or repainting activity.
- c. A statement of how each owner and, if different, the operator of the child-occupied facility can obtain the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, at no charge from the person conducting the renovation, remodeling, or repainting activity.

69.8(3) Provide the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, and information regarding the general nature and locations of the renovation, remodeling, or repainting and the anticipated completion date to the parents and guardians of children using the child-occupied facility where renovation, remodeling, or repainting will be performed. The person conducting the renovation, remodeling, or repainting shall provide this information using one of the following methods:

- a. Mail or hand-deliver the pamphlet and information to each parent or guardian of each child using the child-occupied facility (the pamphlet and information may not be sent home with the child); or
- b. While the renovation, remodeling, or repainting is ongoing, post informational signs describing the general nature and locations of the renovation, remodeling, or repainting and the anticipated completion date. These signs must be posted in areas where they can be seen by the parents or guardians of the children frequenting the child-occupied facility. The signs must be accompanied by a posted copy of the pamphlet or information on how interested parents or guardians can review a copy of the pamphlet or obtain a copy from the person conducting the renovation, remodeling, or repainting at no cost to the parents or guardians.

69.8(4) The activities in subrule 69.8(3) shall be conducted by the person planning to perform the renovation, remodeling, or repainting or by the owner or operator of the child-occupied facility on behalf of this person. Regardless of who performs the notification activities required in subrule 69.8(3), the person conducting the renovation, remodeling, or repainting shall be responsible for ensuring compliance with this rule and shall be liable for any failures to comply with the notification requirements in this rule. [ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.9(135) Certification of attempted delivery for child-occupied facilities. When the owner and, if different, operator of a child-occupied facility are unavailable for signature or refuse to sign the acknowledgment of receipt of the pamphlet, the person conducting the renovation, remodeling, or repainting is permitted by subrule 69.3(2) to certify delivery for each instance. The certification shall include the address of the child-occupied facility undergoing renovation, remodeling, or repainting, the date and method of delivery of the pamphlet, name of the person delivering the pamphlet, reason for lack of acknowledgment (e.g., owner and, if different, operator refuse to sign), the signature of the individual conducting the renovation, remodeling, or repainting, and the date of signature.

69.9(1) Unavailable for signature.

- a. If the owner and, if different, operator of the child-occupied facility are unavailable for signature, the certification shall contain the following language:

I certify that I have made a good-faith effort to deliver the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the child-occupied facility listed below at the dates and times indicated, and that the owner and, if different, operator of the child-occupied facility were unavailable to sign the acknowledgment. I further certify that I have left a copy of the pamphlet at the child-occupied facility with the owner and, if different, operator.

- b. Below the statement, the certification shall require the printed name and signature of the person conducting the renovation, remodeling, or repainting, the address of the child-occupied facility, the attempted delivery dates and times, and the date of signature.

69.9(2) *Refused to sign.*

a. If the owner and, if different, operator refuse to sign the acknowledgment, the certification shall contain the following language:

I certify that I have made a good-faith effort to deliver the pamphlet, Lead Poisoning: How to Protect Iowa Families, or the federal pamphlet, Renovate Right, to the child-occupied facility listed below at the dates and times indicated, and that the owner and, if different, operator refused to sign the acknowledgment. I further certify that I have left a copy of the pamphlet at the child-occupied facility.

b. Below the statement, the certification shall require the printed name and signature of the person conducting the renovation, remodeling, or repainting, the address of the child-occupied facility, the attempted delivery dates and times, the location where the pamphlet was left at the child-occupied facility (e.g., taped to the door, slipped under the door), and the date of signature.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.10(135) Subcontracts. In cases where renovation, remodeling, or repainting activities involve subcontracts, it is the responsibility of the person receiving the compensation from the property owner, or other party on behalf of the property owner, to provide the notification(s) described in 641—69.3(135), 641—69.4(135), 641—69.5(135), and 641—69.6(135) of this chapter.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.11(135) Exemption. Renovation, remodeling, or repainting in target housing or a child-occupied facility in which a lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified pursuant to 641—Chapter 70 has made a written determination that the components affected by the renovation are free of lead-based paint and where the person conducting the renovation, remodeling, or repainting has obtained a copy of the written determination is exempt from the provisions of 641—Chapter 69.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.12(135) Record-keeping requirements. A person who conducts renovation, remodeling, or repainting for compensation in target housing or a child-occupied facility shall retain all records necessary to demonstrate compliance with this chapter for a minimum of three years following completion of the renovation, remodeling, or repainting. The records shall include:

69.12(1) The address or location of the target housing or child-occupied facility where remodeling, renovation, or repainting was conducted.

69.12(2) A list of all known occupants of the dwelling units where renovation, remodeling, or repainting was conducted at the commencement of the work.

69.12(3) Copies of signed, dated acknowledgments as required by subrule 69.3(2) from each owner and occupant of a dwelling unit where renovation, remodeling, or repainting was conducted.

69.12(4) Copies of signed, dated acknowledgments as required by subrule 69.4(2) from each owner of multifamily target housing where renovation, remodeling, or repainting was conducted in common areas.

69.12(5) Copies of all signed, dated statements of notification, as well as copies of all notification materials given to all owners and occupants and acknowledgments as required by subrule 69.4(2) from each owner and occupant of multifamily target housing where renovation, remodeling, or repainting was conducted in common areas.

69.12(6) Copies of signed, dated acknowledgments as required by 641—69.7(135) from the owner and, if different, operator of a child-occupied facility where renovation, remodeling, or repainting was conducted.

69.12(7) Copies of all notification materials given to the parents or guardians of children using a child-occupied facility or the signs posted in areas where the signs can be seen by the parents or guardians of children using the child-occupied facility as required by subrule 69.7(9).

69.12(8) Reports showing that a lead inspector/risk assessor or elevated blood level (EBL) inspector/risk assessor certified pursuant to 641—Chapter 70 has made a written determination that the components affected by the renovation are free of lead-based paint.

69.12(9) Certifications of attempted delivery as described in 641—69.6(135).

69.12(10) Certificates of mailing as described in subrules 69.3(3) and 69.4(3).
[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.13(135) Compliance inspections. The department may enter the place of business of a person who conducts renovation, remodeling, or repainting for the purpose of enforcing the notification required by this chapter.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.14(135) Enforcement.

69.14(1) The department may impose a civil penalty pursuant to Iowa Code section 135.105C and this rule and may refer the case to the office of the county attorney for possible criminal penalties pursuant to Iowa Code section 135.38 when it finds that a person has committed any of the following acts:

- a.* Failed or refused to comply with any requirements of this chapter.
- b.* Failed or refused to establish, maintain, provide, copy, or permit access to records or reports as required by this chapter.
- c.* Failed or refused to permit entry or inspection as described in subrule 69.14(1).
- d.* Falsified reports and records required by this chapter.
- e.* Failed to comply with the terms of a department order or the terms of a settlement agreement or consent order.
- f.* Failed to respond within 20 days of receipt of communication sent by the department by registered or certified mail.
- g.* Engaged in any conduct that subverts or attempts to subvert a department investigation.
- h.* Failed to comply with a subpoena issued by the department or failed to cooperate with a department investigation.
- i.* Failed to pay costs assessed in any disciplinary action.

69.14(2) Complaints and other requests for action under this rule. Complaints regarding a person who performs renovation, remodeling, or repainting for compensation in target housing or a child-occupied facility shall be submitted in writing to the Iowa Department of Public Health, Lead Poisoning Prevention Program, 321 East 12th Street, Des Moines, Iowa 50319-0075. The complainant shall provide the name of the person who performs renovation, remodeling, or repainting for compensation in target housing or a child-occupied facility and the specific details of the person's action(s) that did not comply with the rules.

69.14(3) Civil penalties.

a. Before instituting any proceeding to impose a civil penalty under Iowa Code section 135.105C, the department shall serve a written notice of violation upon the person charged. The notice of violation shall specify the date or dates, facts, and the nature of the alleged act or omission with which the person is charged and shall identify specifically the particular provision or provisions of the law, rule, regulation, or cease and desist order involved in the alleged violation and must state the amount of each proposed penalty. The notice of violation shall also advise the person charged that the civil penalty may be paid in the amount specified therein, or the proposed imposition of the civil penalty may be protested in its entirety or in part, by a written answer, either denying the violation or showing extenuating circumstances. The notice of violation shall advise the person charged that upon failure to pay a civil penalty subsequently determined by the department, if any, unless compromised, remitted, or mitigated, the fee shall be collected by civil action pursuant to Iowa Code section 135.105C.

b. Within 20 days of the date of a notice of violation or other time specified in the notice, the person charged may either pay the penalty in the amount proposed or answer the notice of violation. The answer to the notice of violation shall state any facts, explanations, and arguments denying the charges of violation or demonstrating any extenuating circumstances, error in the notice of violation, or other reason why the penalty should not be imposed and may request remission or mitigation of the penalty.

c. If the person charged with a violation fails to answer within the time specified in paragraph 69.14(3) “*b.*,” an order may be issued imposing the civil penalty in the amount set forth in the notice of violation described in paragraph 69.14(3) “*a.*”

d. If the person charged with a violation files an answer to the notice of violation, the department, upon consideration of the answer, will issue an order dismissing the proceeding or imposing, mitigating, or remitting the civil penalty. The person charged may, within 20 days of the date of the order or other time specified in the order, request a hearing.

e. If the person charged with a violation requests a hearing, the department will issue an order designating the time and place of hearing. The hearing shall be conducted according to the procedural rules of the department of inspections and appeals found in 481—Chapter 10, Iowa Administrative Code.

f. If a hearing is held, an order will be issued after the hearing by the presiding officer or the department dismissing the proceeding or imposing, mitigating, or remitting the civil penalty.

g. The department may compromise any civil penalty. If the civil penalty is not compromised or is not remitted by the presiding officer or the department or if the time for requesting a hearing described in paragraph 69.14(3) “*d.*” has expired, the department may refer the matter to the attorney general for collection.

h. Except when payment is made after compromise or mitigation by the department of justice or as ordered by a court of the state, following reference of the matter to the attorney general for collection, payment of civil penalties imposed under Iowa Code section 135.105C shall be made by check, draft, or money order payable to the Iowa Department of Public Health.

69.14(4) Appeals.

a. Notice of the civil penalty shall be sent to the affected person by certified mail, return receipt requested, or by personal service. The affected person shall have a right to appeal the civil penalty.

b. An appeal of a civil penalty shall be submitted by certified mail, return receipt requested, to the Iowa Department of Public Health, Lead Poisoning Prevention Program, 321 East 12th Street, Des Moines, Iowa 50319-0075, within 20 days of receipt of the department’s notice. If such a request is made within the 20-day time period, the notice of civil penalty shall be deemed to be suspended. Prior to or at the hearing, the department may rescind the notice upon satisfaction that the reason for the civil penalty has been or will be removed. After the hearing, or upon default of the applicant or alleged violator, the administrative law judge shall affirm, modify or set aside the civil penalty. If no appeal is submitted within 20 days, the civil penalty shall become the department’s final agency action.

c. Upon receipt of an appeal that meets contested case status, the appeal shall be transmitted to the department of inspections and appeals within 5 working days of receipt pursuant to the rules adopted by that agency regarding the transmission of contested cases. The information upon which the civil penalty is based shall be provided to the department of inspections and appeals.

d. The hearing shall be conducted according to the procedural rules of the department of inspections and appeals found in 481—Chapter 10, Iowa Administrative Code.

e. When the administrative law judge makes a proposed decision and order, it shall be served by restricted certified mail, return receipt requested, or delivered by personal service. The proposed decision and order then becomes the department’s final agency action without further proceedings 10 days after it is received by the aggrieved party unless an appeal to the director is taken as provided in paragraph 69.14(4) “*f.*”

f. Any appeal to the director for review of the proposed decision and order of the administrative law judge shall be filed in writing and mailed to the director by certified mail, return receipt requested, or delivered by personal service within 10 days after the receipt of the administrative law judge’s proposed decision and order by the aggrieved party. A copy of the appeal shall also be mailed to the administrative law judge. Any request for appeal shall state the reason for appeal.

g. Upon receipt of an appeal request, the administrative law judge shall prepare the record of the hearing or submission to the director. The record shall include the following:

- (1) All pleadings, motions, and rulings.
- (2) All evidence received or considered and all other submissions by recording or transcript.
- (3) A statement of all matters officially noticed.

- (4) All questions and offers of proof, objection, and rulings thereon.
- (5) All proposed findings and exceptions.
- (6) The proposed findings and order of the administrative law judge.

h. The decision and order of the director becomes the department's final agency action upon receipt by the aggrieved party and shall be delivered by restricted certified mail, return receipt requested, or by personal service.

i. It is not necessary to file an application for a rehearing to exhaust administrative remedies when appealing to the director or the district court as provided in Iowa Code section 17A.19. The aggrieved party to the final agency action of the department who has exhausted all administrative remedies may petition for judicial review of that action pursuant to Iowa Code chapter 17A.

j. Any petition for judicial review of a decision and order shall be filed in the district court within 20 days after the decision and order becomes final. A copy of the notice of appeal shall be sent by certified mail, return receipt requested, or by personal service to the Iowa Department of Public Health, Lead Poisoning Prevention Program, 321 East 12th Street, Des Moines, Iowa 50319-0075.

k. The party who appeals a final agency action to the district court shall pay the cost of the preparation of a transcript of the contested case hearing for the district court.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

641—69.15(135) Waivers. Rules in this chapter are not subject to waiver or variance pursuant to 641—Chapter 178 or any other provision of law.

[ARC 8501B, IAB 2/10/10, effective 1/13/10]

These rules are intended to implement Iowa Code section 135.105C.

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CHAPTER 70
LEAD-BASED PAINT ACTIVITIES

641—70.1(135) Applicability. This chapter applies to all persons who are lead professionals in Iowa, all firms that perform lead professional activities in Iowa, and training providers that offer training for lead professionals. This chapter requires lead professionals and firms to be certified and establishes specific requirements for how lead-based paint activities must be performed if a property owner, manager, or occupant chooses to undertake them. However, nothing in this chapter requires a property owner, manager, or occupant to undertake any particular lead-based paint activity. This chapter also provides for the approval of courses that provide training for lead professionals.

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641—70.2(135) Definitions.

“Adequate quality control” means a plan or design which ensures the authenticity, integrity, and accuracy of samples, including dust, soil, and paint chip or paint film samples. Adequate quality control also includes provisions for representative sampling.

“Approved course” means a course that has been approved by the department for the training of lead professionals.

“Approved lead-safe work practices training program” means a lead-safe work practices training program that has been approved by the department.

“Arithmetic mean” means the algebraic sum of data values divided by the number of data values. For example, the sum of the concentration of lead in several soil samples divided by the number of samples is the arithmetic mean.

“Certified elevated blood lead (EBL) inspection agency” means an agency that has met the requirements of 641—70.5(135) and that has been certified by the department.

“Certified elevated blood lead (EBL) inspector/risk assessor” means a person who has met the requirements of 641—70.5(135) for certification or interim certification and who has been certified by the department.

“Certified firm” means a firm that employs certified lead professionals and has met the requirements of 641—70.7(135) for certification and has been certified by the department.

“Certified lead abatement contractor” means a person who has met the requirements of 641—70.5(135) for certification or interim certification and who has been certified by the department.

“Certified lead abatement worker” means a person who has met the requirements of 641—70.5(135) and who has been certified by the department.

“Certified lead inspector/risk assessor” means a person who has met the requirements of 641—70.5(135) for certification or interim certification and who has been certified by the department.

“Certified lead professional” means a person who has been certified by the department as a lead inspector/risk assessor, elevated blood lead (EBL) inspector/risk assessor, lead abatement contractor, lead abatement worker, project designer, sampling technician, or lead-safe renovator.

“Certified lead-safe renovator” means a person who has met the requirements of 641—70.5(135) for certification and who has been certified by the department.

“Certified project designer” means a person who has met the requirements of 641—70.5(135) for certification or interim certification and who has been certified by the department.

“Certified sampling technician” means a person who has met the requirements of 641—70.5(135) and who has been certified by the department.

“Chewable surface” means an interior or exterior surface painted with lead-based paint that a young child can mouth or chew.

“Child-occupied facility” means a building, or portion of a building, constructed prior to 1978, that is described by all of the following: (1) The building is visited on a regular basis by the same child, who is less than six years of age, on at least two different days within any week. For purposes of this chapter, a week is a Sunday through Saturday period. (2) Each day’s visit by the child lasts at least 3 hours, and the combined annual visits total at least 60 hours. A child-occupied facility may include, but

is not limited to a child care center, preschool, or kindergarten classroom. A child-occupied facility also includes common areas that are routinely used by children who are less than six years of age, such as restrooms and cafeterias, and the exterior walls and adjoining space of the building that are immediately adjacent to the child-occupied facility or the common areas routinely used by children under the age of six years. "Child-occupied facility" also includes any building where lead-based paint activities are conducted immediately prior to or during the conversion of the building to a child-occupied facility.

"*Cleaning verification card*" means a card developed and distributed, or otherwise approved, by the U.S. Environmental Protection Agency (EPA) for the purpose of determining, through comparison of wet and dry disposable cleaning cloths with the card, whether postrenovation cleaning has been properly completed.

"*Clearance level*" means the value at which the amount of lead in dust on a surface following completion of interim controls, lead abatement, paint stabilization, standard treatments, ongoing lead-based paint maintenance, rehabilitation, or renovation is a dust-lead hazard and fails clearance testing. The clearance level for a single-surface dust sample from a floor is greater than or equal to 40 micrograms per square foot. The clearance level for a single-surface dust sample from an interior windowsill is greater than or equal to 250 micrograms per square foot. The clearance level for a single-surface dust sample from a window trough is greater than or equal to 400 micrograms per square foot.

"*Clearance testing*" means an activity conducted following interim controls, lead abatement, paint stabilization, standard treatments, ongoing lead-based paint maintenance, rehabilitation, or renovation to determine that the hazard reduction activities are complete. Clearance testing includes a visual assessment, the collection and analysis of environmental samples, the interpretation of sampling results, and the preparation of a report.

"*Common area*" means a portion of the building that is generally accessible to all occupants. This includes, but is not limited to, hallways, stairways, laundry and recreational rooms, porches, exteriors, playgrounds, community centers, garages, and boundary fences.

"*Common area group*" means a group of common areas that are similar in design, construction, and function. Common area groups include, but are not limited to, hallways, stairwells, and laundry rooms.

"*Component*" or "*building component*" means specific design or structural elements or fixtures of a building, residential dwelling, or child-occupied facility that are distinguished from each other by form, function, and location. These include, but are not limited to, interior components such as ceilings, crown moldings, walls, chair rails, doors, door trim, floors, fireplaces, radiators and other heating units, shelves, shelf supports, stair treads, stair risers, stair stringers, newel posts, railing caps, balustrades, windows and trim (including sashes, window heads, jambs, sills or stools and troughs), built-in cabinets, columns, beams, bathroom vanities, countertops, and air conditioners; and exterior components such as painted roofing, chimneys, flashing, gutters and downspouts, ceilings, soffits, fascias, rake boards, cornerboards, bulkheads, doors and door trim, fences, floors, joists, latticework, railings and railing caps, siding, handrails, stair risers and treads, stair stringers, columns, balustrades, windowsills or stools and troughs, casings, sashes and wells, and air conditioners. Each side of a door is considered a component within its respective room.

"*Component type*" means a group of like components constructed of the same substrate in the same multifamily housing. For example, "wood door" is a component type.

"*Composite sample*" means the collection of more than one sample of the same medium (e.g., dust, soil, or paint) from the same type of surface (e.g., floor, interior windowsill, or window trough) such that multiple samples can be analyzed as a single sample.

"*Concentration*" means the relative content of a specific substance contained within a larger mass, such as the amount of lead (in micrograms per grams or parts per million of weight) in a sample of soil or dust.

"*Containment*" means a system of temporary barriers to protect workers, residents, and the environment by controlling exposures to the dust-lead hazards and debris created during renovation or lead abatement.

“*Course agenda*” means an outline of the key topics to be covered during a training course, including the time allotted to teach each topic.

“*Course test*” means an evaluation of the overall effectiveness of the training which shall test the trainees’ knowledge and retention of the topics covered during the course.

“*Course test blueprint*” means written documentation identifying the proportion of course test questions devoted to each major topic in the course curriculum.

“*Department*” means the Iowa department of public health.

“*Deteriorated paint*” means any interior or exterior paint or other coating that is cracking, flaking, chipping, peeling, or chalking, or any paint or coating located on an interior or exterior surface that is otherwise damaged or separated from the substrate of a building component.

“*Discipline*” means one of the specific types or categories of lead-based paint activities identified in this chapter for which individuals may receive training from approved courses and become certified by the department. For example, “lead inspector/risk assessor” is a discipline, and “lead-safe renovator” is a discipline.

“*Distinct painting history*” means the application history, as indicated by its visual appearance or a record of application, over time, of paint or other surface coatings to a component or room.

“*Documented methodologies*” means methods or protocols used to sample for the presence of lead in paint, dust, and soil.

“*Dripline*” means the area within three feet surrounding the perimeter of a building.

“*Dry disposable cleaning cloth*” means a commercially available dry, electrostatically charged, white disposable cloth designed to be used for cleaning hard surfaces such as uncarpeted floors or countertops.

“*Dry sanding*” means sanding a surface that is partially coated with paint or other surface coating without moisture and includes hand and mechanical methods of sanding.

“*Dry scraping*” means scraping a surface that is partially coated with paint or other surface coating without moisture and includes hand and mechanical methods of scraping.

“*Dust-lead hazard*” means surface dust in residential dwellings or child-occupied facilities that contains a mass-per-area concentration of lead greater than or equal to 40 micrograms per square foot on floors, 250 micrograms per square foot on interior windowsills, and 400 micrograms per square foot on window troughs based on wipe samples. A dust-lead hazard is present in a residential dwelling or child-occupied facility when the weighted arithmetic mean lead loading for all single-surface or composite samples of floors and interior windowsills is greater than or equal to 40 micrograms per square foot on floors, 250 micrograms per square foot on interior windowsills, and 400 micrograms per square foot on window troughs based on wipe samples. A dust-lead hazard is present on floors, interior windowsills, or window troughs in an unsampled residential dwelling in a multifamily dwelling if a dust-lead hazard is present on floors, interior windowsills, or window troughs, respectively, in at least one sampled residential unit on the property. A dust-lead hazard is present on floors, interior windowsills, or window troughs in an unsampled common area in a multifamily dwelling if a dust-lead hazard is present on floors, interior windowsills, or window troughs, respectively, in at least one sampled common area in the same common area group on the property.

“*Elevated blood lead (EBL) child*” means any child who has had one venous blood lead level greater than or equal to 20 micrograms per deciliter or at least two venous blood lead levels of 15 to 19 micrograms per deciliter.

“*Elevated blood lead (EBL) inspection*” means an inspection to determine the sources of lead exposure for an elevated blood lead (EBL) child and the provision within ten working days of a written report explaining the results of the investigation to the property owner and occupant of the residential dwelling or child-occupied facility being inspected and to the parents of the elevated blood lead (EBL) child. A certified elevated blood lead (EBL) inspector/risk assessor shall not determine that a residential dwelling is free of lead-based paint as a result of an elevated blood lead (EBL) inspection.

“*Elevated blood lead (EBL) inspection agency*” means an agency that employs or contracts with individuals who perform elevated blood lead (EBL) inspections. Elevated blood lead (EBL) inspection agencies may also employ or contract with individuals who perform other lead-based paint activities.

“Emergency renovation” means renovation, remodeling, or repainting activities necessitated by nonroutine failures of equipment or of a structure that were not planned but resulted from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard or threatens equipment or property with significant damage. “Emergency renovation” includes interim controls, renovation, remodeling, or repainting activities that are conducted in response to an elevated blood lead (EBL) inspection.

“Encapsulant” means a substance that forms a barrier between lead-based paint and the environment using a liquid-applied coating (with or without reinforcement materials) or an adhesively bonded coating material.

“Encapsulation” means the application of an encapsulant.

“Enclosure” means the use of rigid, durable construction materials that are mechanically fastened to the substrate in order to act as a barrier between lead-based paint and the environment.

“Firm” means a company, partnership, corporation, sole proprietorship, individual doing business, association, or other business entity; a federal, state, tribal, or local government agency; or a nonprofit organization that performs or offers to perform lead-based paint activities.

“Friction surface” means an interior or exterior surface that is subject to abrasion or friction including, but not limited to, certain window, floor, and stair surfaces.

“Guest instructor” means an individual designated by the training program manager or principal instructor to provide instruction specific to the lecture, hands-on work activities, or work practice components of a course.

“Hands-on skills assessment” means an evaluation which tests the trainees’ ability to satisfactorily perform the work practices and procedures identified in 641—70.6(135), as well as any other skill taught in a training course.

“Hazardous lead-based paint” means lead-based paint that is present on a friction surface where there is evidence of abrasion or where the dust-lead level on the nearest horizontal surface underneath the friction surface (e.g., the windowsill or floor) is greater than or equal to the dust-lead hazard level, lead-based paint that is present on an impact surface that is damaged or otherwise deteriorated from impact, lead-based paint that is present on a chewable surface, or any other deteriorated lead-based paint in any residential building or child-occupied facility or on the exterior of any residential building or child-occupied facility.

“Hazardous waste” means any waste as defined in 40 CFR 261.3.

“HEPA exhaust control” means a HEPA vacuum attached to the machine in such a manner that it captures the air, dust, and debris disturbed by the machine.

“HEPA vacuum” means a vacuum cleaner which has been designed, operated, and maintained with a high-efficiency particulate air (HEPA) filter as the last filtration stage. A HEPA filter is a filter that is capable of capturing particles of 0.3 microns with 99.97 percent efficiency. The vacuum cleaner must be designed, operated, and maintained so that all of the air drawn into the machine is expelled through the HEPA filter with none of the air leaking past it. A vacuum must have sufficient suction to capture the dust that must be collected. A vacuum that complies with ANSI/IESO Standard 4310-2009 for Portable High Efficiency Air Filtration Device Field Testing and Validation Standard as a Class 3, 4, or 5 device is considered a HEPA vacuum.

“Housing for the elderly” means retirement communities or similar types of housing reserved for households composed of one or more persons 62 years of age or older or an age recognized as elderly by a specific federal housing assistance program.

“Immediate family” means spouse, parents and grandparents, children and grandchildren, brothers and sisters, mother-in-law and father-in-law, brothers-in-law and sisters-in-law, daughters-in-law and sons-in-law, and adopted and step family members.

“Impact surface” means an interior or exterior surface that is subject to damage by repeated sudden force such as certain parts of door frames.

“Inconclusive classification” means any XRF reading falling within the inconclusive range on the performance characteristic sheet, including the boundary values defining the range.

“Interim controls” means a set of measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards, including repairing deteriorated lead-based paint, specialized cleaning, maintenance, painting, temporary containment, ongoing monitoring of lead-based paint hazards or potential hazards, and the establishment and operation of management and resident education programs.

“Interior windowsill” means the portion of the horizontal window ledge that protrudes into the interior of the room.

“Lead abatement” means any measure or set of measures designed to permanently eliminate lead-based paint hazards in a residential dwelling or child-occupied facility. Lead abatement includes, but is not limited to, (1) the removal of lead-based paint and dust-lead hazards, the permanent enclosure or encapsulation of lead-based paint, the replacement of lead-painted surfaces or fixtures, and the removal or covering of soil-lead hazards and (2) all preparation, cleanup, disposal, repainting or refinishing, and postabatement clearance testing activities associated with such measures. “Lead abatement” specifically includes projects for which there is a written contract or other documentation, which provides that an individual will be conducting lead abatement in or around a residential dwelling or child-occupied facility.

In addition, “lead abatement” includes, but is not limited to, (1) projects for which there is a written contract or other document, which provides that an individual will be conducting activities in or to a residential dwelling or child-occupied facility that shall result in or are designed to permanently eliminate lead-based paint hazards, (2) projects resulting in the permanent elimination of lead-based paint hazards that are conducted by firms or individuals certified under 641—70.5(135), (3) projects resulting in the permanent elimination of lead-based paint hazards that are conducted by firms or individuals who, through their company name or promotional literature, represent, advertise, or hold themselves out to be in the business of performing lead abatement, and (4) projects resulting in the permanent elimination of lead-based paint that are conducted in response to a lead abatement order. However, in the case of items (1) through (4) of this definition, “lead abatement” does not include renovation, remodeling, landscaping, or other activities, when such activities are not designed to permanently eliminate lead-based paint hazards, but, instead, are designed to repair, restore, or remodel a given structure or dwelling, even though these activities may incidentally result in a reduction or elimination of lead-based paint hazards. Furthermore, “lead abatement” does not include interim controls, operations and maintenance activities, renovation, or other measures and activities designed to temporarily, but not permanently, reduce lead-based paint hazards.

“Lead-based paint” means paint or other surface coatings that contain lead greater than or equal to 1.0 milligram per square centimeter or greater than 0.5 percent by weight. Lead-based paint is present on any surface that is tested and found to contain lead greater than or equal to 1.0 milligram per square centimeter or greater than 0.5 percent by weight and on any surface like a surface tested in the same room equivalent that has a similar painting history and that is found to be lead-based paint.

“Lead-based paint activities” means, in the case of target housing and child-occupied facilities, lead-free inspection, lead inspection, elevated blood lead (EBL) inspection, lead hazard screen, risk assessment, lead abatement, visual risk assessment, clearance testing conducted after lead abatement, clearance testing conducted after renovation, clearance testing conducted after interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35, and renovation.

“Lead-based paint hazard” means hazardous lead-based paint, a dust-lead hazard, or a soil-lead hazard.

“Lead-based paint hazard reduction activity” means an activity that permanently or temporarily reduces or eliminates lead-based paint hazards. “Lead-based paint hazard reduction activity” includes lead abatement, renovation, or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35.

“Lead-free inspection” means an inspection to determine whether a single dwelling unit or multifamily housing is free of lead-based paint and qualifies for the exemption in 24 CFR Part 35 and 40 CFR Part 745 for target housing being leased that is free of lead-based paint and the provision of

a written report explaining the results of the lead-free inspection and options for reducing lead-based paint hazards to the property owner and to the person requesting the lead inspection.

“Lead hazard screen” means a limited risk assessment activity that involves limited paint and dust sampling and the provision of a written report explaining the results of the lead hazard screen to the property owner and to the person requesting the lead hazard screen.

“Lead inspection” means a surface-by-surface investigation to determine the presence of lead-based paint and a determination of the existence, nature, severity, and location of lead-based paint hazards in a residential dwelling or child-occupied facility and the provision of a written report explaining the results of the investigation and options for reducing lead-based paint hazards to the property owner and to the person requesting the lead inspection. A certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall not determine that a residential dwelling is free of lead-based paint as a result of a lead inspection.

“Lead professional” means a person who conducts lead abatement, renovation, lead inspections, elevated blood lead (EBL) inspections, lead hazard screens, risk assessments, visual risk assessments, clearance testing after lead abatement, clearance testing after renovation, or clearance testing after interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35.

“Lead-safe work practices” means methods that are used to minimize hazards when conducting renovation or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35.

“Lead-safe work practices training program” means an 8-hour training program that provides training on how to work safely with lead-based paint.

“Living area” means any area of a residential dwelling used by at least one child under the age of six years, including, but not limited to, living rooms, kitchen areas, dens, playrooms, and children’s bedrooms.

“Loading” means the quantity of a specific substance present per unit of surface area, such as the amount of lead in micrograms contained in the dust collected from a certain surface area divided by the surface area in square feet or square meters.

“Mid-yard” means an area of a residential yard approximately midway between the dripline of a residential building and the nearest property boundary or between the driplines of a residential building and another building on the same property.

“Minor repair and maintenance activities” means activities, including minor heating, ventilation or air-conditioning work, electrical work, and plumbing, that disrupt less than the minimum areas of a painted surface established in this definition where none of the work practices prohibited or restricted by this chapter are used and where the work does not involve window replacement or demolition of painted surface areas. When painted components or portions of painted components are removed, the entire surface area removed is the amount of painted surface disturbed. Projects, other than emergency renovation, performed in the same room within the same 30 days must be considered the same project for the purpose of determining whether the project is a minor repair and maintenance activity. Renovations performed in response to an elevated blood lead (EBL) inspection are not considered minor repair and maintenance activities. The minimum area for minor repair and maintenance activities is:

1. Less than 1.0 square foot of an interior painted or finished wood surface per renovation;
2. Less than 6.0 square feet of a painted or finished drywall or plaster surface per room; or
3. Less than 20.0 square feet of an exterior painted or finished surface per renovation.

Projects performed pursuant to 24 CFR Part 35 shall comply with the de minimis levels in 24 CFR 35.1350 if these de minimis levels are more restrictive than the minimum areas of a painted surface established in this definition.

“Multifamily dwelling” means a structure that contains more than one separate residential dwelling unit, which is used or occupied, or intended to be used or occupied, in whole or in part, as the home or residence of one or more persons.

“Multifamily housing” means one or more multifamily dwellings that are under the same ownership or management.

“Negative classification” means any value defined by the performance characteristics sheet as indicating that lead-based paint is not present.

“NIST 1.02 standard film” means the National Institute of Standards and Technology 1.02 milligrams of lead per square centimeter standard reference material. If the specific 1.02 milligrams of lead per square centimeter standard is not available from NIST, then the lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the closest available standard from NIST (1.0X).

“Occupant protection plan” means a plan developed by a certified lead abatement contractor prior to the commencement of lead abatement in a residential dwelling or child-occupied facility that describes the measures and management procedures that will be taken during lead abatement to protect the building occupants from exposure to any lead-based paint hazards.

“Ongoing lead-based paint maintenance” means the maintenance of housing pursuant to 24 CFR Part 35.

“Painted component” means a component or building component that is at least partially covered with paint or other surface coating.

“Paint-lead hazard” means the presence of hazardous lead-based paint in a residential dwelling or a child-occupied facility.

“Paint sample” means a sample collected in a representative location using ASTM E1729, “Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques,” or equivalent method.

“Paint stabilization” means repairing any physical defect in the substrate of a painted surface that is causing paint deterioration, removing loose paint and other material from the surface to be treated, and applying a new protective coating or paint pursuant to 24 CFR Part 35.

“Paint testing” means the process of determining the presence or the absence of lead-based paint on a specific component or surface. Paint testing shall only be conducted by certified lead inspector/risk assessors or certified elevated blood lead (EBL) inspector/risk assessors using approved methods for testing. Approved methods for paint testing are XRF analysis and laboratory analysis.

“Performance characteristics sheet (PCS)” means an information sheet developed by the U.S. Environmental Protection Agency and U.S. Department of Housing and Urban Development that defines acceptable operating specifications and procedures for a specific model of X-ray fluorescence analyzer (XRF). The PCS contains information about XRF readings taken on specific substrates, calibration check tolerances, interpretation of XRF readings, and other aspects of the model’s performance.

“Permanently covered soil” means soil which has been separated from human contact by the placement of a barrier consisting of solid, relatively impermeable materials, such as pavement or concrete. Grass, mulch, and other landscaping materials are not considered permanent covering.

“Play area” means an area of frequent soil contact by children of less than six years of age as indicated by, but not limited to, factors including the following: the presence of play equipment (sandboxes, swing sets, and sliding boards), toys, or other children’s possessions, observations of play patterns, or information provided by parents, residents, caregivers, or property owners.

“Positive classification” means any value defined by the performance characteristics sheet as indicating the presence of lead-based paint.

“Postrenovation cleaning verification” means the use of a wet or dry disposable cleaning cloth to wipe the interior windowsill, window trough, uncarpeted floor, and countertops of the renovation work area and the comparison of the cloth to a cleaning verification card to determine if the work area has been adequately cleaned.

“Principal instructor” means the individual who has the primary responsibility for organizing and teaching a particular course.

“Random selection” means a method of choosing residential dwellings from multifamily housing consisting of similarly constructed and maintained residential dwellings such that each residential dwelling has an equal chance of being selected.

“Recognized laboratory” means an environmental laboratory recognized by the U.S. Environmental Protection Agency pursuant to Section 405(b) of the federal Toxic Substance Control Act as capable of performing an analysis for lead compounds in paint, soil, and dust.

“Recognized test kit” means a commercially available kit recognized by the EPA under 40 CFR 745.88 as being capable of allowing a user to determine the presence of lead at levels equal to or in excess of 1.0 milligrams per square centimeter, or more than 0.5 percent by weight, in a paint chip, paint, powder, or painted surface.

“Reduction” means measures designed to reduce or eliminate human exposure to lead-based paint hazards through methods including interim controls and lead abatement.

“Reevaluation” means a visual assessment of painted surfaces and limited dust and soil sampling conducted periodically following a lead-based paint hazard reduction activity where lead-based paint is still present and the provision of a written report explaining the results of the reevaluation.

“Refresher training course” means a course taken by a certified lead professional to maintain certification in a particular discipline.

“Regulated entity” means any lead professional or firm that is regulated by the department by virtue of these rules, the Iowa Code, certification documents, approval documents, lead abatement notices, or other official regulatory promulgation.

“Rehabilitation” means the improvement of an existing structure through alterations, incidental additions, or enhancements. Rehabilitation includes repairs necessary to correct the results of deferred maintenance, the replacement of principal fixtures and components, improvements to increase the efficient use of energy, and installation of security devices.

“Renovation” means the modification of any existing structure, or portion thereof, that results in the disturbance of painted surfaces, unless that activity is performed as part of lead abatement as defined by this chapter. The term “renovation” includes, but is not limited to, the removal, modification, or repair of painted surfaces or painted components such as modification of painted doors, surface restoration, and window repair; surface preparation activity such as sanding, scraping, or other such activities that may generate paint dust; the partial or complete removal of building components such as walls, ceilings, and windows; weatherization projects such as cutting holes in painted surfaces to install blown-in insulation or to gain access to attics and planing thresholds to install weatherstripping; and interim controls that disturb painted surfaces. “Renovation” does not include minor repair and maintenance activities.

“Residential building” means a building containing one or more residential dwellings.

“Residential dwelling” means (1) a detached single-family dwelling unit, including the surrounding yard, attached structures such as porches and stoops, and detached buildings and structures including, but not limited to, garages, farm buildings, and fences, or (2) a single-family dwelling unit in a structure that contains more than one separate residential dwelling unit, which is used or occupied, or intended to be used or occupied, in whole or part, as the home or residence of one or more persons.

“Risk assessment” means an investigation to determine the existence, nature, severity, and location of lead-based paint hazards in a residential dwelling or child-occupied facility and the provision of a written report explaining the results of the investigation and options for reducing lead-based paint hazards to the property owner and to the person requesting the risk assessment.

“Room” means a separate part of the inside of a building, such as a bedroom, living room, dining room, kitchen, bathroom, laundry room, or utility room. To be considered a separate room, the room must be separated from adjoining rooms by built-in walls or archways that extend at least six inches from an intersecting wall. Half walls or bookcases count as room separators if built-in. Movable or collapsible partitions or partitions consisting solely of shelves or cabinets are not considered built-in walls. A screened-in porch that is used as a living area is a room. Each exterior side of the house is considered a separate room.

“Soil-lead hazard” means bare soil on residential real property or on the property of a child-occupied facility that contains total lead greater than or equal to 400 parts per million for the dripline, mid-yard, and play areas. A soil-lead hazard is present in a dripline, mid-yard, or play area when the soil-lead concentration from a composite sample of bare soil is greater than or equal to 400 parts per million.

“Soil sample” means a sample collected in a representative location using ASTM E1727, “Standard Practice for Field Collection of Soil Samples by Atomic Spectrometry Techniques,” or equivalent method.

“*Standard treatments*” means a series of hazard reduction measures designed to reduce all lead-based paint hazards in a residential dwelling without the benefit of a risk assessment or other evaluation pursuant to 24 CFR Part 35. Standard treatments consist of the stabilization of all deteriorated interior and exterior paint, the provision of smooth and cleanable horizontal hard surfaces, the correction of dust-generating conditions (i.e., conditions causing rubbing, binding, or crushing of surfaces known to or presumed to be coated with lead-based paint), and the treatment of bare soil to control known or presumed soil-lead hazards.

“*State certification examination*” means a discipline-specific examination approved by the department to test the knowledge of a person who has completed an approved training course and is applying for certification in a particular discipline. The state certification examination may not be administered by the provider of an approved course.

“*Substrate*” means the material underneath the paint or finish on a surface. Substrates are classified as brick, concrete, drywall, metal, plaster, or wood.

“*Substrate correction*” means adjustments that must be made to readings obtained from some X-ray fluorescence analyzers to correct for systematic biases due to interference from the substrate beneath the paint.

“*Substrate correction value*” means the value that is used to adjust readings obtained from some X-ray fluorescence analyzers to correct for systematic biases due to interference from the substrate beneath the paint.

“*Targeted selection*” means selecting residential dwellings from multifamily housing for risk assessments or lead hazard screens using information supplied by the property owner.

“*Target housing*” means housing constructed prior to 1978 with the exception of housing for the elderly or for persons with disabilities and housing which does not contain a bedroom, unless at least one child under the age of six years resides or is expected to reside in the housing for the elderly or persons with disabilities or housing which does not contain a bedroom. Target housing also includes any nonresidential building where lead-based paint activities are conducted prior to or during the conversion of the nonresidential building to target housing.

“*Testing combination*” means the unique combination of the room, component, substrate, and distinct painting history.

“*Training hour*” means at least 50 minutes of actual learning, including, but not limited to, time devoted to lecture, learning activities, small group activities, demonstrations, evaluations, or hands-on experience.

“*Training manager*” means the individual responsible for administering an approved course and monitoring the performance of principal instructors and guest instructors.

“*Training program*” means a person or organization sponsoring a lead professional training course(s).

“*Visual inspection for clearance testing*” means the visual examination of a residential dwelling or a child-occupied facility following lead abatement or following interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR 35.1340 to determine whether or not the lead abatement, interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation has been successfully completed.

“*Visual risk assessment*” means a visual assessment to determine the presence of deteriorated paint or other potential sources of lead-based paint hazards in a residential dwelling or child-occupied facility and the provision of a written report explaining the results of the assessment to the property owner and to the person requesting the visual risk assessment. For the purpose of compliance with this chapter, housing quality standards inspections conducted in housing owned by a public housing authority and housing that is receiving tenant-based rental assistance from a public housing authority are not considered visual risk assessments.

“*Weighted arithmetic mean*” means the arithmetic mean of sample results weighted by the number of subsamples in each sample. Its purpose is to give influence to a sample relative to the surface area it represents. A single surface dust sample is comprised of a single dust subsample. A composite dust sample may contain from two to four dust subsamples of the same area as each other and of each single

surface dust sample in the composite. The weighted arithmetic mean is obtained by summing, for all dust samples, the product of the dust sample's result multiplied by the number of dust subsamples in the dust sample, and dividing the sum by the total number of dust subsamples contained in all dust samples. For example, the weighted arithmetic mean of a single surface dust sample containing 60 micrograms per square foot ($\mu\text{g}/\text{ft}^2$), a composite dust sample (three dust subsamples) containing 100 $\mu\text{g}/\text{ft}^2$, and a composite dust sample (four dust subsamples) containing 110 $\mu\text{g}/\text{ft}^2$ is 100 $\mu\text{g}/\text{ft}^2$. This result is based on the equation $[60+(3\times 100)+(4\times 110)] / (1+3+4)$.

“Wet disposable cleaning cloth” means a commercially available, premoistened white disposable cloth designed to be used for cleaning hard surfaces such as uncarpeted floors or countertops.

“Wet mopping system” means a device with the following characteristics: a long handle, a mop head designed to be used with disposable absorbent cleaning pads, a reservoir for cleaning solution, and a built-in mechanism for distributing or spraying the cleaning solution onto a floor, or a method of equivalent efficiency.

“Wet sanding” means a process of removing loose paint in which a surface that is partially coated with paint or other surface coating is kept wet or moist during sanding to minimize the dispersal of paint chips and airborne dust.

“Wet scraping” means a process of removing loose paint in which a surface that is partially coated with paint or other surface coating is kept wet or moist during scraping to minimize the dispersal of paint chips and airborne dust.

“Windowsill” means the portion of the horizontal window ledge that protrudes into the interior of the room when the window is closed.

“Window trough” means, for a typical double-hung window, the portion of the exterior windowsill between the interior windowsill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. The window trough is sometimes referred to as the window well.

“Wipe sample” means a sample collected by wiping a representative surface of known area, as determined by ASTM E1728, “Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques,” or equivalent method, with an acceptable wipe material as defined in ASTM E1792, “Standard Specification for Wipe Sampling Materials for Lead in Surface Dust.” The minimum area for a floor wipe sample shall be 0.50 square feet or 72 square inches. The minimum area for a windowsill wipe sample and for a window trough wipe sample shall be 0.25 square feet or 36 square inches.

“Worksite” or *“work area”* means an interior or exterior area where lead-based paint hazard reduction activity or renovation takes place. There may be more than one worksite in a dwelling unit or at a residential property.

“Worst case selection” means conducting a walk-through survey of all residential dwellings in the multifamily housing to select the highest-risk residential dwellings for risk assessments or lead hazard screens.

“X-ray fluorescence analyzer (XRF)” means an instrument that determines lead concentrations in milligrams per square centimeter (mg/cm^2) using the principle of X-ray fluorescence.

“XRF reading” means the number obtained when a surface is tested with an X-ray fluorescence analyzer.

[ARC 8502B, IAB 2/10/10, effective 1/13/10; ARC 0482C, IAB 12/12/12, effective 1/16/13]

641—70.3(135) Lead professional certification. A person or a firm shall not conduct lead abatement, clearance testing after lead abatement, lead-free inspections, lead inspections, elevated blood lead (EBL) inspections, lead hazard screens, risk assessments, visual risk assessments, clearance testing after renovation, or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35 unless the person or firm has been certified by the department in the appropriate discipline. Beginning April 22, 2010, a person or firm shall not conduct renovation unless the person or firm has been certified by the department in the appropriate discipline. However, persons who perform these activities within residential dwellings that they own

are not required to be certified, unless the residential dwelling is occupied by a person other than the owner or a member of the owner's immediate family while these activities are being performed. In addition, elevated blood lead (EBL) inspections shall be conducted only by certified elevated blood lead (EBL) inspector/risk assessors employed by or under contract with a certified elevated blood lead (EBL) inspection agency. In addition, persons who perform renovation under the supervision of a certified lead-safe renovator, certified lead abatement contractor, or certified lead abatement worker and who have completed on-the-job training are not required to be certified. However, on-the-job training does not meet the training requirement for work conducted pursuant to 24 CFR Part 35. Lead professionals and firms shall not state that they have been certified by the state of Iowa unless they have met the requirements of 641—70.5(135) and been issued a current certificate by the department. Elevated blood lead (EBL) inspection agencies must be certified by the department. Elevated blood lead (EBL) inspection agencies shall not state that they have been certified by the state of Iowa unless they have met the requirements of 641—70.5(135) and been issued a current certificate by the department.

[ARC 8502B, IAB 2/10/10, effective 1/13/10]

641—70.4(135) Course approval and standards. All lead professional training courses for initial certification and refresher training must be approved by the department. Training programs shall not state that they have been approved by the state of Iowa unless they have met the requirements of 641—70.4(135) and been issued a letter of approval by the department. Lead-safe work practices training programs that were approved by the department prior to January 13, 2010, must reapply for approval.

70.4(1) Training courses shall meet the following requirements:

a. The training program offering the course shall employ a training manager who has the following qualifications:

(1) A bachelor's or graduate degree in building construction technology, engineering, industrial hygiene, safety, public health, or a related field; or two years of experience in managing a training program specializing in environmental hazards.

(2) Demonstrated experience, education, or training in lead professional activities, including lead inspection, lead abatement, lead-safe work practices, painting, carpentry, renovation, remodeling, occupational safety and health, or industrial hygiene.

b. The training manager shall designate a qualified principal instructor for each course who has the following qualifications:

(1) Demonstrated experience, education, or training in teaching workers or adults.

(2) Certification as a lead inspector/risk assessor, elevated blood lead (EBL) inspector/risk assessor, or lead abatement contractor. In the case of a course for training lead-safe renovators, the principal instructor may be certified as a sampling technician.

(3) Demonstrated experience, education, or training in lead professional activities, including lead inspection, lead abatement, lead-safe work practices, painting, carpentry, renovation, remodeling, occupational safety and health, or industrial hygiene.

c. The principal instructor shall be responsible for the organization of the course and oversight of the teaching of all course material. The training manager may designate guest instructors as needed to provide instruction specific to the lecture, hands-on activities, or work practice components of a course.

d. The training program shall ensure the availability of, and provide adequate facilities for, the delivery of the lecture, course test, hands-on training, and assessment activities. This includes providing training equipment that reflects current work practices and maintaining or updating the equipment as needed.

e. The training manager shall maintain the validity and integrity of the hands-on skills assessment to ensure that it accurately evaluates the trainees' performance of the work practices and procedures associated with the course topics contained in subrules 70.4(3) to 70.4(17).

f. The training manager shall maintain the validity and integrity of the course test to ensure that it accurately evaluates the trainees' knowledge and retention of the course topics.

g. The course test shall be developed in accordance with the test blueprint submitted with the course approval application. Training programs may use course tests developed by the department.

h. The training program shall issue unique course completion certificates to each individual who passes the course. The course completion certificate shall be issued in color. The course completion certificate shall include:

(1) The name and address of the individual, a photograph of the individual, and a unique identification number.

(2) The name of the particular course that the individual completed and the course length in hours.

(3) Dates of course completion and test passage.

(4) The name, address, and telephone number of the training program.

(5) The signature of the training manager.

i. The training manager shall develop and implement a quality control plan. The plan shall be used to maintain and improve the quality of the training program over time. This plan shall contain at least the following elements:

(1) Procedures for periodic revision of training materials and the course test to reflect changes in regulations and recommended practices.

(2) Procedures for the training manager to conduct an annual review of the competency of the principal instructor and all other instructors.

j. The training program shall offer courses that teach the work practice standards for conducting lead-based paint activities contained in 641—70.6(135) and other standards developed by the department. These standards shall be taught in the appropriate courses to provide trainees with the knowledge needed to perform the lead-based paint activities they are responsible for conducting.

k. The training manager shall ensure that each course meets the requirements in this rule for the number of training hours and hours of hands-on training. The training manager shall ensure that any student who misses more than 20 minutes of class time makes up the time before taking the course test.

l. The training manager shall ensure that the training program complies at all times with all requirements in this rule.

m. The training manager shall allow the department to audit the training program to verify the contents of the application for approval and for reapproval.

n. The training program shall maintain, and make available to the department, upon request, the following records:

(1) All documents specified in paragraph 70.4(2)“*f.*”

(2) Current curriculum/course materials and documents reflecting any changes made to these materials.

(3) The course test blueprint and the course test.

(4) Information regarding how the hands-on assessment is conducted including, but not limited to, who conducts the assessment, how the skills are graded, what facilities are used, and the pass/fail rate.

(5) The quality control plan as described in paragraph 70.4(1)“*i.*”

(6) A file for each student who has completed a course. Each student file shall contain the following:

1. The student’s name, address, and telephone number.

2. The student’s test and answer sheet.

3. A copy of the student’s course completion certificate.

4. A copy of the student’s hands-on skill assessment, if applicable.

5. A photograph of the student as taken by the training program.

(7) A file for each individual course that has been offered. Each file shall include the following:

1. The dates of the course.

2. The location of the course.

3. The instructors who taught the course.

4. A paper or electronic copy of the curriculum used for the course.

5. A copy of the test used for the course.

6. Documentation of the times that each student was present at the course, including documentation of how a student made up missed time.

7. The course evaluations.
 - (8) Any other materials that have been submitted to the department as part of the program's application for approval.
 - o.* The training program shall retain all required records at the address specified on the training program approval application for a minimum of six years.
 - p.* The training program shall notify the department in writing within 30 days of changing the address specified on its training program approval application or transferring the records from that address.
 - q.* A training program shall notify the department in writing at least 7 days in advance of offering an approved course. The notification shall include the date(s), time(s), and location(s) where the approved course will be held. A training program shall notify the department at least 24 hours in advance of canceling an approved course.
 - r.* The training program shall take a digital photograph of each student. The digital photograph shall be the same photograph that appears on the training certificate and is submitted to the department. The photograph shall meet the following specifications:
 - (1) The individual shall be facing the camera.
 - (2) The individual's head shall not be tilted.
 - (3) The individual's head shall cover approximately half of the photo area.
 - (4) The individual shall be in front of a neutral or light-colored background.
 - (5) The individual shall not wear any items that detract from the face, such as hats or sunglasses. Only head coverings worn for religious reasons may be worn. Religious head coverings may not cover the face of the individual.
 - (6) Photographs shall be 24-bit color depth.
 - s.* A training program shall provide the following information to the department electronically in a format specified by the department within 30 days of the conclusion of an approved course for each student who has taken the approved course:
 - (1) Name, address, and social security number.
 - (2) Course completion certificate number.
 - (3) Test score.
 - (4) The photograph of each student as taken by the training program shall be submitted as a joint photographic experts group (JPEG) file with a size of at least two inches by two inches and a minimum resolution of 300 pixels per inch.
- 70.4(2)** If a training program desires approval of a course by the department, the training program shall apply to the department for approval of the course at least 90 days before the initial offering of the course if the training program will use materials developed by the training program. If the training program will use materials developed by the department, the training program shall apply to the department for approval of the course at least 30 days before the initial offering of the course. The department may allow courses to be offered sooner if the department completes the approval in less than 30 days. The application shall include:
- a.* Training program name, contact person, address, and telephone number.
 - b.* Course dates and times.
 - c.* Course location, including a description of the facilities and equipment to be used for lecture and hands-on training.
 - d.* Course agenda, including approximate times allotted to each training segment.
 - e.* A copy of each reference material, text, student and instructor manuals, and audio-visual material used in the course. These materials may also be provided by the department.
 - f.* The name(s) and qualifications of the training manager, principal instructor(s), and guest instructor(s). The following documents shall be submitted as evidence that training managers and principal instructors have the education, work experience, training requirements, or demonstrated experience required by subrule 70.4(1):
 - (1) Official transcripts or diplomas as evidence of meeting the education requirements.

(2) Résumés, letters of reference, or documentation of work experience, as evidence of meeting the work experience requirements.

(3) Certificates from lead-specific training courses, as evidence of meeting the training requirements.

g. A copy of the course test blueprint. The course test may also be provided by the department.

h. A description of the activities and procedures that will be used for conducting the assessment of hands-on skills for each course.

i. Maximum class size.

j. A copy of the quality control plan for the course.

k. A nonrefundable fee of \$200.

70.4(3) To be approved for the training of lead inspector/risk assessors and elevated blood lead (EBL) inspector/risk assessors, a course must be at least 40 training hours with a minimum of 12 hours devoted to hands-on training activities. Lead inspector/risk assessor and elevated blood lead (EBL) inspector/risk assessor training courses shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

a. Role and responsibilities of an inspector/risk assessor.

b. Background information on lead and its adverse health effects, how children and adults are exposed to lead, and how to prevent lead exposure in children and adults.

c. Background information on federal, state, and local regulations and guidance that pertain to lead-based paint and lead-based paint activities.

d. Lead-based paint inspection methods, including selection of rooms and components for sampling or testing to determine if a property is free of lead-based paint as specified in the Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1995, U.S. Department of Housing and Urban Development), and methods to determine if lead-based paint hazards are present in a property.*

e. Paint, dust, and soil sampling methodologies.*

f. Clearance standards and testing, including random sampling.*

g. Collection of background information to perform a risk assessment.

h. Sources of environmental lead contamination such as paint, surface dust and soil, and water.

i. Visual inspection to identify lead-based paint hazards.*

j. Lead hazard screen protocol.

k. Visual risk assessment protocol.

l. Reevaluation protocol.

m. In the case of renovation, procedures for using recognized test kits to determine whether paint is lead-based paint.*

n. In the case of renovation, methods to ensure that the renovation has been properly completed, including postrenovation cleaning verification and clearance testing.*

o. Sampling for other sources of lead exposure.*

p. Interpretation of lead-based paint and other lead sampling results, including all applicable federal, state, and local guidance or regulations pertaining to lead-based paint hazards.*

q. Development of lead hazard control options.

r. The role of interim controls, operation and maintenance activities, and renovation in reducing lead-based paint hazards.

s. Approved methods for conducting lead-based paint abatement, interim controls, operation and maintenance activities, and renovation.

t. Prohibited methods for conducting lead-based paint abatement, interim controls, operation and maintenance activities, and renovation.

u. Interior dust abatement and cleanup.

v. Soil and exterior dust abatement and cleanup.

w. Preparation of the final reports for lead inspections, lead-free inspections, risk assessments, visual assessments, lead hazard screens, clearance testing after lead abatement, clearance testing after

renovation, reevaluation, and clearance testing after interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, and rehabilitation pursuant to 24 CFR Part 35.

x. Record keeping.

y. The course shall conclude with a course test and, if applicable, a hands-on skills assessment. The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

z. The instructor shall provide each student with instructions and forms needed to apply to the department for certification and information provided by the department regarding the state certification examination. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

aa. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(4) To be approved for the training of lead inspector/risk assessors and elevated blood lead (EBL) inspector/risk assessors who have already completed an approved sampling technician course, a course must be at least 20 training hours with a minimum of 8 hours devoted to hands-on training activities. The training course shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

a. Role and responsibilities of a lead inspector/risk assessor and elevated blood lead (EBL) inspector/risk assessor.

b. Lead-based paint inspection methods, including selection of rooms and components for sampling or testing to determine if a property is free of lead-based paint as specified in the work practice standards in 641—70.6(135), and methods to determine if lead-based paint hazards are present in a property.*

c. Collection of background information to perform a risk assessment.

d. Lead hazard screen protocol.

e. Reevaluation protocol.

f. Sampling for other sources of lead exposure.*

g. Interpretation of lead-based paint and other lead sampling results, including all applicable federal, state, and local guidance or regulations pertaining to lead-based paint hazards.*

h. Development of lead hazard control options, including lead abatement.*

i. The role of interim controls, operation and maintenance activities, and renovation in reducing lead-based paint hazards.

j. Approved methods for conducting lead abatement, interim controls, operation and maintenance activities, and renovation.

k. Prohibited methods for conducting lead abatement, interim controls, operation and maintenance activities, and renovation.

l. Preparation of the final reports for lead inspections, lead-free inspections, risk assessments, lead hazard screens, reevaluation, and clearance testing after lead abatement.

m. Record keeping.

n. The course shall conclude with a course test and, if applicable, a hands-on skills assessment. The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

o. The instructor shall provide each student with instructions and forms needed to apply to the department for certification and information provided by the department regarding the state certification examination. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

p. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(5) Rescinded IAB 3/31/04, effective 5/5/04.

70.4(6) Rescinded IAB 3/31/04, effective 5/5/04.

70.4(7) Rescinded IAB 3/31/04, effective 5/5/04.

70.4(8) To be approved for the training of lead abatement contractors, a course must be at least 40 training hours with a minimum of 12 hours devoted to hands-on activities and shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

- a.* Role and responsibilities of a lead abatement contractor.
- b.* Background information on lead and its adverse health effects, how children and adults are exposed to lead, and how to prevent lead exposure in children and adults.
- c.* Background information on federal, state, and local regulations and guidance that pertain to lead-based paint and lead-based paint activities.
- d.* Liability and insurance issues relating to lead abatement, interim controls, and renovation.
- e.* Identification of lead-based paint and lead-based paint hazards.*
- f.* Interpretation of lead inspection reports.*
- g.* Development and implementation of an occupant protection plan, lead abatement report, and renovation report.
- h.* Respiratory protection and protective clothing.*
- i.* Employee information and training.
- j.* Approved methods for conducting lead abatement, interim controls, and renovation.*
- k.* Prohibited methods for conducting lead abatement, interim controls, and renovation.
- l.* Interior dust abatement and cleanup.*
- m.* Soil and exterior dust abatement and cleanup.*
- n.* Clearance standards and testing, including random sampling.
- o.* Cleanup, waste handling, and waste disposal.
- p.* In the case of renovation, interior and exterior containment and cleanup methods.*
- q.* In the case of renovation, providing on-the-job training to other workers.*
- r.* In the case of renovation, procedures for using recognized test kits to determine whether paint is lead-based paint, including preparation of the required report.*
- s.* In the case of renovation, methods to ensure that the renovation has been properly completed, including postrenovation cleaning verification and clearance testing.*
- t.* In the case of renovation, record preparation and record keeping.
- u.* Record keeping for lead abatement.
- v.* The course shall conclude with a course test and, if applicable, a hands-on skills assessment. The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

w. The instructor shall provide each student with instructions and forms needed to apply to the department for certification and information provided by the department regarding the state certification examination. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

x. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(9) To be approved for the training of lead abatement contractors who have already completed an approved lead abatement worker course, a course must be at least 16 training hours with a minimum of 4 hours devoted to hands-on activities and shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

- a. Role and responsibilities of a lead abatement contractor.
- b. Liability and insurance issues relating to lead abatement.
- c. Interpretation of lead inspection reports.*
- d. Development and implementation of an occupant protection plan and abatement report.
- e. Employee information and training.
- f. Clearance standards and testing, including random sampling.
- g. Record keeping for lead abatement.
- h. The course shall conclude with a course test and, if applicable, a hands-on skills assessment.

The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

i. The instructor shall provide each student with instructions and forms needed to apply to the department for certification and with information provided by the department regarding the state certification examination. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

j. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(10) To be approved for the training of lead abatement workers, a course must be at least 24 training hours with a minimum of 8 hours devoted to hands-on activities and shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

- a. Role and responsibilities of a lead abatement worker.
- b. Background information on lead and its adverse health effects, how children and adults are exposed to lead, and how to prevent lead exposure in children and adults.
- c. Background information on federal, state, and local regulations and guidance that pertain to lead-based paint and lead-based paint activities.
- d. Identification of lead-based paint and lead-based paint hazards.*
- e. Approved methods for conducting lead abatement, interim controls, and renovation.*
- f. Prohibited methods for conducting lead abatement, interim controls, and renovation.
- g. Interior dust abatement and cleanup.*
- h. Soil and exterior dust abatement and cleanup.*
- i. Cleanup, waste handling, and waste disposal.
- j. Respiratory protection and protective clothing.*
- k. Personal hygiene.
- l. In the case of renovation, interior and exterior containment and cleanup methods.*
- m. In the case of renovation, providing on-the-job training to other workers.*
- n. In the case of renovation, procedures for using recognized test kits to determine whether paint is lead-based paint, including preparation of the required report.*
- o. In the case of renovation, methods to ensure that the renovation has been properly completed, including postrenovation cleaning verification and clearance testing.*
- p. In the case of renovation, record preparation and record keeping.
- q. The course shall conclude with a course test and, if applicable, a hands-on skills assessment.

The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

r. The instructor shall provide each student with instructions and forms needed to apply to the department for certification. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

s. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(11) To be approved for the training of sampling technicians, a course must be at least 20 training hours with a minimum of 4 hours devoted to hands-on training activities. The training course shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

- a. Role and responsibilities of a sampling technician.
- b. Background information on lead and its adverse health effects, how children and adults are exposed to lead, and how to prevent lead exposure in children and adults.
- c. Background information on federal, state, and local regulations and guidance that pertain to lead-based paint and lead-based paint activities.
- d. Methods of conducting visual risk assessments.*
- e. Paint, dust, and soil sampling methodologies.*
- f. In the case of renovation, procedures for using recognized test kits to determine whether paint is lead-based paint.*
- g. Clearance standards and testing.*
- h. Identification of lead-based paint hazards.*
- i. Sources of environmental lead contamination such as paint, surface dust and soil, and water.
- j. Visual inspection to identify lead-based paint hazards.*
- k. Approved methods for conducting lead abatement, interim controls, operation and maintenance activities, and renovation.
- l. Prohibited methods for conducting lead abatement, interim controls, operation and maintenance activities, and renovation.
- m. Methods of interim controls and lead abatement for interior dust and cleanup.
- n. Methods of interim controls and lead abatement for exterior dust and soil and cleanup.
- o. Preparation of the final visual assessment report.
- p. Preparation of clearance testing reports for clearance testing after renovation and clearance testing after interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, and rehabilitation pursuant to 24 CFR Part 35.
- q. Record keeping.
- r. The course shall conclude with a course test and, if applicable, a hands-on skills assessment.

The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

s. The instructor shall provide each student with instructions and forms needed to apply to the department for certification. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

t. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(12) To be approved for the training of project designers, a course must be at least 48 instructional training hours with a minimum of 12 hours devoted to hands-on activities and shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

- a. Role and responsibilities of a lead abatement contractor.
- b. Background information on lead and its adverse health effects, how children and adults are exposed to lead, and how to prevent lead exposure in children and adults.
- c. Background information on federal, state, and local regulations and guidance that pertain to lead-based paint and lead-based paint activities.
- d. Liability and insurance issues relating to project design.
- e. Identification of lead-based paint and lead hazards.*

- f.* Interpretation of lead inspection reports.*
 - g.* Development and implementation of an occupant protection plan, lead abatement report, and renovation report.
 - h.* Respiratory protection and protective clothing.*
 - i.* Employee information and training.
 - j.* Approved methods for conducting lead abatement, interim controls, and renovation.*
 - k.* Prohibited methods for conducting lead abatement, interim controls, and renovation.
 - l.* Interior dust abatement and cleanup.*
 - m.* Soil and exterior dust abatement and cleanup.*
 - n.* Clearance standards and testing, including random sampling.
 - o.* Cleanup, waste handling, and waste disposal.
 - p.* In the case of renovation, providing on-the-job training to other workers.*
 - q.* In the case of renovation, procedures for using recognized test kits to determine whether paint is lead-based paint, including preparation of the required report.*
 - r.* In the case of renovation, methods to ensure that the renovation has been properly completed, including postrenovation cleaning verification and clearance testing.*
 - s.* In the case of renovation, record preparation and record keeping.
 - t.* Record keeping for lead abatement.
 - u.* Role and responsibilities of a project designer.
 - v.* Development and implementation of an occupant protection plan for large-scale lead abatement projects.
 - w.* Lead abatement and lead hazard reduction methods, including restricted practices for large-scale lead abatement projects.
 - x.* Interior dust abatement/cleanup or lead hazard control and reduction methods for large-scale lead abatement projects.
 - y.* Clearance standards and testing for large-scale lead abatement projects.
 - z.* Integration of lead abatement methods with modernization and rehabilitation projects for large-scale lead abatement projects.
 - aa.* The course shall conclude with a course test and, if applicable, a hands-on skills assessment. The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.
 - ab.* The instructor shall provide each student with instructions and forms needed to apply to the department for certification and with information provided by the department regarding the state certification examination. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.
 - ac.* All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.
- 70.4(13)** To be approved for the training of project designers who have already completed an approved lead abatement contractor course, a course must be at least 8 instructional training hours and shall cover at least the following subjects:
- a.* Role and responsibilities of a project designer.
 - b.* Development and implementation of an occupant protection plan for large-scale abatement projects.
 - c.* Lead abatement and lead hazard reduction methods, including restricted practices for large-scale lead abatement projects.
 - d.* Interior dust abatement/cleanup or lead hazard control and reduction methods for large-scale lead abatement projects.
 - e.* Clearance standards and testing for large-scale lead abatement projects.

f. Integration of lead abatement methods with modernization and rehabilitation projects for large-scale lead abatement projects.

g. The course shall conclude with a course test and, if applicable, a hands-on skills assessment. The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

h. The instructor shall provide each student with instructions and forms needed to apply to the department for certification and information provided by the department regarding the state certification examination. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

i. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(14) To be approved for the training of project designers who have already completed an approved lead abatement worker course, a course must be at least 24 instructional training hours with a minimum of 4 hours devoted to hands-on activities and shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

- a.* Role and responsibilities of a lead abatement contractor.
- b.* Liability and insurance issues relating to lead abatement.
- c.* Interpretation of lead inspection reports.*
- d.* Development and implementation of an occupant protection plan and lead abatement report.
- e.* Employee information and training.
- f.* Clearance standards and testing, including random sampling.
- g.* Record keeping.
- h.* Role and responsibilities of a project designer.
- i.* Development and implementation of an occupant protection plan for large-scale lead abatement projects.

j. Lead abatement and lead hazard reduction methods, including restricted practices for large-scale lead abatement projects.

k. Interior dust abatement/cleanup or lead hazard control and reduction methods for large-scale lead abatement projects.

l. Clearance standards and testing for large-scale lead abatement projects.

m. Integration of lead abatement methods with modernization and rehabilitation projects for large-scale lead abatement projects.

n. The course shall conclude with a course test and, if applicable, a hands-on skills assessment. The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

o. The instructor shall provide each student with instructions and forms needed to apply to the department for certification and information provided by the department regarding the state certification examination. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

p. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(15) To be approved for the training of lead-safe renovators, a course must be at least 8 instructional training hours with a minimum of 2 hours devoted to hands-on activities and shall cover at least the following subjects (requirements ending in an asterisk (*) indicate areas that require hands-on activities as an integral component of the course):

- a. Background information on lead and its adverse health effects, how children and adults are exposed to lead, and how to prevent lead exposure in children and adults.
- b. Background information on federal, state, and local regulations and guidance that pertain to lead-based paint, lead-based paint activities, and renovation activities.
- c. Procedures for using recognized test kits to determine whether paint is lead-based paint, including preparation of the required report.*
- d. Renovation methods to minimize the creation of dust and lead-based paint hazards.*
- e. Prohibited methods of renovation.
- f. Interior and exterior containment and cleanup methods.*
- g. Methods to ensure that the renovation has been properly completed, including postrenovation cleaning verification and clearance testing.*
- h. Waste handling and disposal.
- i. Providing on-the-job training to other workers.*
- j. Record preparation and record keeping.
- k. The course shall conclude with a course test and, if applicable, a hands-on skills assessment.

The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

l. The instructor shall provide each student with instructions and forms needed to apply to the department for certification. The instructor shall also provide each student with a current copy of this chapter and 641—Chapter 69.

m. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(16) To be approved for refresher training of sampling technicians, lead abatement contractors, lead abatement workers, and project designers, a course must be at least 8 training hours. To be approved for refresher training of lead inspector/risk assessors and elevated blood lead (EBL) inspector/risk assessors who completed an approved 24-hour training course, a course must be at least 8 training hours to meet the recertification requirements of subrule 70.5(3). To be approved for refresher training of lead inspector/risk assessors and elevated blood lead (EBL) inspector/risk assessors to meet the recertification requirements of subrule 70.5(6), a course must be at least 16 training hours. To be approved for refresher training of lead-safe renovators, a course must be at least 4 hours. All refresher training courses shall cover at least the following topics:

- a. A review of the curriculum topics of the initial certification course for the appropriate discipline as listed in subrules 70.4(3) to 70.4(15).
- b. An overview of current safety practices relating to lead-based paint activities in general, as well as specific information pertaining to the appropriate discipline.
- c. Current laws and regulations relating to lead-based paint activities in general, as well as specific information pertaining to the appropriate discipline.
- d. Current technologies relating to lead-based paint activities in general, as well as specific information pertaining to the appropriate discipline.

e. The course shall conclude with a course test and, if applicable, a hands-on skills assessment. The student must achieve a score of at least 80 percent on the examination and successfully complete the hands-on skills assessment to successfully complete the course. The student may take the course test no more than three times within six months of completing the course. If an individual does not pass the course test within six months of completing the course, the individual must retake the appropriate approved course.

f. All of the course materials including instructions, applications, and forms must be provided on paper unless an individual student requests that the materials be provided electronically.

70.4(17) Approvals of training courses shall expire three years after the date of issuance. The training manager shall submit the following at least 90 days prior to the expiration date for a course to be reapproved:

- a.* Sponsoring organization name, contact person, address, and telephone number.
- b.* A list of the courses for which reapproval is sought.
- c.* A description of any changes to the training staff, facility, equipment, or course materials since the approval of the training program.
- d.* A statement signed by the training manager stating that the training program complies at all times with 641—70.4(135).
- e.* A nonrefundable fee of \$200.

70.4(18) The department shall consider a request for approval of a training course that has been approved by a state or tribe authorized by the U.S. Environmental Protection Agency.

- a.* The course shall be approved if it meets the requirements of 641—70.4(135).
- b.* If the course does not meet all of the requirements of 641—70.4(135), the department shall inform the training provider of additional topics and training hours that are needed to meet the requirements of 641—70.4(135).

[ARC 8502B, IAB 2/10/10, effective 1/13/10]

641—70.5(135) Certification, interim certification, and recertification.

70.5(1) A person wishing to become a certified lead professional shall apply on forms supplied by the department. The applicant must submit:

- a.* A completed application form.
- b.* A certificate of completion of an approved course for the discipline in which the applicant wishes to become certified.
- c.* If wishing to become a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor, documentation of successful completion of the manufacturer's training course or equivalent for the X-ray fluorescence (XRF) analyzer that the inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor will use to conduct lead inspections.
- d.* If wishing to become a certified elevated blood lead (EBL) inspector/risk assessor, documentation of successful completion of 8 hours of training from the department's childhood lead poisoning prevention program. This training shall cover the roles and responsibilities of an elevated blood lead (EBL) inspector/risk assessor and the environmental and medical case management of elevated blood lead (EBL) children.
- e.* Documentation that the applicant meets the additional experience and education requirements in subrule 70.5(2) for the discipline in which the applicant wishes to become certified. The following documents shall be submitted as evidence that the applicant has the education and work experience required by subrule 70.5(2):
 - (1) Official transcripts or diplomas as evidence of meeting the education requirements.
 - (2) Résumés, letters of reference, or documentation of work experience, as evidence of meeting the work experience requirements.
- f.* To become certified as a lead inspector/risk assessor, elevated blood lead (EBL) inspector/risk assessor, lead abatement contractor, or project designer, a certificate showing that the applicant has passed the state certification examination in the discipline in which the applicant wishes to become certified.
- g.* A \$60 nonrefundable fee.
- h.* A person may receive interim certification from the department as a lead inspector/risk assessor, elevated blood lead (EBL) inspector/risk assessor, lead abatement contractor, or project designer by submitting the items required by paragraphs 70.5(1) "a" to "e" and "g" to the department. Interim certification shall expire six months from the date of completion of an approved course. An applicant shall upgrade an interim certification to a certification by submitting a certificate to the department showing that the applicant has passed the state certification examination as required by paragraph 70.5(1) "f." Interim certification is equivalent to certification.

i. Beginning April 22, 2010, lead-safe renovators must be certified by the department. A person who completed an approved course conducted by an approved lead-safe work practices training provider prior to January 13, 2010, must complete a lead-safe renovator refresher course to obtain certification.

70.5(2) To become certified by the department as a lead professional, an applicant must meet the education and experience requirements for the appropriate discipline:

a. Lead inspector/risk assessors and elevated blood lead (EBL) inspector/risk assessors must meet one of the following requirements:

(1) Bachelor's degree and one year of related experience (e.g., lead, environmental health, public health, housing inspection, building trades).

(2) Associate's degree and two years of related experience (e.g., lead, environmental health, public health, housing inspection, building trades).

(3) High school diploma and three years of related experience (e.g., lead, environmental health, public health, housing inspection, building trades).

(4) Certification as an industrial hygienist, professional engineer, registered architect, registered sanitarian, registered environmental health specialist, or registered nurse.

b. Lead abatement contractors must meet one of the following requirements:

(1) One year of experience as a certified lead abatement worker.

(2) Two years of related experience or education (e.g., lead, housing inspection, building trades, property management and maintenance).

c. No additional education or experience is required for lead abatement workers.

d. Sampling technicians must meet one of the following requirements:

(1) Associate's degree.

(2) High school diploma and one year of related experience (e.g., lead, environmental health, public health, housing inspection, building trades).

(3) Certification as an industrial hygienist, professional engineer, registered architect, registered sanitarian, registered environmental health specialist, or registered nurse.

e. Project designers must meet one of the following requirements:

(1) Bachelor's degree in engineering, architecture, or a related profession, and one year of experience in building construction and design or a related field.

(2) Four years of experience in building construction and design or a related field.

f. No additional education or experience is required for lead-safe renovators.

70.5(3) and **70.5(4)** Reserved.

70.5(5) All agencies that perform or offer to perform elevated blood lead (EBL) inspections must be certified by the department. An agency wishing to become a certified elevated blood lead (EBL) inspection agency shall apply on forms supplied by the department. The agency must submit:

a. A completed application form.

b. Documentation that the agency has the authority to require the repair of lead hazards identified through an elevated blood lead (EBL) inspection.

c. Documentation that the agency employs or has contracted with a certified elevated blood lead (EBL) inspector/risk assessor to provide environmental case management of all elevated blood lead (EBL) children in the agency's service area, including follow-up to ensure that lead-based paint hazards identified as a result of elevated blood lead (EBL) inspections are corrected, and that lead-based paint activities will be conducted only by appropriately certified lead professionals. In addition, the agency must document that the agency and its employees or contractors will follow the work practice standards in 641—70.6(135) for conducting lead-based paint activities.

d. A statement that the certified elevated blood lead (EBL) inspection agency will maintain all records required by subrule 70.6(10).

70.5(6) Individuals certified as lead professionals must be recertified each year. To be recertified, lead professionals must submit the following:

a. A completed application form.

b. A \$60 nonrefundable fee.

c. Every three years, a certificate showing that the applicant has successfully completed an approved refresher training course for the appropriate discipline. The initial refresher training course must be completed no more than three years after the date on which the applicant completed an approved training program.

d. If a certified individual taking a refresher training course is also an approved instructor for that particular refresher training course and has access to the testing materials, the certified individual must take a refresher training course test supplied by the department in lieu of the normal refresher training course test.

70.5(7) The department shall approve the state certification examinations for the disciplines of lead inspector/risk assessor, elevated blood lead (EBL) inspector/risk assessor, lead abatement contractor, and project designer. The state certification examination shall be administered by selected community college testing centers in Iowa. A community college testing center shall set the fee for administering the state certification examination to each applicant and shall collect the fee from each applicant.

a. An individual must achieve a score of at least 80 percent on the examination. An individual may take the state certification examination no more than three times within six months of receiving a certificate of completion from an approved course.

b. If an individual does not pass the state certification examination within six months of receiving a certificate of completion from an approved course, the individual must retake the appropriate approved course before reapplying for certification.

70.5(8) Reciprocity. Each applicant for certification who is certified in any of the disciplines specified in this rule in another state may request reciprocal certification. The department shall evaluate the requirements for certification to determine that the requirements for certification in such other state are as protective of health and the environment as the requirements for certification in Iowa. For all disciplines except lead-safe renovator, if the department determines that the requirements for certification in such other state are as protective of health and the environment as the requirements for certification in Iowa, the applicant may be certified after passing a proctored test covering Iowa-specific lead information with a score of at least 80 percent. For a lead-safe renovator, if the department determines that the requirements for certification in such other state are as protective of health and the environment as the requirements for certification in Iowa, the applicant may be certified after signing a statement indicating that the applicant has read and understands Iowa-specific lead information provided by the department. Each applicant for certification pursuant to this subrule shall submit the appropriate application accompanied by the fee for each discipline as specified in 641—70.5(135).

[ARC 8502B, IAB 2/10/10, effective 1/13/10]

641—70.6(135) Work practice standards for lead professionals conducting lead-based paint activities in target housing and child-occupied facilities. All lead-based paint activities shall be performed according to the work practice standards in 641—70.6(135), and a certified individual must perform that activity in compliance with the appropriate requirements below.

70.6(1) A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor must conduct a lead-free inspection according to the following standards. A lead-free inspection shall be conducted only by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor.

a. When conducting a lead-free inspection in a residential dwelling, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following procedures:

(1) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test paint in each room, including each exterior side.

(2) Except for components known to have been replaced after December 31, 1977, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test each testing combination in each room. On windows, the window frame, interior windowsill, window sash, and window trough shall each be considered a separate testing combination. Except for walls, one sample shall be taken for each testing combination in a room. Each wall in a room shall be tested. The certified

lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall require one of the following two types of evidence to determine that components were replaced after 1977:

1. Detailed specifications showing which components were to be replaced, restored, enclosed, or encapsulated and evidence that the work was actually completed such as receipts for building materials, city building records showing a date of remodeling, or a final inspection by the city or another inspector showing that the work was actually completed.

2. A certification under penalty of perjury per Iowa Code section 622.1 from the contractor who did the work or from the person(s) who owned the property at the time outlining all of the components that were removed and replaced.

If one of these two types of evidence is not available, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test the component.

- (3) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall note any components where lead-based paint has been enclosed or encapsulated. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not make a determination that the residential dwelling is lead-free where components that are painted with lead-based paint have been enclosed or encapsulated.

- (4) Paint shall be tested using adequate quality control by X-ray fluorescence (XRF) or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If testing by laboratory analysis, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect paint samples using the documented methodologies specified in guidance documents issued by the department. If testing by X-ray fluorescence, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

1. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use an X-ray fluorescence analyzer that has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

2. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use standards provided by the manufacturer and the NIST 1.02 standard film for calibration of the X-ray fluorescence analyzer.

3. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings at the beginning of the inspection, every four hours, and at the end of the inspection.

4. Prior to taking the final set of calibration readings and if recommended by the performance characteristics sheet, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall conduct substrate correction for all XRF readings less than 4.0 milligrams of lead per square centimeter. For each substrate that requires substrate correction, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall completely remove all paint from an area of two different testing combinations for that substrate. If possible, the areas chosen for substrate correction should have initial XRF readings of less than 2.5 milligrams of lead per square centimeter. For each testing combination, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall remove paint from an area that is at least as large as the XRF probe faceplate. On each of the two areas, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall place the NIST 1.02 standard film over the surface and take three XRF readings with the XRF used to conduct the inspection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean for these six readings and shall subtract 1.02 from this arithmetic mean to obtain the substrate correction value. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall then subtract the substrate correction value from each XRF reading for the substrate requiring substrate correction to obtain the corrected XRF reading. For example, if the six readings taken on the NIST 1.02 standard film were 1.1, 1.3, 1.4, 1.0, 1.2, and 1.1, the arithmetic mean is calculated by the equation $(1.1 + 1.3 + 1.4 + 1.0 + 1.2 + 1.1)/6$ and is equal to 1.18. The substrate correction value is equal to 1.18 minus 1.02, or 0.16.

5. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading that did not require substrate correction and each corrected XRF reading for XRF readings that required substrate correction as positive, negative, or inconclusive, according to the performance characteristics sheet for the XRF. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not discard XRF readings unless instructed to do so by the performance characteristics sheet or the operating instructions from the manufacturer. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor believes that a reading classified as positive is in error, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect a paint sample for laboratory analysis. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall change the positive classification to negative only if the results of the laboratory analysis indicate that the surface is not painted with lead-based paint.

6. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall resolve inconclusive readings as defined by the performance characteristics sheet for the XRF by collecting paint samples for laboratory analysis. If instructed by the property owner or the person requesting the report, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume that inconclusive readings are positive, but shall not assume that inconclusive readings are negative.

7. As described by the performance characteristics sheet, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall conduct retesting of 10 surfaces, calculate the retest tolerance limit, and determine whether the inspection meets the retest tolerance limit. If the retest tolerance limit is not met, then this procedure shall be repeated with 10 additional surfaces. If the retest tolerance limit is not met with the 20 retested surfaces, then all results of the inspection shall be considered invalid.

(5) If each testing combination in the residential dwelling is found to be free of lead-based paint, then the residential dwelling is free of lead-based paint. If any surface in the residential dwelling is found to be painted with lead-based paint, then the residential dwelling is not free of lead-based paint.

(6) If lead-based paint is identified through a lead-free inspection, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor must conduct a visual inspection to determine the presence of lead-based paint hazards and any other potential lead hazards including bare soil in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated.

(7) A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility where a lead-free inspection is completed. No later than three weeks after the receipt of laboratory results, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall send a copy of the report to the property owner and to the person requesting the lead-free inspection, if different. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall maintain a copy of each written report for no less than three years. The report shall include, at least:

1. A statement that the inspection was conducted to determine whether the residential dwelling is free of lead-based paint;
2. Date of inspection;
3. Address of building;
4. Date of construction;
5. Apartment numbers (if applicable);
6. The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
7. Name, signature, and certification number of each certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting the inspection;
8. Name and certification number of the certified firm(s) conducting the inspection;

9. Name, address, and telephone number of each laboratory conducting an analysis of collected samples;

10. Each testing method and sampling procedure employed for paint analysis, including quality control data and, if used, the manufacturer, serial number, software, and operating mode of any X-ray fluorescence (XRF) device;

11. XRF readings taken for calibration and calculations to demonstrate that the XRF is properly calibrated at each required calibration;

12. Specific locations by room of each painted component tested for the presence of lead-based paint and the results for each component expressed in terms appropriate to the sampling method used;

13. The results of retesting of 10 surfaces, calculations to determine the retest tolerance limit, and the determination of whether the inspection meets the retest tolerance limit;

14. If the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor determines that the residential dwelling is free of lead-based paint, the report shall contain the following statement:

“The results of this inspection indicate that no lead in amounts greater than or equal to 1.0 mg/cm² in paint was found on any building components, using the inspection protocol in Chapter 7 of the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1997). Therefore, this residential dwelling qualifies for the exemption in 24 CFR Part 35 and 40 CFR Part 745 for target housing being leased that is free of lead-based paint, as defined in the rule. However, some painted surfaces may contain levels of lead below 1.0 mg/cm², which could create lead dust or lead-contaminated soil hazards if the paint is turned into dust by abrasion, scraping, or sanding. This report should be kept by the owner and all future owners for the life of the residential dwelling. Per the disclosure requirements of 24 CFR Part 35 and 40 CFR Part 745, prospective buyers are entitled to all available inspection reports should the property be resold.”;

15. If any lead-based paint is identified, a description of the location, type, and severity of identified lead-based paint hazards, including the classification of each tested surface as to whether it is a lead-based paint hazard, and any other potential lead hazards, including bare soil in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated;

16. A description of interim controls and lead abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure;

17. Information regarding the owner’s obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745;

18. Information regarding Iowa’s prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa’s regulations for renovation, remodeling and repainting found in 641—Chapter 70; and

19. The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by a lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

b. When conducting a lead-free inspection in multifamily housing, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following procedures:

(1) A certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may randomly select residential dwellings for testing when conducting a lead-free inspection in multifamily housing. If built before 1960 or if the date of construction is unknown, the multifamily housing shall contain at least 20 similarly constructed and maintained residential dwellings in order

to use random selection. If built from 1960 to 1977, the multifamily housing shall contain at least 10 similarly constructed and maintained residential dwellings in order to use random selection. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not randomly select the residential dwellings for testing or if there are not enough residential dwellings to randomly select them for sampling, all residential dwellings shall be tested. If random selection is used, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor conducting the lead-free inspection shall randomly select the residential dwellings to be tested. The property owner, manager, or another interested party shall not specify which residential dwellings are to be tested. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 1 to determine the number of residential dwellings to randomly select for testing.

Table 1

Minimum Number of Residential Dwellings to be Randomly Selected in Multifamily Housing for Lead-Free Inspection, Risk Assessment, Lead Hazard Screen, or Clearance Testing

Number of Similar Residential Dwellings, Similar Common Areas, or Similar Exteriors in Multifamily Housing	Lead-Free Inspection, Risk Assessment, or Lead Hazard Screen		Clearance Testing
	Number of Pre-1960 Residential Dwellings or Residential Dwellings of Unknown Date of Construction to Randomly Select for Testing	Number of 1960-1977 Residential Dwellings to Randomly Select for Testing	Number of Residential Dwellings to Randomly Select for Clearance Testing
1-9	All	All	All
10-13	All	10	All
14	All	11	All
15	All	12	All
16-17	All	13	All
18	All	14	All
19	All	15	All
20	All	16	All
21-26	20	16	20
27	21	17	21
28	22	18	22
29	23	18	23
30	23	19	23
31	24	19	24
32	25	19	25
33-34	26	19	26
35	27	19	27
36	28	19	28
37	29	19	29
38-39	30	20	30
40-48	31	21	31
49-50	31	22	31
51	32	22	32
52-53	33	22	33
54	34	22	34
55-56	35	22	35

Number of Similar Residential Dwellings, Similar Common Areas, or Similar Exteriors in Multifamily Housing	Lead-Free Inspection, Risk Assessment, or Lead Hazard Screen		Clearance Testing
	Number of Pre-1960 Residential Dwellings or Residential Dwellings of Unknown Date of Construction to Randomly Select for Testing	Number of 1960-1977 Residential Dwellings to Randomly Select for Testing	Number of Residential Dwellings to Randomly Select for Clearance Testing
57-58	36	22	36
59	37	23	37
60-69	38	23	38
70-73	38	24	38
74-75	39	24	39
76-77	40	24	40
78-79	41	24	41
80-88	42	24	42
89-95	42	25	42
96-97	43	25	43
98-99	44	25	44
100-109	45	25	45
110-117	45	26	45
118-119	46	26	46
120-138	47	26	47
139-157	48	26	48
158-159	49	26	49
160-177	49	27	49
178-197	50	27	50
198-218	51	27	51
219-258	52	27	52
259-279	53	27	53
280-299	53	28	53
300-379	54	28	54
380-499	55	28	55
500-776	56	28	56
777-939	57	28	57
940-1004	57	29	57
1005-1022	58	29	58
1023-1032	59	29	59
1033-1039	59	30	59
1040+	5.8%, rounded to the next highest whole number	2.9%, rounded to the next highest whole number	5.8%, rounded to the next highest whole number

(2) A certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may randomly select each type of common area in the multifamily housing, including but not limited to hallways, exterior sides of a building, and laundry rooms, for testing. Each type of common area shall be counted separately. If built before 1960, the multifamily housing shall contain at least 20 of a type of common area in order to use random selection. If built from 1960 to 1977, the multifamily housing shall contain at least 10 of a type of common area in order to use random selection. If the certified lead

inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not randomly select the common areas for testing or if there are not enough common areas to randomly select them for testing, all common areas shall be tested. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 1 to determine the number of each type of common area to randomly select for testing.

(3) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test paint in each room of each residential dwelling selected for testing and in each common area selected for testing.

(4) Except for components known to have been replaced after December 31, 1977, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test each testing combination in each room of a residential dwelling chosen for testing and in each common area chosen for testing. On windows, the window frame, interior windowsill, window sash, and window trough shall each be considered a separate testing combination. Each wall in a room or a common area shall be tested. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall require one of the following two types of evidence to determine that components were replaced after 1977:

1. Detailed specifications showing which components were to be replaced, restored, enclosed, or encapsulated and evidence that the work was actually completed such as receipts for building materials, city building records showing a date of remodeling, or evidence of a final inspection by the city or another inspector showing that the work was actually completed.

2. A certification under penalty of perjury per Iowa Code section 622.1 from the contractor who did the work or from the person(s) who owned the property at the time outlining all of the components that were removed and replaced.

If one of these two types of evidence is not available, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test the component.

(5) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall note any components where lead-based paint has been enclosed or encapsulated. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not make a determination that a component or the multifamily housing is lead-free where components that are painted with lead-based paint have been enclosed or encapsulated.

(6) Paint shall be tested using adequate quality control by X-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If testing by laboratory analysis, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect paint samples using the documented methodologies specified in guidance documents issued by the department. If testing by X-ray fluorescence, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

1. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor must use an X-ray fluorescence analyzer which has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

2. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not use an X-ray fluorescence analyzer using a software version or a mode of operation that could result in inconclusive readings or that recommends substrate correction.

3. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use standards provided by the manufacturer and the NIST 1.02 standard film for calibration of the X-ray fluorescence analyzer.

4. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings at the beginning of the inspection, every four hours, and at the end of the inspection.

5. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading as positive or negative according to the performance characteristics sheet for the XRF. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk

assessor shall not discard XRF readings unless instructed to do so by the performance characteristics sheet or the operating instructions from the manufacturer. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor believes that a reading classified as positive is in error, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect a paint sample for laboratory analysis. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall change the positive classification to negative only if the results of the laboratory analysis indicate that the surface is not painted with lead-based paint.

6. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall count the number of XRF readings taken for each component type. If fewer than 40 of any component type were tested, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall randomly choose additional testing combinations for the component type to reach a total of 40 XRF readings. If fewer than 40 testing combinations are available for testing, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test each testing combination.

(7) For each component type where at least 40 testing combinations have been tested, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall determine the number and percentage of each component type that is classified as positive or negative. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall classify each component type as follows:

1. Lead-based paint is not present on a component type if all readings are classified as negative.
2. Lead-based paint is present on a component type if at least 15 percent of the readings are classified as positive.
3. Lead-based paint is present on a component type if greater than or equal to 5 percent but less than 15 percent of the XRF readings are classified as positive, unless the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor collects paint samples and obtains laboratory analyses for all positive XRF readings. If the laboratory analyses show that lead-based paint is not present on any components, then the component type is negative. If the laboratory analyses show that lead-based paint is present on any component, then the component type is positive.
4. Lead-based paint is present on a component type if greater than 0 but less than 5 percent of the XRF readings are classified as positive, unless the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor collects paint samples and obtains laboratory analyses for all positive XRF readings or randomly selects a second set of residential dwellings for testing. If the laboratory analyses show that lead-based paint is not present on any components, then the component type is negative. If the laboratory analyses show that lead-based paint is present on any component, then the component type is positive. If a second set of randomly selected residential dwellings is sampled and greater than 0 but less than 2.5 percent of the combined set of results is positive, the component type may be considered as not having lead-based paint developmentwide but rather, having lead-based paint in isolated locations, with a reasonable degree of confidence. Individual components that are classified as positive should be considered lead-based painted and managed or abated appropriately.
5. If a particular component type in the sampled residential dwellings is classified as positive, that same component type in the unsampled residential dwellings is also classified as positive.

(8) If fewer than 40 of a component type are available for testing, each testing combination must be classified individually as positive or negative.

(9) If any component type or individual component is classified as positive, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not state that the multifamily housing is free of lead-based paint.

(10) As specified by the performance characteristics sheet, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall conduct retesting of 10 surfaces selected from two residential dwellings, calculate the retest tolerance limit, and determine whether the inspection meets the retest tolerance limit. If the retest tolerance limit is not met, then this procedure shall be repeated with 10 additional surfaces selected from the two residential dwellings. If the retest tolerance limit is not met with the 20 retested surfaces, then all results of the inspection shall be considered invalid.

(11) If lead-based paint is identified on any component or component type, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor must conduct a visual inspection to determine the presence of lead-based paint hazards and any other potential lead hazards, including bare soil in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated.

(12) A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility inspected. No later than three weeks after the receipt of laboratory results, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall send a copy of the report to the property owner and to the person requesting the inspection, if different. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall maintain a copy of each written report for no less than three years. The inspection report shall include, at least:

1. Date of each inspection;
2. Address of each building in the multifamily housing;
3. Date of construction for each building in the multifamily housing;
4. A list of the apartments and common areas in each building in the multifamily housing;
5. The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
6. A statement that the inspection was conducted to determine that lead-based paint is not present;
7. The name of the Iowa-certified inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor who randomly selected the residential dwellings and common areas for testing;
8. The number of residential dwellings and common areas that were selected for testing, how these numbers were determined, and a list of the residential dwellings and common areas that were selected for testing;
9. Name, signature, and certification number of each certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting the inspection;
10. Name and certification number of the certified firm(s) conducting the inspection;
11. Name, address, and telephone number of each laboratory conducting an analysis of collected samples;
12. Each testing method and sampling procedure employed for paint analysis, including quality control data and, if used, the manufacturer, serial number, software, and operating mode of any X-ray fluorescence (XRF) analyzer;
13. XRF readings taken for calibration and calculations to demonstrate that the XRF is properly calibrated at each required calibration;
14. Specific locations by room of each painted component tested for the presence of lead-based paint and by residential dwelling or common area and the results for each component expressed in terms appropriate to the sampling method used;
15. Component aggregations and the determination of whether lead-based paint is present by component type;
16. The results of retesting of 10 surfaces, calculations to determine the retest tolerance limit, and the determination of whether the inspection meets the retest tolerance limit;
17. If the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor determines that the multifamily housing is free of lead-based paint, the report shall contain the following statement:

“The results of this inspection indicate that no lead in amounts greater than or equal to 1.0 mg/cm² in paint was found on any building components, using the inspection protocol in Chapter 7 of the HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing (1997). Therefore, this multifamily housing qualifies for the exemption in 24 CFR Part 35 and 40 CFR Part 745 for target housing being leased that is free of lead-based paint, as defined in the rule. However, some painted surfaces may contain levels of lead below 1.0 mg/cm², which could create lead dust or lead-contaminated soil hazards if the paint is turned into dust by abrasion, scraping, or sanding. This report should be kept by

the owner and all future owners for the life of the multifamily housing. Per the disclosure requirements of 24 CFR Part 35 and 40 CFR Part 745, prospective buyers are entitled to all available inspection reports should the property be resold.”;

18. If any lead-based paint is identified, a description of the location, type, and severity of identified lead-based paint hazards, including the classification of each tested surface as to whether it is a lead-based paint hazard, and any other potential lead hazards, including bare soil in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated;

19. A description of interim controls and lead abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure;

20. Information regarding the owner’s obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745;

21. Information regarding Iowa’s prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa’s regulations for renovation found in 641—Chapter 70; and

22. The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by a lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

70.6(2) A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor must conduct lead inspections according to the following standards. Lead inspections shall be conducted only by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor.

a. When conducting a lead inspection in a residential dwelling or child-occupied facility, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following procedures:

(1) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test paint in each room, including each exterior side.

(2) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test each testing combination in each room. On windows, the window frame, interior windowsill, window sash, and window trough shall each be considered a separate testing combination. One sample shall be taken for each testing combination in a room, including the walls. If a testing combination is painted and not tested, it shall be assumed to be painted with lead-based paint.

b. Paint shall be tested using adequate quality control by X-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If testing by laboratory analysis, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect paint samples using the documented methodologies specified in guidance documents issued by the department. If testing by X-ray fluorescence, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

(1) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use an X-ray fluorescence analyzer that has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

(2) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the NIST 1.02 standard film or standards provided by the manufacturer for calibration of the X-ray fluorescence analyzer. The certified lead inspector/risk assessor or elevated blood lead (EBL)

inspector/risk assessor shall not state that any surface is free of lead-based paint unless the NIST 1.02 standard film is used for calibration.

(3) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings at the beginning of the inspection.

(4) If recommended by the performance characteristics sheet, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall conduct substrate correction for all XRF readings less than 4.0 milligrams of lead per square centimeter. For each substrate that requires substrate correction, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall completely remove all paint from an area of two different testing combinations for that substrate. If possible, the areas chosen for substrate correction should have initial XRF readings of less than 2.5 milligrams of lead per square centimeter. For each testing combination, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall remove paint from an area that is at least as large as the XRF probe faceplate. On each of the two areas, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall place the NIST 1.02 standard film over the surface, and take three XRF readings with the XRF used to conduct the inspection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean for these six readings and shall subtract 1.02 from this arithmetic mean to obtain the substrate correction value. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall then subtract the substrate correction value from each XRF reading for the substrate requiring substrate correction to obtain the corrected XRF reading. For example, if the six readings taken on the NIST 1.02 standard film were 1.1, 1.3, 1.4, 1.0, 1.2, and 1.1, the arithmetic mean is calculated by the equation $(1.1 + 1.3 + 1.4 + 1.0 + 1.2 + 1.1)/6$ and is equal to 1.18. The substrate correction value is equal to 1.18 minus 1.02, or 0.16. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not conduct substrate correction where recommended by the performance characteristics sheet, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that all of the readings are positive and shall not state that a surface is free of lead-based paint.

(5) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading that did not require substrate correction and each corrected XRF reading for XRF readings that required substrate correction as positive, negative, or inconclusive, according to the performance characteristics sheet for the XRF. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not discard XRF readings unless instructed to do so by the performance characteristics sheet or the operating instructions from the manufacturer. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor believes that a reading classified as positive is in error, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect a paint sample for laboratory analysis. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall change the positive classification to negative only if the results of the laboratory analysis indicate that the surface is not painted with lead-based paint. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume that all inconclusive readings are positive and classify them as such.

(6) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall resolve inconclusive readings as defined by the performance characteristics sheet for the XRF by collecting paint samples for laboratory analysis. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not resolve inconclusive readings by laboratory analysis, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that the inconclusive readings are positive.

c. If lead-based paint is identified through an inspection, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor must conduct a visual inspection to determine the presence of lead-based paint hazards and any other potential lead hazards, including bare soil in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated.

d. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility inspected. No later than three weeks after the receipt of laboratory results, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall send a copy of the report to the property owner and to the person requesting the inspection, if different. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall maintain a copy of each written report for no less than three years. The inspection report shall include, at least:

(1) A statement that the inspection was conducted to identify lead-based paint and lead-based paint hazards in the residential dwelling;

(2) Date of each inspection;

(3) Address of building;

(4) Date of construction;

(5) Apartment numbers (if applicable);

(6) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;

(7) Name, signature, and certification number of each certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting the inspection;

(8) The name and certification number of the certified firm(s) conducting the inspection;

(9) Name, address, and telephone number of each laboratory conducting an analysis of collected samples;

(10) Each testing method and sampling procedure employed for paint analysis, including quality control data and, if used, the manufacturer, serial number, software, and operating mode of any X-ray fluorescence (XRF) analyzer;

(11) XRF readings taken for calibration and calculations to demonstrate that the XRF is properly calibrated;

(12) Specific locations by room of each painted component tested for the presence of lead-based paint and the results for each component expressed in terms appropriate to the sampling method used;

(13) A statement that all painted or finished components that were not tested must be assumed to contain lead-based paint;

(14) A description of the location, type, and severity of identified lead-based paint hazards, including the classification of each tested surface as to whether it is a lead-based paint hazard, and any other potential lead hazards, including bare soil in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated;

(15) A description of interim controls and lead abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure;

(16) Information regarding the owner's obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745;

(17) Information regarding Iowa's prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa's regulations for renovation found in 641—Chapter 70; and

(18) The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by a lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

70.6(3) A certified elevated blood lead (EBL) inspector/risk assessor must conduct elevated blood lead (EBL) inspections according to the following standards. Elevated blood lead (EBL) inspections shall be conducted only by a certified elevated blood lead (EBL) inspector/risk assessor.

a. When conducting an elevated blood lead (EBL) inspection, the certified elevated blood lead (EBL) inspector/risk assessor shall use the following procedures:

(1) The certified elevated blood lead (EBL) inspector/risk assessor shall test paint in each room, including each exterior side.

(2) The certified elevated blood lead (EBL) inspector/risk assessor shall test each testing combination in each room. One sample shall be taken for each testing combination in a room, including walls. On windows, the window frame, interior windowsill, window sash, and window trough shall each be considered a separate testing combination. If a testing combination is painted and not tested, it shall be assumed to be painted with lead-based paint.

b. Paint shall be tested using adequate quality control by X-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If testing by laboratory analysis, the certified elevated blood lead (EBL) inspector/risk assessor shall collect paint samples using the documented methodologies specified in guidance documents issued by the department. If testing by X-ray fluorescence, the certified elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

(1) The certified elevated blood lead (EBL) inspector/risk assessor shall use an X-ray fluorescence analyzer that has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

(2) The certified elevated blood lead (EBL) inspector/risk assessor shall use the NIST 1.02 standard film or standards provided by the manufacturer for calibration of the X-ray fluorescence analyzer. The certified elevated blood lead (EBL) inspector/risk assessor shall not state that any surface is free of lead-based paint unless the NIST 1.02 standard film is used for calibration.

(3) The certified elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings at the beginning of the inspection.

(4) If recommended by the performance characteristics sheet, the certified elevated blood lead (EBL) inspector/risk assessor shall conduct substrate correction for all XRF readings less than 4.0 milligrams of lead per square centimeter. For each substrate that requires substrate correction, the certified elevated blood lead (EBL) inspector/risk assessor shall completely remove all paint from an area of two different testing combinations for that substrate. If possible, the areas chosen for substrate correction should have initial XRF readings of less than 2.5 milligrams of lead per square centimeter. For each testing combination, the certified elevated blood lead (EBL) inspector/risk assessor shall remove paint from an area that is at least as large as the XRF probe faceplate. On each of the two areas, the certified elevated blood lead (EBL) inspector/risk assessor shall place the NIST 1.02 standard film over the surface, and take three XRF readings with the XRF used to conduct the inspection. The certified elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean for these six readings and shall subtract 1.02 from this arithmetic mean to obtain the substrate correction value. The certified elevated blood lead (EBL) inspector/risk assessor shall then subtract the substrate correction value from each XRF reading for the substrate requiring substrate correction to obtain the corrected XRF reading. For example, if the six readings taken on the NIST 1.02 standard film were 1.1, 1.3, 1.4, 1.0, 1.2, and 1.1, the arithmetic mean is calculated by the equation $(1.1 + 1.3 + 1.4 + 1.0 + 1.2 + 1.1)/6$ and is equal to 1.18. The substrate correction value is equal to 1.18 minus 1.02, or 0.16. If the certified elevated blood lead (EBL) inspector/risk assessor does not conduct substrate correction where recommended by the performance characteristics sheet, then the certified elevated blood lead (EBL) inspector/risk assessor shall assume that all of the readings are positive and shall not state that a surface is free of lead-based paint.

(5) The certified elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading that did not require substrate correction and each corrected XRF reading for XRF readings that required substrate correction as positive, negative, or inconclusive, according to the performance characteristics

sheet for the XRF. The certified elevated blood lead (EBL) inspector/risk assessor may assume that all inconclusive readings are positive and classify them as such.

(6) The certified elevated blood lead (EBL) inspector/risk assessor shall resolve inconclusive readings as defined by the performance characteristics sheet for the XRF by collecting paint samples for laboratory analysis. If the certified elevated blood lead (EBL) inspector/risk assessor does not resolve inconclusive readings, then the certified elevated blood lead (EBL) inspector/risk assessor shall assume that the inconclusive readings are positive.

c. If lead-based paint is identified through an elevated blood lead (EBL) inspection, the certified elevated blood lead (EBL) inspector/risk assessor must conduct a visual inspection to determine the presence of lead-based paint hazards and any other potential lead hazards, including bare soil in the play area or in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated.

d. No later than two weeks after the receipt of laboratory results, a certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility where an elevated blood lead (EBL) inspection has been conducted and shall provide a copy of this report to the property owner and the occupant of the dwelling. The report shall include, at least:

(1) A statement that the elevated blood lead (EBL) inspection was conducted to identify lead-based paint and lead-based paint hazards in the residential dwelling;

(2) Date of each elevated blood lead (EBL) inspection;

(3) Address of building;

(4) Date of construction;

(5) Apartment numbers (if applicable);

(6) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;

(7) Name, signature, and certification number of each certified elevated blood lead (EBL) inspector/risk assessor conducting the inspection;

(8) Name and certification number of the certified firm(s) conducting the inspection;

(9) Name, address, and telephone number of each laboratory conducting an analysis of collected samples;

(10) Each testing method and sampling procedure employed for paint analysis, including quality control data and, if used, the manufacturer, serial number, software, and operating mode of any X-ray fluorescence (XRF) analyzer;

(11) XRF readings taken for calibration and calculations to demonstrate that the XRF is properly calibrated;

(12) Specific locations by room of each painted component tested for the presence of lead-based paint and the results for each component expressed in terms appropriate to the sampling method used;

(13) A statement that all painted or finished components that were not tested must be assumed to contain lead-based paint;

(14) A description of the location, type, and severity of identified lead-based paint hazards, including the classification of each tested surface as to whether it is a lead-based paint hazard, and any other potential lead hazards, including bare soil in the play area or in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated;

(15) A description of interim controls and lead abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure;

(16) Information regarding the owner's obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745;

(17) Information regarding Iowa's prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa's regulations for renovation found in 641—Chapter 70; and

(18) The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by an elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

e. A certified elevated blood lead (EBL) inspector/risk assessor shall maintain for no fewer than ten years a written record for each residential dwelling or child-occupied facility where an elevated blood lead (EBL) inspection has been conducted. The record shall include, at least:

(1) A copy of the written report required by paragraph 70.6(3)“*d.*”

(2) Blood lead test results for the elevated blood lead (EBL) child.

(3) A record of conversations held with the owners and occupants of each residential dwelling or child-occupied facility prior to, during, and after the EBL inspection.

(4) Records of follow-up visits made to each residential dwelling or child-occupied facility where lead-based paint hazards are identified and, when issued, a copy of the clearance report.

70.6(4) A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor must conduct lead hazard screens according to the following standards. Lead hazard screens shall be conducted only by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor.

a. Background information regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child under the age of six years shall be collected.

b. A visual inspection of the residential dwelling or child-occupied facility shall be conducted to determine if any deteriorated paint is present and to locate at least two dust sampling locations.

c. If deteriorated paint is present, each surface with deteriorated paint which is determined to have a distinct painting history must be tested for the presence of lead. In addition, friction surfaces where there is evidence of abrasion and impact surfaces that are damaged or otherwise deteriorated from impact and that have a distinct painting history shall be tested for the presence of lead.

d. In residential dwellings, a minimum of two composite or single-surface dust samples shall be collected. One sample shall be collected from the floors and the other from the interior windowsills in rooms, hallways, or stairwells where at least one child under the age of six years is most likely to come in contact with dust.

e. In multifamily dwellings and child-occupied facilities, single-surface or composite dust samples shall also be collected from common areas where at least one child under the age of six years is likely to come in contact with dust.

f. Dust samples shall be collected by wipe samples using the documented methodologies specified in guidance documents issued by the department. The minimum area for a floor wipe sample shall be 0.50 square feet or 72 square inches. The minimum area for a windowsill wipe sample and for a window trough wipe sample shall be 0.25 square feet or 36 square inches. Dust samples shall be analyzed by a recognized laboratory to determine the level of lead.

g. Soil samples shall be collected and analyzed for lead content in exterior play areas and dripline areas where bare soil is present. In addition, soil samples shall be collected and analyzed for lead content from any other areas of the yard where bare soil is present. Soil and paint samples shall be collected using the documented methodologies specified in guidance documents issued by the department and shall be analyzed by a recognized laboratory to determine the level of lead.

h. Paint shall be tested using adequate quality control by X-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If testing by laboratory analysis, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect paint samples using the documented methodologies specified in

guidance documents issued by the department. If testing by X-ray fluorescence, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

(1) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use an X-ray fluorescence analyzer that has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

(2) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the National Institute of Standards and Technology 1.02 milligrams of lead per square centimeter standard reference material or standards provided by the manufacturer for calibration of the X-ray fluorescence analyzer.

(3) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings at the beginning of the inspection.

(4) If recommended by the performance characteristics sheet, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall conduct substrate correction for all XRF readings less than 4.0 milligrams of lead per square centimeter. For each substrate that requires substrate correction, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall completely remove all paint from an area of two different testing combinations for that substrate. If possible, the areas chosen for substrate correction should have initial XRF readings of less than 2.5 milligrams of lead per square centimeter. For each testing combination, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall remove paint from an area that is at least as large as the XRF probe faceplate. On each of the two areas, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall place the NIST 1.02 standard film over the surface, and take three XRF readings with the XRF used to conduct the inspection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean for these six readings and shall subtract 1.02 from this arithmetic mean to obtain the substrate correction value. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall then subtract the substrate correction value from each XRF reading for the substrate requiring substrate correction to obtain the corrected XRF reading. For example, if the six readings taken on the NIST 1.02 standard film were 1.1, 1.3, 1.4, 1.0, 1.2, and 1.1, the arithmetic mean is calculated by the equation $(1.1 + 1.3 + 1.4 + 1.0 + 1.2 + 1.1)/6$ and is equal to 1.18. The substrate correction value is equal to 1.18 minus 1.02, or 0.16. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not conduct substrate correction where recommended by the performance characteristics sheet, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that all the readings are positive and shall not state that a surface is free of lead-based paint.

(5) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading that did not require substrate correction and each corrected XRF reading for XRF readings that required substrate correction as positive, negative, or inconclusive, according to the performance characteristics sheet for the XRF. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not discard XRF readings unless instructed to do so by the performance characteristics sheet or the operating instructions from the manufacturer. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor believes that a reading classified as positive is in error, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect a paint sample for laboratory analysis. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall change the positive classification to negative only if the results of the laboratory analysis indicate that the surface is not painted with lead-based paint. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume that all inconclusive readings are positive and classify them as such.

(6) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall resolve inconclusive readings as defined by the performance characteristics sheet for the XRF by collecting paint samples for laboratory analysis. If the certified lead inspector/risk assessor or elevated

blood lead (EBL) inspector/risk assessor does not resolve inconclusive readings by laboratory analysis, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that the inconclusive readings are positive.

i. The following standards shall be used to determine whether a residential dwelling or child-occupied facility fails a lead hazard screen:

(1) A residential dwelling or child-occupied facility shall fail a lead hazard screen if any deteriorated paint or paint on friction or impact surfaces is found to be lead-based paint.

(2) A residential dwelling shall fail a lead hazard screen if any floor dust lead level in a single-surface or composite-surface dust sample is greater than or equal to 25 micrograms per square foot.

(3) A residential dwelling shall fail a lead hazard screen if any interior windowsill dust level in a single-surface or composite-surface dust sample is greater than or equal to 125 micrograms per square foot.

(4) A residential dwelling or child-occupied facility shall fail a lead hazard screen if any bare soil is found to be a soil-lead hazard.

j. When conducting a lead hazard screen in multifamily housing, a certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor may sample each residential dwelling or choose residential dwellings for sampling by random selection, targeted selection, or worst case selection.

(1) If built before 1960 or if the date of construction is unknown, the multifamily housing shall contain at least 20 similarly constructed and maintained residential dwellings in order to use random selection. If built from 1960 to 1977, the multifamily housing shall contain at least 10 similarly constructed and maintained residential dwellings in order to use random selection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 1 to determine the number of residential dwellings to randomly select for testing.

(2) If the multifamily housing contains five or more similar residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may use targeted selection. If using targeted selection, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 2 to determine the number of residential dwellings to test. If the multifamily housing has fewer than five similar dwellings, all residential dwellings shall be tested. Residential dwellings chosen by targeted selection shall meet as many of the following criteria as possible:

1. The residential dwelling has been cited with a housing or building code violation within the past year.

2. The property owner believes that the residential dwelling is in poor condition.

3. The residential dwelling contains two or more children between the ages of six months and six years. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall give preference to residential dwellings that house the largest number of children.

4. The residential dwelling serves as a day care facility.

5. The residential dwelling has been prepared for reoccupancy within the past three months.

If additional residential dwellings are needed to meet the minimum number specified in Table 2, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall select them randomly. If too many residential dwellings meet the criteria, residential dwellings shall be eliminated randomly.

Table 2
Minimum Number of Residential Dwellings in Multifamily Housing for Risk Assessment
or Lead Hazard Screen Through Targeted Selection

Number of Similar Residential Dwellings	Number of Residential Dwellings to Sample*
1-4	All
5-20	4 residential dwellings or 50% (whichever is greater)**
21-75	10 residential dwellings or 20% (whichever is greater)**
76-125	17
126-175	19
176-225	20
226-300	21
301-400	22
401-500	23
501+	24 + 1 residential dwelling for each additional increment of 100 residential dwellings or less

*Does not include residential dwellings housing children with elevated blood lead levels.

**For percentages, round up to determine number of residential dwellings to be sampled.

k. If the multifamily housing contains five or more similar residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may use worst case selection. If using worst case selection, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 2 to determine the number of residential dwellings to test. If the multifamily housing has fewer than five similar dwellings, all residential dwellings shall be tested.

l. The following standards shall be used to determine whether multifamily housing fails a lead hazard screen:

(1) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean of the dust lead levels for carpeted floors, uncarpeted floors, and interior windowsills. If the arithmetic mean for carpeted floors or uncarpeted floors is greater than or equal to 25 micrograms per square foot, the multifamily housing shall fail the lead hazard screen. If the arithmetic mean for interior windowsills is greater than or equal to 125 micrograms per square foot, the multifamily housing shall fail the lead hazard screen. If the arithmetic mean for carpeted floors or uncarpeted floors is less than 25 micrograms per square foot, but some of the samples have dust lead levels that are greater than or equal to 25 micrograms per square foot, then the residential dwellings where these samples were taken and all other similar residential dwellings in the multifamily housing shall fail the lead hazard screen. If the arithmetic mean for interior windowsills is less than 125 micrograms per square foot, but some of the samples have dust lead levels that are greater than or equal to 125 micrograms per square foot, then the residential dwellings where these samples were taken and all other similar residential dwellings in the multifamily housing shall fail the lead hazard screen.

(2) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall evaluate the results of paint sampling by component and location. If all components at a given location are determined to be painted with lead-based paint or are determined to not be painted with lead-based paint, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume this condition is true for all similar residential dwellings. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not assume that the multifamily housing is free of lead-based paint. If a component at a given location is found to be painted with lead-based paint in some residential dwellings and not painted with lead-based paint in other residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that the component is a lead-based paint hazard in all similar residential dwellings. If a component in a residential dwelling is determined or assumed to be

lead-based paint, then the entire group of similar residential dwellings in the multifamily housing shall fail the lead hazard screen.

(3) Multifamily housing shall fail a lead hazard screen if any bare soil is found to be a soil-lead hazard.

m. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility where a lead hazard screen is conducted. No later than three weeks after the receipt of laboratory results, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall send a copy of the report to the property owner and to the person requesting the lead hazard screen, if different. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall maintain a copy of each written report for no less than three years. The report shall include, at least:

- (1) Date of each lead hazard screen.
- (2) Address of building.
- (3) Date of construction.
- (4) Apartment numbers (if applicable).
- (5) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility.
- (6) Name, signature, and certification number of each certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting the lead hazard screen.
- (7) Name and certification number of the certified firm(s) conducting the lead hazard screen.
- (8) Name, address, and telephone number of each recognized laboratory conducting an analysis of collected samples, including the identification number for each such laboratory recognized by EPA under Section 405(b) of the Toxic Substances Control Act (15 U.S.C. 2685(b)).
- (9) Results of the visual inspection.
- (10) Each testing method and sampling procedure employed for paint analysis, including quality control data and, if used, the manufacturer, serial number, software, and operating mode of any X-ray fluorescence (XRF) analyzer.
- (11) If used, XRF readings taken for calibration and calculations to demonstrate that the XRF is properly calibrated.
- (12) Specific locations by room of each painted component tested for the presence of lead-based paint and the results for each component tested expressed in terms appropriate to the sampling method used.
- (13) All results of laboratory analysis of collected paint, dust, and soil samples. The results of dust sampling shall be reported in micrograms of lead per square foot, and the results of soil sampling shall be reported in parts per million of lead. Results shall not be reported as “not detectable.”
- (14) Any other sampling results.
- (15) A statement that all painted or finished components that were not tested must be assumed to contain lead-based paint.
- (16) Background information collected regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child under the age of six years.
- (17) Whether the residential dwelling or child-occupied facility passed or failed the lead hazard screen and recommendations, if warranted, for a follow-up lead inspection or risk assessment, and, as appropriate, any further actions.
- (18) Information regarding the owner’s obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745.
- (19) Information regarding Iowa’s prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa’s regulations for renovation found in 641—Chapter 70.
- (20) The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by a lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

70.6(5) A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor must conduct risk assessments according to the following standards. Risk assessments shall be conducted only by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor.

a. Background information regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child under the age of six years shall be collected.

b. A visual inspection for risk assessment shall be undertaken to locate the existence of deteriorated paint and other potential lead hazards and to assess the extent and causes of the paint deterioration.

c. If deteriorated paint is present, each surface with deteriorated paint which is determined to have a distinct painting history must be tested for the presence of lead.

d. Friction surfaces where there is evidence of abrasion and impact surfaces that are damaged or otherwise deteriorated from impact and that have a distinct painting history shall be tested for the presence of lead.

e. In residential dwellings, dust samples shall be collected from the interior windowsill, window trough, and floor in all living areas where at least one child is most likely to come in contact with dust. Dust samples shall be analyzed for lead concentration and may be either composite or single-surface samples.

f. In multifamily dwellings, dust samples shall also be collected from interior windowsills, window troughs, and floors in common areas adjacent to the sampled residential dwellings or child-occupied facility and in other common areas where the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor determines that at least one child under the age of six years is likely to come in contact with dust. Dust samples shall be analyzed for lead concentration and may be either composite or single-surface samples.

g. In child-occupied facilities, dust samples shall be collected from the interior windowsill, window trough, and floor in each room, hallway, or stairwell utilized by one or more children under the age of six years and in other common areas where the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor determines that at least one child under the age of six years is likely to come in contact with dust. Dust samples shall be analyzed for lead concentration and may be either composite or single-surface samples.

h. Soil samples shall be collected and analyzed for lead content in exterior play areas and dripline areas where bare soil is present. In addition, soil samples shall be collected and analyzed for lead content from any other areas of the yard where bare soil is present.

i. Dust samples shall be collected by wipe samples using the documented methodologies specified in guidance documents issued by the department. The minimum area for a floor wipe sample shall be 0.50 square feet. The minimum area for a windowsill wipe sample and for a window trough wipe sample shall be 0.25 square feet. Soil and paint samples shall be collected using the documented methodologies specified in guidance documents issued by the department. Dust and soil samples shall be analyzed by a recognized laboratory to determine the level of lead. The results of dust sampling shall be reported in micrograms of lead per square foot, and the results of soil sampling shall be reported in parts per million of lead. The results shall not be reported as “not detectable.”

j. Paint shall be tested using adequate quality control by X-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If testing by laboratory analysis, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect paint samples using the documented methodologies specified in

guidance documents issued by the department. If testing by X-ray fluorescence, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

(1) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use an X-ray fluorescence analyzer that has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

(2) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the NIST 1.02 standard film material or standards provided by the manufacturer for calibration of the X-ray fluorescence analyzer. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not state that any surface is free of lead-based paint unless the NIST 1.02 standard film is used for calibration.

(3) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings at the beginning of the inspection.

(4) If recommended by the performance characteristics sheet, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall conduct substrate correction for all XRF readings less than 4.0 milligrams of lead per square centimeter. For each substrate that requires substrate correction, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall completely remove all paint from an area of two different testing combinations for that substrate. If possible, the areas chosen for substrate correction should have initial XRF readings of less than 2.5 milligrams of lead per square centimeter. For each testing combination, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall remove paint from an area that is at least as large as the XRF probe faceplate. On each of the two areas, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall place the NIST 1.02 standard film over the surface, and take three XRF readings with the XRF used to conduct the inspection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean for these six readings and shall subtract 1.02 from this arithmetic mean to obtain the substrate correction value. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall then subtract the substrate correction value from each XRF reading for the substrate requiring substrate correction to obtain the corrected XRF reading. For example, if the six readings taken on the NIST 1.02 standard film were 1.1, 1.3, 1.4, 1.0, 1.2, and 1.1, the arithmetic mean is calculated by the equation $(1.1 + 1.3 + 1.4 + 1.0 + 1.2 + 1.1)/6$ and is equal to 1.18. The substrate correction value is equal to 1.18 minus 1.02, or 0.16. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not conduct substrate correction where recommended by the performance characteristics sheet, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that all of the readings are positive and shall not state that a surface is free of lead-based paint.

(5) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading that did not require substrate correction and each corrected XRF reading for XRF readings that required substrate correction as positive, negative, or inconclusive, according to the performance characteristics sheet for the XRF. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not discard XRF readings unless instructed to do so by the performance characteristics sheet or the operating instructions from the manufacturer. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor believes that a reading classified as positive is in error, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect a paint sample for laboratory analysis. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall change the positive classification to negative only if the results of the laboratory analysis indicate that the surface is not painted with lead-based paint. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume that all inconclusive readings are positive and classify them as such.

(6) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall resolve inconclusive readings as defined by the performance characteristics sheet for the XRF by

collecting paint samples for laboratory analysis. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not resolve inconclusive readings by laboratory analysis, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that the inconclusive readings are positive.

k. When conducting a risk assessment in multifamily housing, a certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor may sample each residential dwelling or choose residential dwellings for sampling by random selection, targeted selection, or worst case selection.

(1) If built before 1960 or if the date of construction is unknown, the multifamily housing shall contain at least 20 similarly constructed and maintained residential dwellings in order to use random selection. If built from 1960 to 1977, the multifamily housing shall contain at least 10 similarly constructed and maintained residential dwellings in order to use random selection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 1 to determine the number of residential dwellings to randomly select for testing.

(2) If the multifamily housing contains five or more similar residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may use targeted selection. If using targeted selection, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 2 to determine the number of residential dwellings to test. If the multifamily housing has fewer than five similar dwellings, all residential dwellings shall be tested. Residential dwellings chosen by targeted selection shall meet as many of the following criteria as possible. If additional residential dwellings are needed to meet the minimum number specified in Table 2, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall select them randomly. If too many residential dwellings meet the criteria, residential dwellings shall be eliminated randomly. Targeted selection criteria are as follows:

1. The residential dwelling has been cited with a housing or building code violation within the past year.
2. The property owner believes that the residential dwelling is in poor condition.
3. The residential dwelling contains two or more children between the ages of six months and six years. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall give preference to residential dwellings that house the largest number of children.
4. The residential dwelling serves as a day care facility.
5. The residential dwelling has been prepared for reoccupancy within the past three months.

(3) If the multifamily housing contains five or more similar residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may use worst case selection. If using worst case selection, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 2 to determine the number of residential dwellings to test. If the multifamily housing has fewer than five similar dwellings, all residential dwellings shall be tested.

(4) The following standards shall be used to determine the extent of lead-based paint hazards throughout multifamily housing that is sampled by random selection, targeted selection, or worst case selection:

1. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean of the dust lead levels for carpeted floors, uncarpeted floors, interior windowsills, and window troughs. If the arithmetic mean is greater than or equal to the level defined as a dust lead hazard for the component, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall determine that a dust lead hazard has been identified on the component throughout the multifamily housing. If the arithmetic mean is less than the level defined as a dust lead hazard for the component, but some of the individual components have dust lead levels that are greater than or equal to the level defined as a dust lead hazard, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall determine that a dust lead hazard has been identified on the individual components and on all other similar components throughout the multifamily housing.

2. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall evaluate the results of paint sampling by component and location. If all components at a given location are determined to be painted with lead-based paint or are determined to not be painted with lead-based paint, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume this condition is true for all similar residential dwellings. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not assume that the multifamily housing is free of lead-based paint. If a component at a given location is found to be painted with lead-based paint in some residential dwellings and not painted with lead-based paint in other residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that the component is a lead-based paint hazard in all similar residential dwellings.

l. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility where a risk assessment is conducted. No later than three weeks after the receipt of laboratory results, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall send a copy of the report to the property owner and to the person requesting the risk assessment, if different. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall maintain a copy of the report for no less than three years. The report shall include, at least:

- (1) Date of each risk assessment;
- (2) Address of building;
- (3) Date of construction;
- (4) Apartment numbers (if applicable);
- (5) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
- (6) Name, signature, and certification number of each certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting the risk assessment;
- (7) Name and certification number of the certified firm(s) conducting the risk assessment;
- (8) Name, address, and telephone number of each recognized laboratory conducting an analysis of collected samples, including the identification number for each such laboratory recognized by EPA under Section 405(b) of the Toxic Substances Control Act (15 U.S.C. 2685(b));
- (9) Results of the visual inspection;
- (10) Each testing method and sampling procedure employed for paint analysis, including quality control data and, if used, the manufacturer, serial number, software, and operating mode of any X-ray fluorescence (XRF) analyzer;
- (11) If used, XRF readings taken for calibration and calculations to demonstrate that the XRF is properly calibrated;
- (12) Specific locations by room of each painted component tested for the presence of lead-based paint and the results for each component tested expressed in terms appropriate to the sampling method used;
- (13) All results of laboratory analysis of collected paint, dust, and soil samples;
- (14) Any other sampling results;
- (15) A statement that all painted or finished components that were not tested must be assumed to contain lead-based paint;
- (16) Background information collected regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child under the age of six years;
- (17) To the extent that they are used as part of the lead-based paint hazard determination, the results of any previous inspections or analyses for the presence of lead-based paint, or other assessments of lead-based paint hazards;
- (18) A description of the location, type, and severity of identified lead-based paint hazards, and any other potential lead hazards, including bare soil in the play area or in the dripline of a home where

lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated;

(19) A description of interim controls and lead abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure;

(20) Information regarding the owner's obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745;

(21) Information regarding Iowa's prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa's regulations for renovation found in 641—Chapter 70; and

(22) The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by a lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

70.6(6) A certified lead abatement contractor or certified lead abatement worker must conduct lead abatement according to the following standards. Lead abatement shall be conducted only by a certified lead abatement contractor or a certified lead abatement worker.

a. A certified lead abatement contractor must be on site during all work site preparation and during the postabatement cleanup of work areas. At all other times when lead abatement is being conducted, the certified lead abatement contractor shall be on site or available by telephone, pager, or answering service, and be able to be present at the work site in no more than two hours.

b. A certified lead abatement contractor shall ensure that lead abatement is conducted according to all federal, state, and local requirements.

c. A certified lead abatement contractor shall notify the department in writing at least seven days prior to the commencement of lead abatement in a residential dwelling or child-occupied facility. The notification shall include the following information:

(1) The address, including apartment numbers, where lead abatement will be conducted.

(2) The dates when lead abatement will be conducted.

(3) The name, address, telephone number, Iowa certification number, and signature of the contact for the certified firm that will conduct the work.

(4) The name, address, telephone number, Iowa certification number, and signature of the certified lead abatement contractor who will serve as the contact person for the project.

(5) The name, address, and telephone number of the property owner.

(6) Whether the dwelling is owner-occupied or a rental dwelling.

(7) If the dwelling is an occupied rental, the names of the occupants.

(8) The approximate year that the dwelling was built.

(9) A brief description of the lead abatement work to be done.

d. A certified lead abatement contractor shall submit a revised notification to the department if any information in the original notification changes.

e. A certified lead abatement contractor shall ensure that the worksite(s) is accessed only by certified lead professionals according to Iowa Administrative Code 641—70.3(135) and 70.5(135). Noncertified individuals shall not be allowed access to a worksite. A worksite shall remain inaccessible to noncertified individuals until it passes clearance testing.

f. A certified lead abatement contractor or a certified project designer shall develop a written occupant protection plan for all lead abatement projects prior to starting lead abatement and shall implement the occupant protection plan during the lead abatement project. The occupant protection plan shall be unique to each residential dwelling or child-occupied facility. If the occupants will be living at the property where lead abatement is taking place, then the written occupant plan shall be

given to the occupants prior to the start date of the lead abatement project and must contain at least the following information:

(1) A description of the type and location of the physical barriers that will keep occupants out of the designated worksite(s).

(2) An explanation of how the contractor will ensure that the worksite(s) is not entered by the occupants.

(3) An explanation of how the contractor will ensure that the occupants have access to a kitchen, bathroom, and living area that are not in the worksite(s).

g. Approved methods must be used to conduct lead abatement, and prohibited work practices must not be used to conduct lead abatement.

(1) Signs must be posted and readable. All signs must be posted before lead abatement begins and must remain in place until dust-lead clearance has been passed.

1. To the extent practicable, all signage must be posted in the occupants' primary language.

2. The signs must clearly define the work area.

3. The signs must warn occupants and other persons not involved with the lead abatement to remain outside the work area.

4. The signs must be posted at the entrance(s) to all work areas.

(2) The work area must be effectively contained before the lead abatement begins. To be effective, containment must:

1. Isolate the work area so that no dust or debris leaves the work area while the lead abatement is being performed.

2. Be monitored and maintained so that any plastic or other impermeable materials are not torn or displaced.

3. Be installed in such a manner that it does not interfere with occupant and worker egress in an emergency.

(3) For interior lead abatement, containment shall include:

1. The removal or covering of all objects from the work area, including but not limited to furniture, rugs, and window coverings. Objects that are not removed from the work area must be covered with plastic sheeting or other impermeable material with all seams and edges taped or otherwise sealed.

2. Closing and covering all duct openings in the work area. Ducts must be covered with plastic sheeting or other impermeable material that is taped down.

3. Closing windows and doors in the work area. Doors must be covered with plastic sheeting or other impermeable material. Doors used as an entrance to the work area must be covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

4. Covering the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area six feet beyond the perimeter of the surfaces undergoing lead abatement or a sufficient distance to contain the dust, whichever is greater.

5. Ensuring that all personnel, tools, and other items, including the exteriors of containers of waste, are free of dust and debris before leaving or being removed from the work area.

(4) For exterior lead abatement, containment shall include:

1. Closing all doors and windows within 20 feet of the lead abatement. On multistory buildings, all doors and windows within 20 feet of the lead abatement on the same story as the lead abatement shall be closed, and all doors and windows on all stories below the lead abatement that are the same horizontal distance from the lead abatement shall be closed.

2. Ensuring that doors within the work areas that will be used while the lead abatement is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

3. Covering the ground with plastic sheeting or other disposable impermeable material extending 10 feet beyond the perimeter of surfaces undergoing lead abatement or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground cover.

Exterior ground cover shall include anchors or weights to ensure that the covering remains effective even during weather conditions such as high wind.

4. Vertical containment. In certain situations, such as where other buildings are in close proximity to the work area, when conditions are windy, or where the work area abuts a property line, the certified lead abatement contractor or certified lead abatement worker shall erect a system of vertical containment designed to prevent dust and debris from migrating to adjacent property or contaminating the ground, other buildings, or any object beyond the work area.

(5) The following are prohibited work practices:

1. Open-flame burning or torching of lead-based paint.
2. Machine sanding or grinding or abrasive blasting or sandblasting of lead-based paint unless used with high-efficiency particulate air (HEPA) exhaust control that removes particles of 0.3 microns or larger from the air at 99.97 percent or greater efficiency.
3. Uncontained water blasting of lead-based paint.
4. Dry scraping or dry sanding of lead-based paint except in conjunction with the use of a heat gun or around electrical outlets.

5. Operating a heat gun at a temperature at or above 1100 degrees Fahrenheit.

(6) All waste generated during lead abatement shall be contained to prevent the release of dust and debris before the waste is removed from the work area for storage or disposal. Any chutes used to remove waste from the work area shall be covered.

1. At the conclusion of each workday and at the conclusion of the lead abatement, waste that has been collected from lead abatement activities must be stored under containment, in an enclosure, or behind a barrier that prevents release of dust and debris out of the work area and prevents access to dust and debris.

2. All waste from lead abatement must be contained during transportation so that no dust or debris is released.

(7) The work area shall be cleaned so that no dust, debris, or residue remains after lead abatement. Cleaning shall include:

1. The collection of all paint chips and debris and, without dispersing the paint chips and debris, the sealing of the materials in heavy-duty bags.

2. The removal of the protective sheeting used as required in this subrule. The sheeting shall be misted, then the sheeting shall be folded dirty side inward. All sheeting shall be taped shut or otherwise sealed inside heavy-duty bags. Sheeting used to separate work areas from non-work areas must remain in place until after the cleaning and removal of other sheeting. All sheeting shall be disposed of as waste.

3. For interior lead abatement, all objects and surfaces in the work area and within two feet of the work area must be cleaned from high to low in the following manner:

- Walls must either be vacuumed with a HEPA vacuum or wiped with a wet cloth, beginning at the ceiling and working toward the floor.
- All remaining surfaces including objects and fixtures must be thoroughly vacuumed with a HEPA vacuum. For carpeted floors and rugs, the HEPA vacuum must be equipped with a beater bar.
- All remaining surfaces, except for carpeted or upholstered surfaces, must also be wiped with a damp cloth. Uncarpeted floors must be thoroughly mopped using a method that keeps the wash water separate from the rinse water, such as the two-bucket mopping method, or using a wet mopping system.

h. Soil abatement shall be conducted using one of the following methods:

(1) If soil is removed, soil that is a soil-lead hazard shall be replaced by soil with a lead concentration as close to the local background as practicable, but less than 400 parts per million. The soil that is removed shall not be used as topsoil at another residential property or child-occupied facility.

(2) If soil is not removed, the soil that is a soil-lead hazard shall be remediated to meet the definition of “permanently covered soil.”

i. If lead-based paint is removed from a surface, the surface shall be repainted or refinished prior to postabatement clearance dust sampling. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall visually verify that lead-based paint was removed from a surface prior to repainting or refinishing.

j. If components painted with lead-based paint are removed, the replacement components shall be installed prior to postabatement clearance testing.

k. Postabatement clearance procedures shall be conducted by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor. If the abatement is conducted in response to an elevated blood lead (EBL) inspection, clearance must be conducted by a certified elevated blood lead (EBL) inspector/risk assessor. Postabatement clearance testing shall be performed by persons or entities independent of those performing lead abatement, unless the designated party uses qualified in-house employees to conduct postabatement clearance testing. An in-house employee shall not conduct both lead abatement and the postabatement clearance testing for this work. Postabatement clearance testing shall be conducted using the following procedures:

(1) Following a lead abatement, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall review the report of the lead inspection, risk assessment, or visual assessment done prior to the lead abatement project and the lead abatement specifications to determine the lead-based paint hazards that were to be abated by the lead abatement project. The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall perform a visual inspection to determine if all lead-based paint hazards that were to be abated have been abated and to determine if deteriorated paint surfaces or visible amounts of dust, debris, or residue are still present in the rooms where lead abatement was conducted. If lead-based paint hazards that were to be abated by the project or deteriorated paint surfaces or visible amounts of dust, debris, or residue are present in the rooms where lead abatement was conducted, these conditions must be eliminated prior to the continuation of the clearance procedures. However, elimination of deteriorated paint is not required if it has been determined through paint testing or a lead-based paint inspection that the deteriorated paint is not lead-based paint. Following an exterior lead abatement, a visual inspection shall be conducted to determine if all lead-based paint hazards that were to be abated have been abated and to determine if any visible dust or debris remains on any horizontal surfaces in the outdoor living areas close to the abated surface. In addition, a visual inspection shall be conducted to determine the presence of paint chips on the dripline or next to the foundation below any exterior surface that was abated. If lead-based paint hazards that were to be abated by the project are still present, these conditions must be eliminated prior to the continuation of the clearance procedures. If visible dust, debris, or paint chips are present, they must be removed from the site and properly disposed of according to all applicable federal, state, and local standards.

(2) Following the visual inspection and any required postabatement cleanup, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall conduct clearance sampling for lead in dust. Clearance sampling may be conducted by employing single-surface sampling or composite dust sampling. Interior dust-lead testing shall be performed for all projects that include window replacement.

(3) Dust samples shall be collected a minimum of one hour after the completion of final postabatement cleanup activities.

(4) Dust samples shall be collected by wipe samples using the documented methodologies specified in guidance documents issued by the department. The minimum area for a floor wipe sample shall be 0.50 square feet or 72 square inches. The minimum area for a windowsill wipe sample and for a window trough wipe sample shall be 0.25 square feet or 36 square inches. Dust samples shall be analyzed by a recognized laboratory to determine the level of lead.

(5) The following postabatement clearance activities shall be conducted as appropriate based upon the extent or manner of lead abatement activities conducted in the residential dwelling or child-occupied facility:

1. After conducting a lead abatement with containment between abated and unabated areas, three dust samples shall be taken from each of no fewer than four rooms, hallways, or stairwells within the containment area. Dust samples shall be taken from one interior windowsill and from one window trough (if available), and one dust sample shall be taken from the floor of each of no fewer than four rooms, hallways, or stairwells within the containment area. In addition, one dust sample shall be taken from

the floor outside of each individual containment area. If there are fewer than four rooms, hallways, or stairwells within the containment area, then all rooms, hallways, and stairwells shall be sampled.

2. After conducting a lead abatement with no containment between abated and unabated areas, three dust samples shall be taken from each of no fewer than four rooms, hallways, or stairwells in the residential dwelling or child-occupied facility. Dust samples shall be taken from one interior windowsill and from one window trough (if available), and one dust sample shall be taken from the floor of each room, hallway, or stairwell selected. If there are fewer than four rooms, hallways, or stairwells in the residential dwelling or child-occupied facility, then all rooms, hallways, and stairwells shall be sampled.

3. The certified lead abatement contractors and certified lead abatement workers who abate or clean the dwellings shall not have any knowledge of which rooms or surfaces will be selected for the dust samples.

(6) Reserved.

(7) The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall compare the residual lead level as determined by the laboratory analysis from each single-surface dust sample with applicable single-surface clearance levels for lead in dust on floors, interior windowsills, and window troughs. If the residual lead level in a single-surface dust sample is greater than or equal to the applicable clearance level for a floor, interior windowsill, or window trough, then the failed component in each room with a failed single-surface dust sample and that type of component in each room that was not tested shall be recleaned. Additional clearance samples shall be taken from the failed component in each room where it failed and from enough additional rooms that were not previously tested so that four rooms are sampled. If four rooms are not available, then each available room shall be retested. The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall evaluate the results of this testing to determine if the recleaned components meet the clearance level. The components must be recleaned and retested until the clearance level is met.

(8) The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall compare the residual lead level as determined by the laboratory analysis from each composite dust sample with applicable single-surface clearance levels for lead in dust on floors, interior windowsills, and window troughs divided by half the number of subsamples in the composite sample. If the residual lead level in a composite dust sample is greater than or equal to the applicable clearance level divided by half the number of subsamples in the composite sample, then all the components represented by the failed composite dust sample shall be recleaned and retested until clearance levels are met.

l. In multifamily housing consisting of at least 20 similarly constructed and maintained residential dwellings, random selection for the purpose of clearance testing may be conducted if the following conditions are met:

(1) The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall randomly select the residential dwellings that will be sampled. The certified lead abatement contractors and certified lead abatement workers who abate or clean the dwellings do not know which residential dwellings will be selected for the random selection or which rooms or surfaces will be selected for the dust samples.

(2) The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall use Table 1 to determine the minimum number of residential dwellings selected for dust sampling. This shall provide a 95 percent level of confidence that no more than 5 percent or 50 of the residential dwellings (whichever is smaller) in the randomly sampled population are greater than or equal to the appropriate clearance levels.

(3) The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall sample the randomly selected residential dwellings and evaluate them for clearance according to the procedures found in paragraphs 70.6(6) "*i*" through "*k*."

m. No later than three weeks after the property passes clearance, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall send a report to the lead abatement contractor that contains the items required by subparagraphs 70.6(6) "*n*"(7) through (9).

n. The certified lead abatement contractor or a certified project designer shall prepare a lead abatement report containing the following information:

- (1) A copy of the original and any revised lead abatement notifications.
- (2) Starting and completion dates of the lead abatement project.
- (3) The name, address, and telephone number of the property owner(s).
- (4) The name, address, and signature of the certified lead abatement contractor and of the certified firm contact for the firm conducting the lead abatement.
- (5) Whether or not containment was used and, if containment was used, the locations of the containment.
- (6) The occupant protection plan required by paragraph 70.6(6)“f.”
- (7) The name, address, and signature of each certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting clearance sampling, the date on which the clearance testing was conducted, the results of the visual inspection for the presence of lead hazards that were not abated as specified, deteriorated paint and visible dust, debris, residue, or paint chips in the interior rooms and exterior areas where lead abatement was conducted, and the results of all postabatement clearance testing and all soil analyses, if applicable. The results of dust sampling shall be reported in micrograms of lead per square foot by location of sample, and the results of soil sampling shall be reported in parts per million of lead. The results shall not be reported as “not detectable.” If random selection was used to select the residential dwellings that were sampled, the report shall state that random selection was used, the number of residential dwellings that were sampled, and how this number was determined.

(8) A statement that the lead abatement was or was not done as specified and that the rooms and exterior areas where lead abatement was conducted did or did not pass the visual clearance and the clearance dust testing. If the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting the clearance testing cannot verify that all lead-based paint hazards have been abated, the report shall contain the following statement:

“The purpose of this clearance report is to verify that the lead abatement project was done according to the project specifications. This residential dwelling may still contain hazardous lead-based paint, soil-lead hazards, or dust-lead hazards in the rooms or exterior areas that were not included in the lead abatement project.”

(9) The name, address, and telephone number of each recognized laboratory conducting an analysis of clearance samples and soil samples, including the identification number for each such laboratory recognized by EPA under Section 405(b) of the Toxic Substances Control Act (15 U.S.C. 2685(b)).

(10) A detailed written description of the lead abatement project, including lead abatement methods used, locations of rooms and components where lead abatement occurred, reasons for selecting particular lead abatement methods, and any suggested monitoring of encapsulants or enclosures.

(11) Information regarding the owner’s obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745.

(12) Information regarding Iowa’s prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa’s regulations for renovation found in 641—Chapter 70.

(13) If applicable, a copy of the written consent or waiver required by subrule 70.6(13).

o. The lead abatement report shall be completed no later than 30 days after the lead abatement project passes clearance testing.

p. The certified lead abatement contractor shall maintain all reports and plans required in this subrule for a minimum of three years.

q. The certified lead abatement contractor shall provide a copy of all reports required by this subrule to the building owner and to the person who contracted for the lead abatement, if different.

70.6(7) A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician must conduct visual risk assessments according to the following standards. Visual risk assessments shall be conducted only by a certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician.

a. Background information regarding the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause lead-based paint exposure to at least one child under the age of six years shall be collected.

b. A visual inspection for risk assessment shall be undertaken to locate the existence of deteriorated paint and other potential lead-based paint hazards and to assess the extent and causes of the paint deterioration. A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician shall assess each component in each room, including each exterior side. A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician shall identify the following conditions as potential lead-based paint hazards:

- (1) All interior and exterior surfaces with deteriorated paint.
- (2) Horizontal hard surfaces, including but not limited to floors and windowsills, that are not smooth or cleanable.
- (3) Dust-generating conditions, including but not limited to conditions causing rubbing, binding, or crushing of surfaces known or presumed to be coated with lead-based paint.
- (4) Bare soil in the play area and dripline of the home.

c. A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician shall prepare a written report for each residential dwelling or child-occupied facility where a visual risk assessment is conducted. No later than three weeks after completing the visual risk assessment, the certified lead inspector/risk assessor, certified elevated blood lead (EBL) inspector/risk assessor, or certified sampling technician shall send a copy of the report to the property owner and to the person requesting the visual risk assessment, if different. A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician shall maintain a copy of the report for no less than three years. The report shall include, at least:

- (1) Date of each visual risk assessment;
- (2) Address of building;
- (3) Date of construction;
- (4) Apartment numbers (if applicable);
- (5) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
- (6) Name, signature, and certification number of each certified sampling technician, certified lead inspector/risk assessor, or certified elevated blood lead (EBL) inspector/risk assessor conducting the visual risk assessment;
- (7) Name and certification number of the certified firm(s) conducting the visual risk assessment;
- (8) A statement that all painted or finished components must be assumed to contain lead-based paint;
- (9) Specific locations of painted or finished components identified as likely to contain lead-based paint and likely to be lead-based paint hazards;
- (10) Specific locations of bare soil in the play area and the dripline of a home;
- (11) Information for the owner and occupants on how to reduce lead hazards in the residential dwelling or child-occupied facility;
- (12) Information regarding the owner's obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745;
- (13) Information regarding Iowa's prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa's regulations for renovation found in 641—Chapter 70; and
- (14) The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any

addendum is signed by a sampling technician, lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

70.6(8) A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician must conduct clearance testing according to the following standards. Clearance testing following lead abatement shall be conducted only by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor. Clearance testing after renovation and clearance testing after interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, and rehabilitation pursuant to 24 CFR Part 35 shall be conducted only by certified sampling technicians, certified lead inspector/risk assessors, or certified elevated blood lead (EBL) inspector/risk assessors. If the abatement, renovation, or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35 is conducted in response to an elevated blood lead (EBL) inspection, clearance must be conducted by a certified elevated blood lead (EBL) inspector/risk assessor.

a. Clearance testing following lead abatement shall be conducted according to paragraphs 70.6(6) “*i*” through “*m*.”

b. Clearance testing after renovation and clearance testing after interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35 shall be conducted according to the following standards:

(1) A certified sampling technician shall perform clearance testing only for a single-family property or for individual residential dwellings and associated common areas in multifamily housing. A certified sampling technician shall not perform clearance testing using random selection of residential dwellings or common areas in multifamily housing.

(2) A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician shall review the report of the lead inspection, risk assessment, or visual assessment done prior to interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation conducted pursuant to 24 CFR Part 35 and the project specifications to determine the lead-based paint hazards that were to be controlled by the project. A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician shall perform a visual inspection to determine if all lead-based paint hazards that were to be controlled by the project have been controlled and to determine if deteriorated paint surfaces or visible amounts of dust, debris, or residue are still present in the rooms where interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation were conducted pursuant to 24 CFR Part 35. If lead-based paint hazards that were to be controlled by the project, deteriorated paint surfaces or visible amounts of dust, debris, or residue are present in these rooms, these conditions must be eliminated prior to the continuation of the clearance testing. However, elimination of deteriorated paint is not required if it has been determined through a lead-based paint inspection that the deteriorated paint is not lead-based paint. If exterior painted surfaces have been disturbed by the interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation conducted pursuant to 24 CFR Part 35, the visual inspection shall include an assessment to determine if all exterior lead-based paint hazards that were to be controlled by the project have been controlled and to determine if any visible dust or debris remains on any horizontal surfaces in the outdoor living areas close to the affected exterior painted surfaces. In addition, a visual inspection shall be conducted to determine if paint chips are present on the dripline or next to the foundation below any exterior painted surface that was treated. If lead-based paint hazards that were to be controlled by the project are still present, these conditions must be eliminated prior to the continuation of the clearance procedures. If visible dust, debris, or paint chips are present, they must be removed from the site and properly disposed of according to all applicable federal, state, and local standards.

(3) Following the visual inspection and any required cleanup, clearance sampling for lead in dust shall be conducted. Clearance sampling may be conducted by employing single-surface sampling or composite dust sampling.

(4) Dust samples shall be collected a minimum of one hour after the completion of final cleanup activities.

(5) Dust samples shall be collected by wipe samples using the documented methodologies specified in guidance documents issued by the department. The minimum area for a floor wipe sample shall be 0.50 square feet or 72 square inches. The minimum area for a windowsill wipe sample and for a window trough wipe sample shall be 0.25 square feet or 36 square inches. Dust samples shall be analyzed by a recognized laboratory to determine the level of lead.

(6) The following clearance activities shall be conducted as appropriate based upon the extent or manner of renovation or of interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation conducted pursuant to 24 CFR Part 35 in the residential dwelling or child-occupied facility:

1. After conducting renovation or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35, with containment between treated and untreated areas, three dust samples shall be taken from each of no fewer than four rooms, hallways, or stairwells within the containment area. Dust samples shall be taken from one interior windowsill and from one window trough (if available), and one dust sample shall be taken from the floor of each of no fewer than four rooms, hallways, or stairwells within the containment area. In addition, one dust sample shall be taken from the floor outside of each individual containment area. If there are fewer than four rooms, hallways, or stairwells within the containment area, then all rooms, hallways, and stairwells shall be sampled. Interior dust-lead testing shall be performed for all projects that include window replacement.

2. After conducting renovation or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35, with no containment between treated and untreated areas, three dust samples shall be taken from each of no fewer than four rooms, hallways, or stairwells in the residential dwelling or child-occupied facility. Dust samples shall be taken from one interior windowsill and window trough (if available), and one dust sample shall be taken from the floor of each room, hallway, or stairwell selected. If there are fewer than four rooms, hallways, or stairwells in the residential dwelling or child-occupied facility, then all rooms, hallways, and stairwells shall be sampled. Interior dust-lead testing shall be performed for all projects that include window replacement.

(7) The contractors conducting the work or cleaning the dwellings shall not know which rooms or surfaces will be selected for the dust samples.

(8) The certified lead inspector/risk assessor, certified elevated blood lead (EBL) inspector/risk assessor, or certified sampling technician shall compare the residual lead level as determined by the laboratory analysis from each single-surface dust sample with applicable single-surface clearance levels for lead in dust on floors, interior windowsills, and window troughs. If the residual lead level in a single-surface dust sample is greater than or equal to the applicable clearance level for a floor, interior windowsill, or window trough, then the failed component in each room with a failed single-surface dust sample and that type of component in each room that was not tested shall be recleaned. Additional clearance samples shall be taken from the failed component in each room where it failed and from enough additional rooms that were not previously tested so that four rooms are sampled. If four rooms are not available, then each available room shall be retested. The certified lead inspector/risk assessor, certified elevated blood lead (EBL) inspector/risk assessor, or certified sampling technician shall evaluate the results of this testing to determine if the recleaned components meet the clearance level. The components must be recleaned and retested until the clearance level is met.

(9) The certified lead inspector/risk assessor, certified elevated blood lead (EBL) inspector/risk assessor, or certified sampling technician shall compare the residual lead level as determined by the laboratory analysis from each composite dust sample with applicable single-surface clearance levels for lead in dust on floors, interior windowsills, and window troughs divided by half the number of subsamples in the composite sample. If the residual lead level in a composite dust sample is greater than or equal to the applicable clearance level divided by half the number of subsamples in the composite sample, then all the components represented by the failed composite dust sample shall be recleaned and retested until clearance levels are met.

c. In multifamily housing consisting of at least 20 similarly constructed and maintained residential dwellings, random selection for the purpose of clearance testing may be conducted if the following conditions are met:

(1) The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall randomly select the dwellings that will be sampled. The contractors and the workers who conducted the lead abatement, interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation do not know which residential dwellings will be selected for the random selection.

(2) The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall use Table 1 to determine the minimum number of dwellings selected for dust sampling. This shall provide a 95 percent level of confidence that no more than 5 percent or 50 of the residential dwellings (whichever is smaller) in the randomly sampled population are greater than or equal to the appropriate clearance levels.

(3) The certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall sample the randomly selected residential dwellings and evaluate them for clearance according to the procedures found in paragraphs 70.6(6)“h” through “j.”

(4) The clearance testing is conducted by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor.

d. A clearance report must be prepared that provides documentation of the lead abatement, renovation, or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation conducted pursuant to 24 CFR Part 35 as well as the clearance testing. When lead abatement is performed, the report shall be a lead abatement report in accordance with paragraph 70.6(6)“n.” When renovation or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35 is performed, the certified lead inspector/risk assessor, certified elevated blood lead (EBL) inspector/risk assessor, or certified sampling technician shall prepare a written report for each residential dwelling or child-occupied facility where clearance testing is conducted. No later than 30 days after the property passes clearance, the certified lead inspector/risk assessor, certified elevated blood lead (EBL) inspector/risk assessor, or certified sampling technician shall send a copy of the report to the property owner and to the person requesting the clearance testing, if different. The clearance report shall include the following information:

(1) The address of the residential property and, if only part of a multifamily property is affected, the specific dwelling units and common areas affected.

(2) The following information regarding the clearance testing:

1. The date(s) of the clearance testing.

2. The name, address, and signature of each certified lead professional performing the clearance examination, including the certification number.

3. The name and certification number of the certified firm(s) conducting the clearance testing.

4. Whether or not containment was used and, if containment was used, the locations of the containment.

5. If random selection was used to select the residential dwellings that were sampled, the report shall state that random selection was used, the number of residential dwellings that were sampled, and how this number was determined.

6. The results of the visual inspection for the presence of deteriorated paint and visible dust, debris, residue, or paint chips in the rooms where renovation or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation was conducted pursuant to 24 CFR Part 35.

7. All of the results of the analysis of dust samples, in micrograms per square foot, by location of sample. The results shall not be reported as “not detectable.”

8. A statement that the renovation or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation conducted pursuant to 24 CFR Part 35 was or was not done as specified and that the rooms and exterior areas where these activities were conducted

did or did not pass the visual clearance and the clearance dust testing. If the certified lead inspector/risk assessor, certified elevated blood lead (EBL) inspector/risk assessor, or certified sampling technician conducting the clearance testing cannot verify that all lead-based paint hazards have been controlled, the report shall contain the following statement:

“The purpose of this clearance report is to verify that this lead hazard control project was done according to the project specifications. This residential dwelling may still contain hazardous lead-based paint, soil-lead hazards, or dust-lead hazards in the rooms or exterior areas that were not included in the lead hazard control project.”

9. The name, address, and telephone number of each recognized laboratory conducting an analysis of the dust samples, including the identification number for each such laboratory recognized by EPA under Section 405(b) of the Toxic Substances Control Act (15 U.S.C. 2685(b)).

(3) The following information on the renovation or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation pursuant to 24 CFR Part 35 for which clearance testing was performed:

1. The start and completion dates of the renovation, interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation.

2. The name and address of each firm or organization conducting the renovation, interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation and the name of each supervisor assigned.

3. A detailed written description of the renovation, interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation, including the methods used, locations of exterior surfaces, interior rooms, common areas, and components where the hazard reduction activity occurred.

4. If interim control of soil hazards was conducted, a detailed description of the location(s) of the interim controls and the method(s) used.

5. Information regarding the owner’s obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745.

6. Information regarding Iowa’s prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa’s regulations for renovation found in 641—Chapter 70.

7. The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by a sampling technician, lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

e. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor or a certified sampling technician shall maintain a copy of the clearance testing information included in the lead abatement report specified in paragraph 70.6(6) “*m*” for no fewer than three years. A certified lead inspector/risk assessor, a certified elevated blood lead (EBL) inspector/risk assessor, or a certified sampling technician shall maintain a copy of the clearance testing report specified in paragraph 70.6(8) “*d*” for no fewer than three years.

f. Clearance testing shall be performed by persons or entities independent of those performing lead abatement, renovation, interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation, unless the designated party uses qualified in-house employees to conduct clearance testing. An in-house employee shall not conduct both lead abatement, renovation, interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, or rehabilitation and the clearance examination for this work.

70.6(9) A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall conduct paint testing pursuant to 24 CFR Part 35 according to the following standards.

Paint testing pursuant to 24 CFR Part 35 shall be conducted only by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor.

a. When conducting paint testing in a residential dwelling or child-occupied facility, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following procedures:

(1) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall test paint on each deteriorated paint surface and on each painted surface that will be disturbed or replaced. On windows, the window frame, interior windowsill, window sash, and window trough shall each be tested.

(2) Paint shall be tested using adequate quality control by X-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If testing by laboratory analysis, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect paint samples using the documented methodologies specified in guidance documents issued by the department. If testing by X-ray fluorescence, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

1. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use an X-ray fluorescence analyzer that has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

2. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the NIST 1.02 standard film or standards provided by the manufacturer for calibration of the X-ray fluorescence analyzer. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not state that any surface is free of lead-based paint unless the NIST 1.02 standard film is used for calibration.

3. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings at the beginning of the inspection.

4. If recommended by the performance characteristics sheet, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall conduct substrate correction for all XRF readings less than 4.0 milligrams of lead per square centimeter. For each substrate that requires substrate correction, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall completely remove all paint from an area of two different testing combinations for that substrate. If possible, the areas chosen for substrate correction should have initial XRF readings of less than 2.5 milligrams of lead per square centimeter. For each testing combination, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall remove paint from an area that is at least as large as the XRF probe faceplate. On each of the two areas, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall place the NIST 1.02 standard film over the surface, and take three XRF readings with the XRF used to conduct the inspection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean for these six readings and shall subtract 1.02 from this arithmetic mean to obtain the substrate correction value. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall then subtract the substrate correction value from each XRF reading for the substrate requiring substrate correction to obtain the corrected XRF reading. For example, if the six readings taken on the NIST 1.02 standard film were 1.1, 1.3, 1.4, 1.0, 1.2, and 1.1, the arithmetic mean is calculated by the equation $(1.1 + 1.3 + 1.4 + 1.0 + 1.2 + 1.1)/6$ and is equal to 1.18. The substrate correction value is equal to 1.18 minus 1.02, or 0.16. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not conduct substrate correction where recommended by the performance characteristics sheet, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that all of the readings are positive and shall not state that a surface is free of lead-based paint.

5. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading that did not require substrate correction and each corrected XRF reading

for XRF readings that required substrate correction as positive, negative, or inconclusive, according to the performance characteristics sheet for the XRF. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not discard XRF readings unless instructed to do so by the performance characteristics sheet or the operating instructions from the manufacturer. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor believes that a reading classified as positive is in error, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect a paint sample for laboratory analysis. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall change the positive classification to negative only if the results of the laboratory analysis indicate that the surface is not painted with lead-based paint. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume that all inconclusive readings are positive and classify them as such.

6. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall resolve inconclusive readings as defined by the performance characteristics sheet for the XRF by collecting paint samples for laboratory analysis. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not resolve inconclusive readings by laboratory analysis, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that the inconclusive readings are positive.

b. If lead-based paint is identified through paint testing, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor must conduct a visual inspection to determine the presence of lead-based paint hazards and any other potential lead hazards, including bare soil in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated.

c. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility where paint testing is conducted. No later than three weeks after the receipt of laboratory results, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall send a copy of the report to the property owner and to the person requesting the inspection, if different. A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor shall maintain a copy of each written report for no less than three years. The report shall include, at least:

- (1) A statement that the inspection was conducted to determine whether lead-based paint is present on deteriorated paint surfaces and on painted surfaces that will be disturbed or replaced;
- (2) Date of the testing;
- (3) Address of building;
- (4) Date of construction;
- (5) Apartment numbers (if applicable);
- (6) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
- (7) Name, signature, and certification number of each certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting the paint testing;
- (8) Name and certification number of the certified firm(s) conducting the paint testing;
- (9) Name, address, and telephone number of each laboratory conducting an analysis of collected samples;
- (10) Each testing method and sampling procedure employed for paint analysis, including quality control data and, if used, the manufacturer, serial number, software, and operating mode of any X-ray fluorescence (XRF) analyzer;
- (11) XRF readings taken for calibration and calculations to demonstrate that the XRF is properly calibrated;
- (12) Specific locations by room of each painted component tested for the presence of lead-based paint and the results for each component expressed in terms appropriate to the sampling method used;
- (13) A statement that all painted or finished components that were not tested must be assumed to contain lead-based paint;

(14) A description of the location, type, and severity of identified lead-based paint hazards, including the classification of each tested surface as to whether it is a lead-based paint hazard, and any other potential lead hazards, including bare soil in the dripline of a home where lead-based paint is identified on exterior components or lead-based paint previously existed on exterior components, but has been removed, enclosed, or encapsulated;

(15) A description of interim controls and lead abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report shall recommend a maintenance and monitoring schedule for the encapsulant or enclosure;

(16) Information regarding the owner's obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745;

(17) Information regarding Iowa's prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa's regulations for renovation found in 641—Chapter 70; and

(18) The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by a lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

70.6(10) A certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor must conduct reevaluations according to the following standards. Reevaluations shall be conducted only by a certified lead inspector/risk assessor or a certified elevated blood lead (EBL) inspector/risk assessor.

a. All available information regarding lead-based paint for the property being reevaluated shall be reviewed, including but not limited to reports of any lead-based paint activities conducted in a residential dwelling, multifamily dwelling, or child-occupied facility.

b. A visual inspection of the property shall be undertaken to locate the existence of deteriorated paint; bare soil; recommended lead abatement, interim controls, or standard treatments that were not implemented; and failed interim controls, standard treatments, encapsulation, or enclosure.

c. Deteriorated paint for which the lead content is unknown shall be tested for the presence of lead.

d. Soil samples shall be collected and analyzed from bare soil for which the lead content is unknown. Soil samples shall be collected using the documented methodologies specified in guidance documents issued by the department and shall be analyzed by a recognized laboratory to determine the level of lead.

e. If any lead-based paint hazards, recommended lead abatement, interim controls, or standard treatments that were not implemented, or failed interim controls, standard treatments, encapsulation, or enclosure is identified, then the reevaluation is failed. These conditions shall be controlled through lead abatement or interim controls before the reevaluation can continue. Clearance testing shall be conducted following control of the conditions through lead abatement or interim controls.

f. If there are no lead-based paint hazards present and all of the recommended lead abatement or interim controls were implemented and have not failed, then single-surface or composite dust samples shall be collected. The reevaluation is passed if all of the dust samples taken are below the clearance level.

g. In residential dwellings, single-surface or composite dust samples shall be collected from floors and interior windowsills in at least four rooms, hallways, or stairwells where at least one child under the age of six years is most likely to come in contact with dust.

h. In multifamily dwellings, single-surface or composite dust samples shall also be collected from common areas where at least one child under the age of six years is likely to come in contact with dust.

i. In child-occupied facilities, single-surface or composite dust samples shall be collected from the floor and interior windowsill in at least four rooms, hallways, or stairwells utilized by one or more children under the age of six years and in other common areas where the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor determines that at least one child under the age of six years is likely to come in contact with dust.

j. Dust samples shall be collected by wipe samples using the documented methodologies specified in guidance documents issued by the department. The minimum area for a floor wipe sample shall be 0.50 square feet or 72 square inches. The minimum area for a windowsill wipe sample and for a window trough wipe sample shall be 0.25 square feet or 36 square inches. Dust samples shall be analyzed by a recognized laboratory to determine the level of lead.

k. Paint shall be tested using adequate quality control by X-ray fluorescence or by laboratory analysis using a recognized laboratory to determine the presence of lead-based paint on a surface. If tested by laboratory analysis, the paint shall be sampled using the documented methodologies specified in guidance documents issued by the department. If testing by X-ray fluorescence, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the following methodologies:

(1) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use an X-ray fluorescence analyzer that has a performance characteristics sheet and shall use the X-ray fluorescence analyzer according to the performance characteristics sheet.

(2) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use the NIST 1.02 standard film or standards provided by the manufacturer for calibration of the X-ray fluorescence analyzer. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not state that any surface is free of lead-based paint unless the NIST 1.02 standard film is used for calibration.

(3) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall take calibration readings consisting of an average of three readings.

(4) If recommended by the performance characteristics sheet, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall conduct substrate correction for all XRF readings less than 4.0 milligrams of lead per square centimeter. For each substrate that requires substrate correction, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall completely remove all paint from an area of two different testing combinations for that substrate. If possible, the areas chosen for substrate correction should have initial XRF readings of less than 2.5 milligrams of lead per square centimeter. For each testing combination, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall remove paint from an area that is at least as large as the XRF probe faceplate. On each of the two areas, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall place the NIST 1.02 standard film over the surface, and take three XRF readings with the XRF used to conduct the inspection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean for these six readings and shall subtract 1.02 from this arithmetic mean to obtain the substrate correction value. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall then subtract the substrate correction value from each XRF reading for the substrate requiring substrate correction to obtain the corrected XRF reading. For example, if the six readings taken on the NIST 1.02 standard film were 1.1, 1.3, 1.4, 1.0, 1.2, and 1.1, the arithmetic mean is calculated by the equation $(1.1 + 1.3 + 1.4 + 1.0 + 1.2 + 1.1)/6$ and is equal to 1.18. The substrate correction value is equal to 1.18 minus 1.02, or 0.16. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not conduct substrate correction where recommended by the performance characteristics sheet, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that all of the readings are positive and shall not state that a surface is free of lead-based paint.

(5) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall classify each XRF reading that did not require substrate correction and each corrected XRF reading for XRF readings that required substrate correction as positive, negative, or inconclusive, according to

the performance characteristics sheet for the XRF. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not discard XRF readings unless instructed to do so by the performance characteristics sheet or the operating instructions from the manufacturer. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor believes that a reading classified as positive is in error, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall collect a paint sample for laboratory analysis. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall change the positive classification to negative only if the results of the laboratory analysis indicate that the surface is not painted with lead-based paint. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume that all inconclusive readings are positive and classify them as such.

(6) The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall resolve inconclusive readings as defined by the performance characteristics sheet for the XRF by collecting paint samples for laboratory analysis. If the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor does not resolve inconclusive readings by laboratory analysis, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that the inconclusive readings are positive.

l. When conducting reevaluation in multifamily housing, a certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor may sample each residential dwelling or choose residential dwellings for sampling by random selection, targeted selection, or worst case selection.

(1) If built before 1960 or if the date of construction is unknown, the multifamily housing shall contain at least 20 similarly constructed and maintained residential dwellings in order to use random selection. If built from 1960 to 1977, the multifamily housing shall contain at least 10 similarly constructed and maintained residential dwellings in order to use random selection. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 1 to determine the number of residential dwellings to randomly select for testing.

(2) If the multifamily housing contains 5 or more similar residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may use targeted selection. If using targeted selection, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 2 to determine the number of residential dwellings to test. If the multifamily housing has fewer than 5 similar dwellings, all residential dwellings shall be tested. Residential dwellings chosen by targeted selection shall meet as many of the following criteria as possible. If additional residential dwellings are needed to meet the minimum number specified in Table 2, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall select them randomly. If too many residential dwellings meet the criteria, residential dwellings shall be eliminated randomly. Targeted selection criteria are as follows:

1. The residential dwelling has been cited with a housing or building code violation within the past year.

2. The property owner believes that the residential dwelling is in poor condition.

3. The residential dwelling contains two or more children between the ages of six months and six years. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall give preference to residential dwellings that house the largest number of children.

4. The residential dwelling serves as a child-occupied facility.

5. The residential dwelling has been prepared for reoccupancy within the past three months.

(3) If the multifamily housing contains 5 or more similar residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may use worst case selection. If using worst case selection, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall use Table 2 to determine the number of residential dwellings to test. If the multifamily housing has fewer than 5 similar dwellings, all residential dwellings shall be tested.

(4) The following standards shall be used to determine the extent of lead-based paint hazards throughout multifamily housing that is sampled by random selection, targeted selection, or worst case selection:

1. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall calculate the arithmetic mean of the dust-lead levels for carpeted floors, uncarpeted floors, interior windowsills, and window troughs. If the arithmetic mean is greater than or equal to the level defined as a dust-lead hazard for the component, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall determine that a dust-lead hazard has been identified on the component throughout the multifamily housing. If the arithmetic mean is less than the level defined as a dust-lead hazard for the component, but some of the individual components have dust-lead levels that are greater than or equal to the level defined as a dust-lead hazard, then the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall determine that a dust-lead hazard has been identified on the individual components and on all other similar components throughout the multifamily housing.

2. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall evaluate the results of paint sampling by component and location. If all components at a given location are determined to be painted with lead-based paint or are determined not to be painted with lead-based paint, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor may assume this condition is true for all similar residential dwellings. The certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall not assume that the multifamily housing is free of lead-based paint. If a component at a given location is found to be painted with lead-based paint in some residential dwellings and not painted with lead-based paint in other residential dwellings, the certified lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor shall assume that the component is a lead-based paint hazard in all similar residential dwellings.

m. If reevaluation is conducted, the first reevaluation shall be conducted no later than two years from completion of lead abatement, interim controls, or standard treatments. Subsequent reevaluation shall be conducted at intervals of two years, plus or minus 60 days. To be exempt from additional reevaluation, a residential dwelling or child-occupied facility shall have at least two consecutive passing reevaluations conducted at such two-year intervals. If, however, a reevaluation fails, at least two more consecutive reevaluations conducted at such two-year intervals must be conducted.

n. A certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall prepare a written report for each residential dwelling or child-occupied facility where a reevaluation is conducted. No later than three weeks after the receipt of laboratory results, the certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall send a copy of the report to the property owner and to the person requesting the reevaluation, if different. A certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall maintain a copy of the report for no less than three years. The report shall include, at least:

- (1) Date of each reevaluation;
- (2) Address of building;
- (3) Date of construction;
- (4) Apartment numbers (if applicable);
- (5) The name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility;
- (6) Name, signature, and certification number of each certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor conducting the reevaluation;
- (7) Name and certification number of the certified firm(s) conducting the reevaluation;
- (8) All of the information gathered for the review as outlined in 70.6(10) "a";
- (9) Results of the visual inspection including details of any newly identified lead-based paint hazards, the status of past lead hazard control measures, and repair options for any lead-based paint hazards identified during the reevaluation;
- (10) An indication of whether or not the property passed or failed the reevaluation;
- (11) An indication of when the next reevaluation, if any, should occur;
- (12) The results of any environmental samples taken, including all XRF readings, all laboratory analyses and clearance testing results, if necessary;

(13) Name, address, and telephone number of each recognized laboratory conducting an analysis of collected samples, including the identification number for each such laboratory recognized by EPA under Section 405(b) of the Toxic Substances Control Act (15 U.S.C. 2685(b));

(14) Information regarding the owner's obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745;

(15) Information regarding Iowa's prerenovation notification requirements found in 641—Chapter 69; and information regarding Iowa's regulations for renovation found in 641—Chapter 70; and

(16) The report shall contain the following statement:

“The location and nature of this inspection are required to be reported to the Iowa Department of Public Health for tracking purposes. The Iowa Department of Public Health may review this report for compliance purposes. It is a violation of law for anyone other than the certified lead professional signing it to alter this report. This report may be supplemented with additional information, so long as any addendum is signed by a sampling technician, lead inspector/risk assessor or elevated blood lead (EBL) inspector/risk assessor certified according to Iowa Administrative Code 641—70.3(135) and 70.5(135).”

70.6(11) All renovations performed in target housing and child-occupied facilities, except for emergency renovations and minor repair and maintenance activities, shall be performed according to the work practice standards in 70.6(11). Renovation activities conducted in housing or on surfaces determined to be free of lead-based paint by a certified lead inspector/risk assessor or certified elevated blood lead (EBL) inspector/risk assessor shall be exempt from all work practice standards except record keeping. All renovations shall be performed by a certified firm under the supervision of a certified lead abatement contractor or a certified lead abatement worker who completes initial certification on or after January 13, 2010, or if certified prior to January 13, 2010, completes a lead abatement worker, lead abatement contractor, or lead-safe renovator refresher course on or after January 13, 2010, or shall be performed by a certified lead-safe renovator in accordance with the requirements below.

a. A firm shall assign at least one certified lead abatement contractor, a certified lead abatement worker, or a certified lead-safe renovator to each individual renovation project. The certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator assigned to each individual renovation project shall ensure the following:

(1) A certified lead abatement contractor, a certified lead abatement worker, or a certified lead-safe renovator must be on site during all worksite preparation and during the cleanup of work areas. At all other times when renovation is being conducted, a certified lead abatement contractor, a certified lead abatement worker, or a certified lead-safe renovator shall be on site or available by telephone, pager, or answering service and be able to be present at the worksite in no more than two hours.

(2) Signs are posted and readable. All signs must be posted before the renovation begins and must remain in place until the postrenovation cleaning verification has been completed.

1. To the extent practicable, all signage must be posted in the occupants' primary language.

2. The signs must clearly define the work area.

3. The signs must warn occupants and other persons not involved with the renovation activity to remain outside the work area.

4. The signs must be posted at the entrance(s) to all work areas.

(3) The work area must be effectively contained before the renovation is begun. To be effective, containment must:

1. Isolate the work area so that no dust or debris leaves the work area while the renovation is being performed.

2. Be monitored and maintained so that any plastic or other impermeable materials are not torn or displaced.

3. Be installed in such a manner that it does not interfere with occupant and worker egress in an emergency.

(4) For interior renovations, containment shall include:

1. The removal or covering of all objects from the work area, including but not limited to furniture, rugs, and window coverings. Objects that are not removed from the work area must be covered with plastic sheeting or other impermeable material with all seams and edges taped or otherwise sealed.

2. Closing and covering all duct openings in the work area. Ducts must be covered with plastic sheeting or other impermeable material that is taped down.

3. Closing windows and doors in the work area. Doors must be covered with plastic sheeting or other impermeable material. Doors used as an entrance to the work area must be covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

4. Covering the floor surface, including installed carpet, with taped-down plastic sheeting or other impermeable material in the work area six feet beyond the perimeter of the surfaces undergoing renovation or a sufficient distance to contain the dust, whichever is greater.

5. Ensuring that all personnel, tools, and other items, including the exteriors of containers of waste, are free of dust and debris before leaving or being removed from the work area.

(5) For exterior renovations, containment shall include:

1. Closing all doors and windows within 20 feet of the renovation. On multistory buildings, all doors and windows within 20 feet of the renovation on the same story as the renovation shall be closed, and all doors and windows on all stories below the renovation that are the same horizontal distance from the renovation shall be closed.

2. Ensuring that doors within the work areas that will be used while the renovation is being performed are covered with plastic sheeting or other impermeable material in a manner that allows workers to pass through while confining dust and debris to the work area.

3. Covering the ground with plastic sheeting or other disposable impermeable material extending 10 feet beyond the perimeter of surfaces undergoing renovation or a sufficient distance to collect falling paint debris, whichever is greater, unless the property line prevents 10 feet of such ground cover. Exterior ground cover shall include anchors or weights to ensure the covering remains effective even during weather conditions such as high wind.

4. Vertical containment. In certain situations, such as where other buildings are in close proximity to the work area, when conditions are windy, or where the work area abuts a property line, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall erect a system of vertical containment designed to prevent dust and debris from migrating to adjacent property or contaminating the ground, other buildings, or any object beyond the work area.

(6) Prohibited practices are not used during the renovation. Prohibited practices include:

1. Open-flame burning or torching of paint.

2. Machine sanding or grinding or abrasive blasting or sandblasting of paint unless used with high-efficiency particulate air (HEPA) exhaust control that removes particles of 0.3 microns or larger from the air at 99.97 percent or greater efficiency.

3. Uncontained water blasting of paint.

4. Dry scraping or dry sanding of paint except in conjunction with the use of a heat gun or around electrical outlets.

5. Operating a heat gun at a temperature at or above 1100 degrees Fahrenheit.

- (7) All workers that are not certified lead abatement contractors, certified lead abatement workers, or certified lead-safe renovators must have on-the-job training as required by 70.6(11)“d.” However, on-the-job training does not meet the training requirement for work conducted pursuant to 24 CFR 35.1340.

- (8) If desired, perform all testing with recognized test kits in accordance with 70.6(11)“e.”

- (9) Perform the postrenovation cleaning verification as outlined in 70.6(11)“b.”

- (10) All waste generated during renovation activities is contained to prevent the release of dust and debris before the waste is removed from the work area for storage or disposal. Any chutes used to remove waste from the work area shall be covered.

1. At the conclusion of each workday and at the conclusion of the renovation, waste that has been collected from renovation activities must be stored under containment, in an enclosure, or behind

a barrier that prevents release of dust and debris out of the work area and prevents access to dust and debris.

2. All waste from renovation activities must be contained during transportation so that no dust or debris is released.

(11) The work area shall be cleaned so that no dust, debris, or residue remains after the renovation. Cleaning shall include:

1. The collection of all paint chips and debris and, without dispersing the paint chips and debris, the sealing of the materials in heavy-duty bags.

2. The removal of the protective sheeting used as required in this subrule. The sheeting shall be misted, then the sheeting shall be folded dirty side inward. All sheeting shall be taped shut or otherwise sealed inside heavy-duty bags. Sheeting used to separate work areas from non-work areas must remain in place until after the cleaning and removal of other sheeting. All sheeting shall be disposed of as waste.

3. For interior renovations, all objects and surfaces in the work area and within two feet of the work area must be cleaned from high to low in the following manner:

- Walls must either be vacuumed with a HEPA vacuum or wiped with a wet cloth, beginning at the ceiling and working toward the floor.

- All remaining surfaces including objects and fixtures must be thoroughly vacuumed with a HEPA vacuum. For carpeted floors and rugs, the HEPA vacuum must be equipped with a beater bar.

- All remaining surfaces, except for carpeted or upholstered surfaces, must also be wiped with a damp cloth. Uncarpeted floors must be thoroughly mopped using a method that keeps the wash water separate from the rinse water, such as the two-bucket mopping method, or using a wet mopping system.

b. Postrenovation cleaning verification. A certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall use the following procedure for conducting postrenovation cleaning verification. In lieu of postrenovation cleaning verification, clearance testing as outlined in 70.6(8) can be performed. If the work is done in response to an elevated blood lead (EBL) inspection, clearance testing shall be performed by a certified elevated blood lead (EBL) inspector/risk assessor in lieu of postrenovation cleaning verification. Warning signs may be removed after all of the work areas in a renovation project have been adequately cleaned and verified or passed clearance testing.

(1) For interior renovations, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall perform a visual inspection to determine whether dust, debris, or residue is still present. If dust, debris, or residue is still present, these conditions must be removed by recleaning, and another visual inspection must be performed. Following a successful visual inspection, a certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator must:

1. Verify that each windowsill and window trough in the work area has been adequately cleaned, using the following procedure:

- Wipe the windowsill and window trough with a wet disposable cleaning cloth that is damp to the touch. If the cloth matches or is lighter than the cleaning verification card, the windowsill has been adequately cleaned.

- If the cloth does not match and is darker than the cleaning verification card, reclean the windowsill or window trough as directed in 70.6(11)“a”(11). Then wipe the windowsill or window trough again, using a new cloth or the same cloth folded in such a way that an unused surface is exposed. If the cloth matches or is lighter than the cleaning verification card, that windowsill has been adequately cleaned.

- If the cloth does not match and is darker than the cleaning verification card, wait for one hour or until the surface has dried completely, whichever is longer.

- After waiting for the windowsill or window trough to dry, wipe the windowsill or window trough with a dry disposable cleaning cloth. After this wipe, that windowsill or window trough has been adequately cleaned.

2. Verify that uncarpeted floors and countertops in the work area have been adequately cleaned, using the following procedure. If the surface within the work area is greater than 40 square feet, the

surface within the work area must be divided into roughly equal sections that are each less than 40 square feet.

- Wipe uncarpeted floors and countertops within the work area with a wet disposable cleaning cloth. Floors must be wiped using an application device with a long handle and a head to which the cloth is attached. The cloth must remain damp at all times while it is being used to wipe the surface for postrenovation cleaning verification. Wipe each such section separately with a new wet disposable cleaning cloth. If the cloth used to wipe each section of the surface within the work area matches or is lighter than the cleaning verification card, the surface has been adequately cleaned.

- If the cloth does not match and is darker than the cleaning verification card, reclean the surface as in 70.6(11)“a”(11). Then wipe the floor or countertop again, using a new cloth. If the cloth matches or is lighter than the cleaning verification card, that surface has been adequately cleaned.

- If the cloth does not match and is darker than the cleaning verification card, wait for one hour or until the surface has dried completely, whichever is longer.

- After waiting for the surface to dry, wipe each section of the surface that has not yet achieved the postrenovation cleaning verification with a dry disposable cleaning cloth. After this wipe, that surface has been adequately cleaned.

(2) For exterior renovations, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall perform a visual inspection to determine whether dust, debris, or residue is still present on surfaces in and below the work area, including windowsills and the ground. If dust, debris, or residue is present, these conditions must be eliminated and another visual inspection must be performed. When the area passes the visual inspection, the exterior has been adequately cleaned.

(3) A certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall only use cleaning verification cards that are approved by the U.S. Environmental Protection Agency (EPA).

(4) A certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall not use cleaning verification cards that have expired.

c. Clearance testing. Postrenovation cleaning verification is not required if the contract between the renovation firm and the person contracting for the renovation or another federal, state, territorial, tribal, or local law or regulation requires the renovation firm to perform clearance testing at the conclusion of a renovation covered by this chapter.

(1) The dust samples must be collected by a certified lead inspector/risk assessor, certified elevated blood lead (EBL) inspector/risk assessor, or certified sampling technician. If the work is done in response to an elevated blood lead (EBL) inspection, the dust samples must be collected by a certified elevated blood lead (EBL) inspector/risk assessor.

(2) The firm conducting the renovation is required to reclean the work area until the dust clearance sample results are below the clearance standards in subrule 70.6(8).

d. On-the-job training. The certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator assigned to the renovation project shall ensure that each noncertified individual conducting renovation activities has been or is currently being trained on how to safely conduct renovation activities. However, on-the-job training does not meet the training requirement for work conducted pursuant to 24 CFR Part 35.

(1) All on-the-job training shall be conducted by a certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator.

(2) Each noncertified individual shall be trained by a certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator who is employed by the same certified firm. A certified firm shall not accept on-the-job training that was performed by another firm. On-the-job training does not meet the requirement for work conducted pursuant to 24 CFR Part 35.

(3) On-the-job training shall be specific for the type of work the noncertified individual is performing and must include at least the following topics:

1. An overview of the requirements described in this chapter.
2. An overview of the health effects of lead poisoning.

3. Methods to prevent taking lead dust home from the worksite.
4. How and why to properly set up a work area for lead-safe renovations.
5. How and where to properly post signage.
6. Personal protection.
7. How and why to properly set up containment.
8. How and why to minimize dust and debris.
9. Proper cleaning techniques and time lines for cleaning in renovation activities.
10. How to properly handle and control waste generated from renovation activities.
11. An overview of the postrenovation cleaning verification and clearance testing.
12. An overview of the prerenovation notification requirements found in 641—Chapter 69.
13. Prohibited work practices.

e. Recognized test kits. A certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator may use recognized test kits to determine whether surfaces to be affected by renovation activities are painted with lead-based paint. The result from each individual test performed applies only to the individual surface tested. Surfaces which are determined by proper use of a recognized test kit to be free of lead-based paint are exempt from the requirements of 70.6(11)“a” through “d.” Results obtained from recognized test kits are only valid if the testing was performed according to the manufacturer’s directions. Any results from test kits which are not recognized shall be invalid. A certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall not discard a valid result from a recognized test kit.

f. A certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator must complete a written report when conducting a renovation. The report shall include the results of any testing performed with a recognized test kit, information regarding the work practices used in the renovation and, if applicable, a copy of the clearance testing report. When the final invoice for the renovation is delivered or within 30 days after the renovation activity is complete, whichever is earlier, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall send a copy of the report to the owner of the building. If the renovation took place within a residential dwelling, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall send a copy of the report to an adult occupant of the residential dwelling and to the person requesting the renovation, if different from the owner. If the renovation took place within a child-occupied facility, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall send a copy of the report to an adult representative of the child-occupied facility and to the person requesting the renovation, if different from the owner. If the renovation took place within common areas of multifamily target housing, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall post in areas where it is likely to be seen by the occupants of all of the affected units the report required by this paragraph or instructions on how interested occupants can obtain a copy of this report at no charge. If the renovation took place within a child-occupied facility, the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall post in areas where it is likely to be seen by the parents or guardians of children frequenting the child-occupied facility the report required by this paragraph or instructions on how interested parents or guardians of children frequenting the child-occupied facility can obtain a copy of this report at no charge. A certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator shall maintain a copy of the report for no less than three years. The report shall include, at least:

- (1) The date(s) of the renovation.
- (2) Address of the building, including apartment numbers, if applicable.
- (3) The name, address, and telephone number of the owner(s) of the address(es) where the renovation took place.
- (4) The name, address, signature, certification number, and telephone number of the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator who performed the renovation.
- (5) The name and certification number of the certified firm performing the renovation.

(6) If testing was performed with a recognized test kit, the location of each test. The location shall be specific to the room and component.

(7) The results of testing. The results shall be classified as either positive for lead-based paint or negative for lead-based paint.

(8) The name and manufacturer of the recognized test kit(s) used, the expiration date, and the EPA approval number.

(9) The work practices used in the renovation, including the location(s) where each work practice was used. The location shall be specific to the room and component.

(10) If applicable, a copy of the clearance report.

(11) Information regarding the owner's obligations to disclose known lead-based paint and lead-based paint hazards upon sale or lease of residential property as required by Subpart H of 24 CFR Part 35 and Subpart I of 40 CFR Part 745.

(12) Information regarding Iowa's prerovation notification requirements found in 641—Chapter 69; and information regarding Iowa's regulations for renovation, remodeling and repainting found in 641—Chapter 70.

g. Record keeping. Records shall be kept for each renovation project that involves target housing or child-occupied facilities. The records for each renovation shall include:

(1) The name and certification number of the certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator responsible for the renovation.

(2) The name and certification number of the certified firm that performed the renovation.

(3) The address(es) of the property where the renovation activity was performed.

(4) The name, address, and telephone number of the property owner where the renovation activity was performed.

(5) Renovations considered emergency pursuant to 641—70.2(135) shall contain a description of the circumstances explaining why the renovations were immediately required and which work practice standards were not followed as a result.

(6) Any reports or documentation completed by a certified lead professional concerning the renovation project, including documentation from certified lead inspector/risk assessors or certified elevated blood lead (EBL) lead inspector/risk assessors regarding housing, components, or surfaces that have been determined to be free of lead-based paint and clearance reports from clearance testing performed in lieu of postrenovation cleaning verification.

(7) Documentation that each noncertified individual working on the renovation project had, or was receiving, the appropriate on-the-job training outlined in 70.6(11)"d." The documentation must include the names of all of the noncertified individuals who worked on the renovation. However, on-the-job training does not meet the training requirement for work conducted pursuant to 24 CFR 35.1340.

(8) Documentation that the certified lead-safe renovator followed the work practices for renovation activities outlined in 70.6(11). This shall include documentation that the following work practices were followed:

1. Signs were posted at the entrance to the work area.

2. The work area was contained.

3. All objects in the work area were covered or removed.

4. All HVAC ducts in the work area were closed and covered.

5. All windows in the work area were closed, and all windows within 20 feet of exterior work areas were closed.

6. All doors not used to enter the work area were closed and sealed, and all doors within 20 feet of exterior work areas were closed and sealed.

7. All doors used as an entrance to the work area had containment in place to prevent the spread of dust and debris.

8. All floors in the work area were covered for a sufficient distance to contain the dust and debris from the renovation.

9. Adequate ground cover was in place to contain the dust and debris for exterior renovations.

10. Adequate vertical containment was in place to contain the dust and debris for exterior renovations.

11. All waste generated during the renovations was contained throughout the renovation and the transportation to disposal.

(9) Documentation that the renovation work area was cleaned and passed the postrenovation cleaning verification procedures outlined in 70.6(11)“b,” including the expiration date of the cleaning verification cards used.

(10) Documentation regarding the use of any recognized test kits outlined in 70.6(11)“e.” The documentation shall include a copy of the written report required by 70.6(11)“f.”

h. Emergency renovations.

(1) Renovation activities that are deemed to be an emergency are exempt from the certification requirements and all of the work practice standards, except for the cleaning requirements, postrenovation cleaning verification, and the written report required by 70.6(11)“f.” All postrenovation cleaning must take place under the direction of a certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator. The postrenovation cleaning verification after an emergency renovation must be performed by a certified lead abatement contractor, certified lead abatement worker, or certified lead-safe renovator.

(2) Emergency renovations that are required as a result of an elevated blood lead (EBL) inspection are initially exempt from the certification requirements. The work practice standards found in 70.6(11)“a” shall apply. All individuals who perform emergency renovations in response to an elevated blood lead (EBL) inspection are required to obtain certification as a lead-safe renovator, lead abatement contractor, or lead abatement worker within six months from the date the elevated blood lead (EBL) inspection report was issued. Renovations and interim controls performed in response to an elevated blood lead (EBL) inspection are required to pass clearance testing that is performed by a certified elevated blood lead (EBL) inspector/risk assessor.

70.6(12) A certified elevated blood lead (EBL) inspection agency shall maintain for a period of at least 10 years the written records for all elevated blood lead (EBL) inspections conducted by persons that the agency employs or contracts with to provide elevated blood lead (EBL) inspections in the agency’s service area.

70.6(13) A person may be certified as a lead inspector/risk assessor, sampling technician, or elevated blood lead (EBL) inspector/risk assessor and as a lead abatement contractor or lead abatement worker. Except as specified by paragraph 70.6(6)“k” and paragraph 70.6(8)“f,” a person who is certified both as a lead inspector/risk assessor, sampling technician, or elevated blood lead (EBL) inspector/risk assessor and as a lead abatement contractor or lead abatement worker shall not provide both lead inspection or visual risk assessment and lead abatement services at the same site unless a written consent or waiver, following full disclosure by the person, is obtained from the owner or manager of the site.

70.6(14) Any paint chip, dust, or soil samples collected pursuant to the work practice standards contained in subrules 70.6(1) to 70.6(6) and 70.6(9) shall be collected by persons certified as a lead inspector/risk assessor or an elevated blood lead (EBL) inspector/risk assessor. Any paint chip, dust, or soil samples collected pursuant to the work practice standards contained in subrule 70.6(8) for clearance testing following lead abatement shall be collected by persons certified as a lead inspector/risk assessor or an elevated blood lead (EBL) inspector/risk assessor. Any dust or soil samples collected pursuant to the work practice standards contained in subrule 70.6(8) for clearance testing after renovation or interim controls, paint stabilization, standard treatments, ongoing lead-based paint maintenance, and rehabilitation pursuant to 24 CFR Part 35 shall be collected only by certified sampling technicians, certified lead inspector/risk assessors, or certified elevated blood lead (EBL) inspector/risk assessors. Any paint chip, dust, or soil samples collected pursuant to the work practice standards contained in 641—70.6(135) shall be analyzed by a recognized laboratory.

70.6(15) Composite dust sampling shall be conducted only in the situations specified in subrules 70.6(4) to 70.6(6) and 70.6(8). If composite sampling is conducted, it shall meet the following requirements:

a. Composite dust samples shall consist of at least two subsamples.

- b.* Every component that is being tested shall be included in the sampling.
- c.* Composite dust samples shall not consist of subsamples from more than one type of component.
- d.* The results of composite dust samples shall be evaluated by comparing the residual lead level as determined by the laboratory analysis from each composite dust sample with applicable single-surface dust-lead hazard or clearance levels for lead in dust on floors, interior windowsills, and window troughs divided by half the number of subsamples in the composite sample. For example, the applicable clearance level for a composite window trough sample consisting of three subsamples would be 267 micrograms per square foot (400/1.5).

70.6(16) Reporting lead-based paint activities. A certified sampling technician, lead inspector risk/assessor, and elevated blood lead (EBL) inspector risk/assessor shall report to the department quarterly all lead-based paint activities that they perform. Lead-based paint activities include: lead-free inspections, lead inspections, risk assessments, lead hazard screens, visual risk assessments, and clearance testing.

a. Each certified sampling technician, lead inspector risk/assessor, and elevated blood lead (EBL) inspector/risk assessor shall provide the following information to the department electronically in a format specified by the department:

- (1) Name and certification number of the certified sampling technician, lead inspector/risk assessor, or elevated blood lead (EBL) inspector/risk assessor who performed the lead-based paint activity.
- (2) Name, address, telephone number, and certification number of the certified firm that performed the lead-based paint activity.
- (3) Address where the activity took place. For each address, the report shall specify:
 - 1. The type of activity.
 - 2. Whether or not lead-based paint was identified, including paint assumed to be lead-based paint.
 - 3. Whether or not lead-based paint hazards were identified, including assumed hazards.
 - 4. Whether or not the address was free of lead-based paint pursuant to the requirements outlined in subrule 70.6(1).

b. Reports shall be due on January 15, April 15, July 15, and October 15 of each year.
[ARC 8502B, IAB 2/10/10, effective 1/13/10]

641—70.7(135) Firms. All firms that perform or offer to perform lead-based paint activities must be certified by the department. Firms shall employ only appropriately certified employees to conduct lead-based paint activities, and the firm and its employees shall follow the work practice standards in 641—70.6(135) for conducting lead-based paint activities. A firm must employ at least one certified individual in order to receive or maintain firm certification. Beginning April 22, 2010, firms that perform or offer to perform renovation must be certified by the department.

70.7(1) A firm wishing to be certified shall apply on forms supplied by the department. The firm must submit:

- a.* A completed application form.
- b.* Documentation that the firm will employ only appropriately certified lead professionals to perform lead-based paint activities. In addition, the firm must document that the agency and its employees or contractors will follow the work practice standards in 641—70.6(135) for conducting lead-based paint activities.
- c.* The certified firm must maintain all records required by 641—70.6(135), with the exception of elevated blood lead (EBL) inspection reports, for three years. Certified firms that are also certified as elevated blood lead (EBL) inspection agencies must maintain elevated blood lead (EBL) inspection reports for at least 10 years.

70.7(2) Firms must be recertified each year. To be recertified, the firm must submit the following:

- a.* A completed application form.
- b.* Documentation that the firm will employ only appropriately certified lead professionals to perform lead-based paint activities. In addition, the firm must document that the firm and its employees

or contractors will follow the work practice standards in 641—70.6(135) for conducting lead-based paint activities.

[ARC 8502B, IAB 2/10/10, effective 1/13/10]

641—70.8(135) Lead-safe work practices training program approval and lead-safe work practices contractor registration. Rescinded IAB 2/10/10, effective 1/13/10.

641—70.9(135) Compliance inspections.

70.9(1) The department may enter premises or facilities where violations of the provisions regarding lead-based paint activities may occur for the purpose of conducting compliance inspections.

70.9(2) The department may enter premises or facilities where training programs conduct business.

70.9(3) The department may take samples and review records as part of the lead-based paint activities compliance inspection process.

70.9(4) The department may review all reports involving lead-based paint activities.

70.9(5) The department may issue subpoenas pursuant to 641—Chapter 173, Iowa Administrative Code, for the purposes of determining compliance.

[ARC 8502B, IAB 2/10/10, effective 1/13/10]

641—70.10(135) Denial, suspension, or revocation of certification; denial, suspension, revocation, or modification of course approval; and imposition of penalties.

70.10(1) When the department finds that the applicant, certified lead professional, certified elevated blood lead (EBL) inspection agency, or certified firm has committed any of the following acts, the department may deny an application for certification, may suspend or revoke a certification, may prohibit specific work practices, may require a project conducted by persons or firms that are not certified or a project where prohibited work practices are being used to be halted, may require the cleanup of lead hazards created by the use of prohibited work practices, may impose a civil penalty, may place on probation, may require additional education, may require reexamination of the state certification examination, may issue a warning, may refer the case to the office of the county attorney for possible criminal penalties pursuant to Iowa Code section 135.38, or may impose other sanctions allowed by law as may be appropriate.

- a. Failure or refusal to comply with any requirements of this chapter.
- b. Failure or refusal to establish, maintain, provide, copy, or permit access to records or reports as required by rules 641—70.3(135) to 70.7(135).
- c. Failure or refusal to permit entry or inspection as described in subrules 70.9(1) to 70.9(3).
- d. Obtaining certification through fraudulent representation.
- e. Failure to obtain certification from the department and performing work requiring certification.
- f. Fraudulently obtaining certification and engaging in any lead-based paint activities requiring certification.
- g. Conducting any part of a lead-based paint activity that requires certification without being certified or with a certification that has lapsed.
- h. Obtained documentation of training through fraudulent means.
- i. Gained admission to an accredited training program through misrepresentation of admission requirements.
- j. Obtained certification through misrepresentation of certification requirements or related documents pertaining to education, training, professional registration, or experience.
- k. Performed work requiring certification at a job site without having proof of current certification.
- l. Permitted the duplication or use of the individual's or firm's own certificate by another.
- m. Failed to follow the standards of conduct required by 641—70.6(135).
- n. Failed to comply with federal, state, or local lead-based paint statutes and regulations, including the requirements of this chapter.
- o. Performed work for which certification is required with employees or persons under the control of the certified elevated blood lead (EBL) inspection agency or certified firm who were not appropriately certified.

p. Knowingly made misleading, deceptive, untrue, or fraudulent representations in the practice of lead professional activities or engaged in unethical conduct or practice harmful or detrimental to the public. Proof of actual injury need not be established.

q. Used untruthful or improbable statements in advertisements. This includes, but is not limited to, an action by a lead professional making information or intention known to the public that is false, deceptive, misleading, or promoted through fraud or misrepresentation.

r. Falsified reports and records required by this chapter.

s. Accepted any fee by fraud or misrepresentation.

t. Negligence by the firm or individual in the practice of lead professional activities. This includes a failure to exercise due care, including negligent delegation of duties or supervision of employees or other individuals, whether or not injury results; or any conduct, practice, or conditions that impair the ability of the firm or individual to safely and skillfully practice the profession.

u. Revocation, suspension, or other disciplinary action taken by a certification or licensing authority of this state, another state, territory, or country; or failure by the firm or individual to report such action in writing within 30 days of the final action by such certification or licensing authority. A stay by an appellate court shall not negate this requirement; however, if such disciplinary action is overturned or reversed by a court of last resort, the report shall be expunged from the records of the board.

v. Failed to comply with the terms of a department order or the terms of a settlement agreement or consent order.

w. Representation by a firm or individual that the firm or individual is certified when the certification has been suspended or revoked or has not been renewed.

x. Failed to respond within 20 days of receipt of communication from the department that was sent by registered or certified mail.

y. Engaged in any conduct that subverts or attempts to subvert a department investigation.

z. Failed to comply with a subpoena issued by the department or failure to cooperate with a department investigation.

aa. Failed to pay costs assessed in any disciplinary action.

ab. Been convicted of a felony or misdemeanor related to lead professional activities or the conviction of any felony or misdemeanor that would affect the ability of the firm or individual to perform lead professional activities. A copy of the record of conviction or plea of guilty shall be conclusive evidence.

ac. Unethical conduct. This includes, but is not limited to, the following:

(1) Verbally or physically abusing a client or coworker.

(2) Improper sexual conduct with or making suggestive, lewd, lascivious, or improper remarks or advances to a client or coworker.

(3) Engaging in a professional conflict of interest.

(4) Mental or physical inability reasonably related to and adversely affecting the ability of the firm or individual to practice in a safe and competent manner.

(5) Being adjudged mentally incompetent by a court of competent jurisdiction.

(6) Habitual intoxication or addiction to drugs.

1. The inability of a lead professional to practice with reasonable skill and safety by reason of the excessive use of alcohol on a continuing basis.

2. The excessive use of drugs which may impair a lead professional's ability to practice with reasonable skill or safety.

3. Obtaining, possessing, attempting to obtain or possess, or administering controlled substances without lawful authority.

70.10(2) Reserved.

70.10(3) The department may deny, suspend, revoke, or modify the approval for a course, or may place on probation, or impose other sanctions allowed by law as may be appropriate, or may impose a civil penalty or may refer the case to the office of the county attorney for possible criminal penalties

pursuant to Iowa Code section 135.38 when it finds that the training program, training manager, or other person with supervisory authority over the course has committed any of the following acts:

- a.* Misrepresented the contents of a training course to the department or to the student population.
- b.* Failed to submit required information or notifications in a timely manner.
- c.* Failed to maintain required records.
- d.* Falsified approval records, instructor qualifications, or other information or documentation related to course approval.
- e.* Failed to comply with the training standards and requirements in 641—70.4(135).
- f.* Made false or misleading statements to the department in its application for approval or reapproval which the department relied upon in approving the application.
- g.* Failed to comply with federal, state, or local lead-based paint statutes and regulations, including the requirements of this chapter.
- h.* Knowingly made misleading, deceptive, untrue, or fraudulent representations in the practice of conducting a training program or engaged in unethical conduct or practice harmful or detrimental to the public. Proof of actual injury need not be established.
- i.* Used untruthful or improbable statements in advertisements. This includes, but is not limited to, an action by a training program making information or intention known to the public that is false, deceptive, misleading, or promoted through fraud or misrepresentation.
- j.* Falsified reports and records required by this chapter.
- k.* Accepted any fee by fraud or misrepresentation.
- l.* Revocation, suspension, or other disciplinary action taken by a certification or licensing authority of this state, another state, territory, or country; or failure by the firm or individual to report such action in writing within 30 days of the final action by such certification or licensing authority. A stay by an appellate court shall not negate this requirement; however, if such disciplinary action is overturned or reversed by a court of last resort, the report shall be expunged from the records of the board.
- m.* Failed to comply with the terms of a department order or the terms of a settlement agreement or consent order.
- n.* Failed to respond within 20 days of receipt of communication from the department that was sent by registered or certified mail.
- o.* Engaged in any conduct that subverts or attempts to subvert a department investigation.
- p.* Failed to comply with a subpoena issued by the department or failure to cooperate with a department investigation.
- q.* Failed to pay costs assessed in any disciplinary action.

70.10(4) Complaints and other requests for action under this rule. Complaints regarding a certified lead professional, a certified elevated blood lead (EBL) inspection agency, a certified firm, or an approved course shall be submitted in writing to the Iowa Department of Public Health, Lead Poisoning Prevention Program, 321 East 12th Street, Des Moines, Iowa 50319-0075. The complainant shall provide:

- a.* The name of the certified lead professional, certified elevated blood lead (EBL) inspection agency, or certified firm and the specific details of the action(s) by the certified lead professional, certified elevated blood lead (EBL) inspection agency, or certified firm that did not comply with the rules; or
- b.* The name of the lead professional or firm that conducted lead professional activities without the appropriate certification or approval as required by the rules; or
- c.* The name of the sponsoring person or organization of an approved course and the specific way(s) that an approved course did not comply with the rules; or
- d.* The name of the sponsoring person or organization that provided a course without the approval required by these rules.

70.10(5) Civil penalties.

- a.* Before instituting any proceeding to impose a civil penalty under Iowa Code section 135.105A, the department shall serve a written notice of violation upon the person charged. The notice of violation shall specify the date or dates, facts, and the nature of the alleged act or omission with which the person is charged and shall identify specifically the particular provision or provisions of the law, rule, regulation,

certification, approval, or cease and desist order involved in the alleged violation and must state the amount of each proposed penalty. The notice of violation shall also advise the person charged that the civil penalty may be paid in the amount specified therein, or the proposed imposition of the civil penalty may be protested in its entirety or in part, by a written answer, either denying the violation or showing extenuating circumstances. The notice of violation shall advise the person charged that upon failure to pay a civil penalty subsequently determined by the department, if any, unless compromised, remitted, or mitigated, the fee shall be collected by civil action, pursuant to Iowa Code section 135.105A.

b. Within 20 days of the date of a notice of violation or other time specified in the notice, the person charged may either pay the penalty in the amount proposed or answer the notice of violation. The answer to the notice of violation shall state any facts, explanations, and arguments denying the charges of violation, or demonstrating any extenuating circumstances, error in the notice of violation, or other reason why the penalty should not be imposed and may request remission or mitigation of the penalty.

c. If the person charged with violation fails to answer within the time specified in paragraph 70.10(5) “*b.*,” an order may be issued imposing the civil penalty in the amount set forth in the notice of violation described in paragraph 70.10(5) “*a.*”

d. If the person charged with violation files an answer to the notice of violation, the department, upon consideration of the answer, will issue an order dismissing the proceeding or imposing, mitigating, or remitting the civil penalty. The person charged may, within 20 days of the date of the order or other time specified in the order, request a hearing.

e. If the person charged with violation requests a hearing, the department will issue an order designating the time and place of hearing. The hearing shall be conducted according to the procedural rules of the department of inspections and appeals found in 481—Chapter 10, Iowa Administrative Code.

f. If a hearing is held, an order will be issued after the hearing by the presiding officer or the department dismissing the proceeding or imposing, mitigating, or remitting the civil penalty.

g. The department may compromise any civil penalty. If the civil penalty is not compromised, or is not remitted by the presiding officer or the department, and if payment is not made within ten days following either the service of the order described in paragraph 70.10(5) “*c.*” or “*f.*,” or the expiration of the time for requesting a hearing described in paragraph 70.10(5) “*d.*,” the department may refer the matter to the attorney general for collection.

h. Except when payment is made after compromise or mitigation by the department of justice or as ordered by a court of the state, following reference of the matter to the attorney general for collection, payment of civil penalties imposed under Iowa Code section 135.105A shall be made by check, draft, or money order payable to the Iowa Department of Public Health.

70.10(6) Appeals.

a. Notice of denial, suspension or revocation of certification, or denial, suspension, revocation, or modification of course approval shall be sent to the affected individual or organization by restricted certified mail, return receipt requested, or by personal service. The affected individual or organization shall have a right to appeal the denial, suspension or revocation.

b. An appeal of a denial, suspension or revocation or other disciplinary action shall be submitted by certified mail, return receipt requested, within 20 days of the receipt of the department’s notice to the Iowa Department of Public Health, Lead Poisoning Prevention Program, 321 East 12th Street, Des Moines, Iowa 50319-0075. If such a request is made within the 20-day time period, the notice of denial, suspension or revocation or other disciplinary action shall be deemed to be suspended. Prior to or at the hearing, the department may rescind the notice upon satisfaction that the reason for the denial, suspension or revocation or other disciplinary action has been or will be removed. After the hearing, or upon default of the applicant or alleged violator, the administrative law judge shall affirm, modify or set aside the denial, suspension or revocation or other disciplinary action. If no appeal is submitted within 20 days, the denial, suspension or revocation or other disciplinary action shall become the department’s final agency action.

c. Upon receipt of an appeal that meets contested case status, the appeal shall be transmitted to the department of inspections and appeals within five working days of receipt pursuant to the rules adopted

by that agency regarding the transmission of contested cases. The information upon which the denial, suspension or revocation is based shall be provided to the department of inspections and appeals.

d. The hearing shall be conducted according to the procedural rules of the department of inspections and appeals found in 481—Chapter 10, Iowa Administrative Code.

e. When the administrative law judge makes a proposed decision and order, it shall be served by restricted certified mail, return receipt requested, or delivered by personal service. The proposed decision and order then becomes the department's final agency action without further proceedings ten days after it is received by the aggrieved party unless an appeal to the director is taken as provided in paragraph 70.10(6)“*f.*”

f. Any appeal to the director for review of the proposed decision and order of the administrative law judge shall be filed in writing and mailed to the director by certified mail, return receipt requested, or delivered by personal service within ten days after the receipt of the administrative law judge's proposed decision and order by the aggrieved party. A copy of the appeal shall also be mailed to the administrative law judge. Any request for appeal shall state the reason for appeal.

g. Upon receipt of an appeal request, the administrative law judge shall prepare the record of the hearing or submission to the director. The record shall include the following:

- (1) All pleadings, motions, and rulings.
- (2) All evidence received or considered and all other submissions by recording or transcript.
- (3) A statement of all matters officially noticed.
- (4) All questions and offers of proof, objection, and rulings thereon.
- (5) All proposed findings and exceptions.
- (6) The proposed findings and order of the administrative law judge.

h. The decision and order of the director becomes the department's final agency action upon receipt by the aggrieved party and shall be delivered by restricted certified mail, return receipt requested, or by personal service.

i. It is not necessary to file an application for a rehearing to exhaust administrative remedies when appealing to the director or the district court as provided in Iowa Code section 17A.19. The aggrieved party to the final agency action of the department who has exhausted all administrative remedies may petition for judicial review of that action pursuant to Iowa Code chapter 17A.

j. Any petition for judicial review of a decision and order shall be filed in the district court within 20 days after the decision and order becomes final. A copy of the notice of appeal shall be sent to the department by certified mail, return receipt requested, or by personal service to the Iowa Department of Public Health, Lead Poisoning Prevention Program, 321 East 12th Street, Des Moines, Iowa 50319-0075.

k. The party who appeals a final agency action to the district court shall pay the cost of the preparation of a transcript of the contested case hearing for the district court.

70.10(7) Public notification.

a. The public shall be notified of the suspension, revocation, modification, or reinstatement of course approval through appropriate mechanisms.

b. The department shall maintain a list of courses for which the approval has been suspended, revoked, modified, or reinstated.

c. The public shall be notified of the suspension or revocation of the certification of a lead professional or firm.

d. The department shall maintain a list of lead professionals and firms for which certification has been suspended or revoked.

[ARC 8502B, IAB 2/10/10, effective 1/13/10]

641—70.11(135) Waivers. Rules in this chapter are not subject to waiver or variance pursuant to 641—Chapter 178 or any other provision of law.

These rules are intended to implement Iowa Code section 135.105A.

[Filed emergency 9/16/96—published 10/9/96, effective 9/16/96]

[Filed 1/9/97, Notice 10/9/96—published 1/29/97, effective 3/5/97]

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[Filed emergency 9/17/99—published 10/6/99, effective 9/17/99]

[Filed 11/12/99, Notice 10/6/99—published 12/1/99, effective 1/5/00][◇]

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[Filed Emergency After Notice ARC 8502B (Notice ARC 8357B, IAB 12/2/09), IAB 2/10/10,
effective 1/13/10]

[Filed ARC 0482C (Notice ARC 0369C, IAB 10/3/12), IAB 12/12/12, effective 1/16/13]

[◇] Two or more ARCs

SLATE SIDING PROTOCOL

Effective with homes evaluated on or after January 1, 2013

Homes with insul-brick or slate siding which require sidewall insulation may only be completed if the siding can be removed and replaced by a contractor who has a current permit from the Iowa Division of Labor. The work must be completed within the \$1,500 General Health and Safety Repair limit. A list of qualified contractors for Iowa can be found at the Iowa Workforce Development website <http://www.iowaworkforce.org/labor/asbestos.htm>.

Agency crew members may also complete the siding removal/replacement if: The agency has a current permit issued by Iowa Division of Labor; and the individual crew members (who will be working with the siding) have a current license issued by Iowa Division of Labor. This must also be completed within the \$1,500 General Health and Safety Repair limit. A file with all required permits and licenses must be maintained by the agency.

These costs (crew or contractor) must be reported in sequence number 6758 Minor Asbestos Abatement.

Walls may be insulated from the interior if all work protocols including client permission, lead safe confinement and clean up, wall repair (described in section 5000), etc., are followed and documented in the files.

Siding may not be removed by the clients in order to facilitate wall insulation.

This work must be bid out to qualified contractors. Contractor files with all required insurance, licenses, permits and trainings, etc. must be maintained by the agency.

If an insul-brick or slate sided house requires wall insulation and the cost to remove and replace the rows of siding will exceed the limit or the interior walls cannot be drilled, all work on that house must be deferred.

Rules and Regulations

Federal Register

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Wednesday, March 25, 2009

This section of the FEDERAL REGISTER contains regulatory documents having general applicability and legal effect, most of which are keyed to and codified in the Code of Federal Regulations, which is published under 50 titles pursuant to 44 U.S.C. 1510.

The Code of Federal Regulations is sold by the Superintendent of Documents. Prices of new books are listed in the first FEDERAL REGISTER issue of each week.

DEPARTMENT OF ENERGY

10 CFR Part 440

[Docket No. EEWAP1201]

RIN 1904-AB84

Weatherization Assistance Program for Low-Income Persons

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Final rule.

SUMMARY: The U.S. Department of Energy (DOE) is expanding the definition of "State" under the Weatherization Assistance Program for Low-Income Persons and amending the financial assistance allocation procedure to reflect the expanded definition. The Energy Independence and Security Act of 2007 amended the Weatherization Assistance Program definition of "State" to include the Commonwealth of Puerto Rico and the other territories and possessions of the United States. Consistent with the statutory amendment, DOE is amending the regulatory definition of "State," and amending the allocation procedure relied on to calculate the amount of financial assistance received by each State so as to include American Samoa, Guam, Commonwealth of the Northern Mariana Islands, Commonwealth of Puerto Rico, and the Virgin Islands. Further, DOE is amending the Weatherization Assistance Program regulations consistent with recent statutory amendments in the American Recovery and Reinvestment Act of 2009.

DATES: This final rule is effective March 25, 2009, and applicable on March 12, 2009.

FOR FURTHER INFORMATION CONTACT: Jean Diggs, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Weatherization Assistance Program, EE-2K, Room 6070, 1000

Independence Avenue, SW., Washington, DC 20585-0121, (202) 586-8506, e-mail: jean.diggs@ee.doe.gov, or Chris Calamita, U.S. Department of Energy, Office of the General Counsel, Forrestal Building, GC-72, 1000 Independence Avenue, SW., Washington, DC 20585, (202) 586-9507, e-mail: Christopher.Calamita@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

- I. Introduction
- II. Definition of "State"
- III. Allocation of Funds
- IV. American Recovery and Reinvestment Act of 2009
- V. Effective Date
- VI. Regulatory Analysis
- VII. Congressional Notification
- VIII. Approval of the Office of the Secretary

I. Introduction

Sections 411-418 of the Energy Conservation and Production Act established the Weatherization Assistance Program for Low-Income Persons (Weatherization Assistance Program). (42 U.S.C. 6861 *et seq.*) The Weatherization Assistance Program reduces energy costs for low-income households by increasing the energy efficiency of their homes, while promoting their health and safety. DOE works in partnership with State- and local-level agencies to implement the Weatherization Assistance Program. DOE's Project Management Center awards grants to State-level agencies, which then contract with local agencies.

DOE issued a notice of proposed rulemaking (NOPR) to amend the Weatherization Assistance Program regulations consistent with amendments to the Energy Conservation and Production Act under the Energy Independence and Security Act of 2007 (Pub. L. No. 110-140; December 19, 2007). (73 FR 79414; December 29, 2008) The Energy Independence and Security Act of 2007 amended the Weatherization Assistance Program definition of "State" to include the Commonwealth of Puerto Rico and the other territories and possessions of the United States. Consistent with the statutory amendment, DOE proposed to amend the regulatory definition of "State," and to amend the allocation procedure relied on to calculate the amount of financial assistance received by each State so as to include American Samoa, Guam, Commonwealth of the Northern Mariana Islands,

Commonwealth of Puerto Rico, and the Virgin Islands.

DOE received one comment in response to the NOPR, from the Governor of the Virgin Islands. The comment was generally supportive of the rule as proposed. As explained in the remainder of this notice, DOE is adopting the NOPR as proposed. Further, DOE is making additional amendments to the Weatherization Assistance Program regulations consistent with the recent statutory changes in the American Recovery and Reinvestment Act of 2009 (Pub. L. No. 111-5).

II. Definition of "State"

DOE allocates financial assistance for weatherization to States and Indian tribes. 10 CFR 440.10 and 440.11. Section 411(c) of the Energy Independence and Security Act of 2007 amended section 412 of the Energy Conservation and Production Act to include under the definition of "State," the Commonwealth of Puerto Rico, and any other territory or possession of the United States. (42 U.S.C. 6862(8)) In the NOPR, DOE proposed to amend the regulatory definition of "State" under the Weatherization Program consistent with the statutory definition. As proposed the definition of "State" would include American Samoa, Guam, Commonwealth of the Northern Mariana Islands, Commonwealth of Puerto Rico, and the Virgin Islands (hereafter collectively referred to as the U.S. territories).

The amended statutory definition of "State" includes territories or possessions of the United States generally, which would indicate that the territories of Palmyra Atoll and Wake Atoll would also be included. However, as explained in the NOPR, the territories of Palmyra Atoll and Wake Atoll do not have significant permanent populations to warrant inclusion in the Weatherization Program. Palmyra Atoll is a national Wildlife Refuge and access to Wake Atoll is restricted. (See, <http://www.doi.gov/oia/Firstpginfo/islandfactsheet.htm>, last visited September 30, 2008.) The purpose of the Weatherization Assistance Program is to provide grants "for the purpose of providing financial assistance with regard to projects designed to provide for the weatherization of dwelling units, particularly those where elderly or

handicapped low-income persons reside, occupied by low-income families.” (42 U.S.C. 6863(a)) Further DOE must “allocate financial assistance to each State on the basis of the relative need for weatherization assistance among low-income persons throughout the States[.]” (42 U.S.C. 6864) The absence of permanent populations on Palmyra Atoll and Wake Atoll would make the inclusion of these Atolls superfluous. As such DOE did not propose to include the territories of Palmyra Atoll and Wake Atoll in the regulatory definition of State for the purpose of the Weatherization Assistance Program.

The comment from the Governor of the Virgin Islands supported inclusion of the U.S. territories in the definition of “State,” and urged DOE to finalize the revised definition in advance of distributing funds made available under the American Recovery and Reinvestment Act of 2009.

DOE has concluded that the rationale for the proposed definition remains valid. Therefore, DOE is amending the definition of “State,” as proposed, to mean each of the States, the District of Columbia, American Samoa, Guam, Commonwealth of the Northern Mariana Islands, Commonwealth of Puerto Rico, and the Virgin Islands.

III. Allocation of Funds

Each year Congress appropriates funds to implement the Weatherization Assistance Program. A portion of the appropriated funds is used for training and technical assistance. The remaining funds, comprising the majority of the appropriated funds, are distributed to the States as program funds based on a two-part allocation.

From the total appropriation, DOE reserves funds for national training and technical assistance (T&TA) activities that benefit all States. In addition, DOE specifically allocates funding to States for T&TA activities at both the State and local levels. Prior to the American Recovery and Reinvestment Act of 2009, the total funds for national, State, and local T&TA could not exceed 10 percent of the Congressional appropriation. Section 407 of the American Recovery and Reinvestment Act of 2009 increased the percent of funds eligible for T&TA to up to 20 percent. (42 U.S.C. 6866) The remaining funds comprise the State program allocations.

If the State program allocations in a fiscal year (FY) are at or above the amount allocated to States in FY 1994 under Public Law No. 103-332 (September 30, 1994) (i.e., the funds made available to the Weatherization Assistance Program minus funds for

T&TA, which equaled \$209,724,761) the State program allocations are distributed according to a two-part allocation procedure. Should total funds for State program allocation fall below \$209,724,761, the allocations to States are reduced proportionally. See 10 CFR 440.10(c).

The two-part allocation is comprised of a base allocation plus a formula allocation. See 10 CFR 440.10(b). The base allocation for each State is fixed, but differs for each State and was derived from each State’s allocation under the appropriations for FY 1993.¹ The base allocation was developed to minimize fluctuations in funds received by States between fiscal years resulting from changes in the total amount of appropriated funds received for the Weatherization Assistance Program. The base allocation was established in response to concern that substantial fluctuation between annual funds could disrupt a State’s program.

Under the two-part allocation, funds in excess of the total base allocation are allocated among States according to the formula allocation set forth in 10 CFR 440.10(b)(3). A State’s formula allocation is based on three factors for each State. Factor 1, Low-Income Population, represents the share of the nation’s low-income households in each State expressed as a percentage of all U.S. low-income households. Factor 2, Climatic Conditions, is obtained from the heating and cooling degrees for each State, treating the energy needed for heating and cooling proportionately. Factor 3, Residential Energy Expenditures by Low-Income Households in each State, is an approximation of the financial burden that energy use places on low-income households. The approximation is necessary because State-specific data on residential energy expenditures by low-income households is generally lacking.

In the NPR, DOE proposed to revise how funds are allocated under the Weatherization Assistance Program so as to include the U.S. territories. The proposed revisions were based on a method for determining the base and formula allocation for the U.S. territories that was consistent with how the current allocation method for States was developed.

Essentially, the Department followed the development process used in 1995 to establish the existing allocation method (i.e., basing the allocation formula on FY 1994 allocation) under

¹ Calculation of each State’s share of the funds was based on a formula different from that in the current regulations. See, 60 FR 4480, 4482; January 23, 1995.

the assumption that at that time the U.S. territories were included in the Weatherization Assistance Program. DOE recognized that the data used to calculate a State’s share of the funds under the 1995 rulemaking are not available for the U.S. territories. Therefore, DOE proposed to use Hawaii’s information for the U.S. territories. Similar to Hawaii, the U.S. territories are in hot climates with virtually no heating load, are all islands, and share a common main fuel type used in low-income households, electricity.

A. Allocation Threshold

As discussed in the previous paragraphs, the allocation of funding under the Weatherization Assistance Program is dependent first upon whether the total funds available for allocation to the States (excluding funds for T&TA) are at or above the level made available under Public Law No. 103-322, i.e., \$209,724,761. In order to make the regulations clearer, the Department is replacing the references in 10 CFR part 440 to the “total program allocations under Public Law No. 103-322” with the actual dollar value. This amendment does not impact the allocation process, and is solely for the purpose of making the current regulation easier to read and understand.

B. Base Allocation

To reflect the addition of the U.S. territories to the Weatherization Assistance Program, DOE is revising the base allocation to include the newly added jurisdictions, as proposed. As discussed previously, DOE relied on Hawaii’s base allocation (\$120,000) as the base allocation for the U.S. territories. This revision does not reduce the base allocation amount for any State, but instead increases the total base allocation value so as to include the U.S. territories.

The comment from the Governor of the Virgin Islands supported the use of data from Hawaii, although indicated that such data could be made available for the Virgin Islands. However, such data was not provided as part of the comment.

For the reasons expressed in the NPR and in this Final Rule, DOE is adopting the Base Allocation as proposed.

C. Formula Allocation

In addition to a base allocation, DOE will now allocate weatherization funds to the U.S. territories through the formula allocation. Essentially, the weatherization funds will be based on

the U.S. territories' (1) Number of low-income households (10 CFR 440.10(b)(3)(i)), (2) number of "heating degree" and "cooling degree" days (10 CFR 440.10(b)(3)(ii) and (iii)), and (3) average residential household energy expenditures (10 CFR 440.10(b)(3)(v)). DOE recognizes that data for the third factor of the formula allocation, i.e., average residential household energy expenditures, may not be available for all the U.S. territories. In the instances in which DOE does not have such data, DOE will again rely on comparable data from a comparable State, i.e., Hawaii, as proposed. This approach does not require revisions to the regulatory text for the formula allocation.

IV. American Recovery and Reinvestment Act of 2009

Section 407 of the American Recovery and Reinvestment Act of 2009 amended several of the Weatherization Assistance Program provisions in the Energy Conservation and Production Act. The amendments under section 407—

- Increased the referenced percentage of the poverty level in the definition of "low income" from 150 percent to 200 percent (42 U.S.C. 6862(7));
- Increased the limit on the minimum average expenditure per dwelling unit from \$2,500 to \$6,500 (42 U.S.C. 6865(c)(1));
- Increased the maximum amount of appropriated funds that the Department may apply towards T&TA from 10 percent of the appropriated sums to 20 percent (42 U.S.C. 6866); and
- Extended eligibility for further financial assistance to dwelling units that had been partially weatherized under a Federal program from September 30, 1975, through September 30, 1994.

The first three of these amendments under section 407 of the American Recovery and Reinvestment Act of 2009 require updates to the Weatherization Assistance Program regulations. Today's final rule amends the regulations consistent with these changes. The time period for previously received financial assistance as it relates to dwelling eligibility is governed by the statute and is not reflected in regulation, and as such there is no existing regulation to update.

DOE finds that there is good cause to amend the Weatherization Assistance Program regulations consistent with the American Recovery and Reinvestment Act of 2009 without providing an opportunity for notice and comment as such procedures are unnecessary. DOE is establishing the maximum percent of poverty level referenced in the definition of "low income," the

maximum permitted expenditure per dwelling, or the maximum percent of funds permitted to be used for T&TA in accordance with the specific provisions of the statute. DOE is exercising no discretion in codifying these provisions and does not have the authority to amend the specific aspects of these provisions. Thus, no useful purpose would be served by offering an opportunity for public comment.

V. Effective Date

Today's final rule is effective on March 25, 2009. Pursuant to 5 U.S.C. 553(d)(3), the Department finds good cause that the effective date of this final rule need not be delayed. In the American Recovery and Reinvestment Act of 2009 Congress appropriated \$5 billion for the Weatherization Assistance Program. The stated purposes of the American Recovery and Reinvestment Act of 2009 are—

- (1) To preserve and create jobs and promote economic recovery.
- (2) To assist those most impacted by the recession.
- (3) To provide investments needed to increase economic efficiency by spurring technological advances in science and health.
- (4) To invest in transportation, environmental protection, and other infrastructure that will provide long-term economic benefits.
- (5) To stabilize State and local government budgets, in order to minimize and avoid reductions in essential services and counterproductive state and local tax increases. (Section 3(a), Pub. L. No. 11–5) Moreover, Congress directed the agencies to manage and expend the funds made available so as to achieve the specified purposes, including commencing expenditures and activities as quickly as possible consistent with prudent management. (Section 3(b), Pub. L. No. 11–5) A delay in the effective date of today's final rule would delay the allocation of weatherization assistance funds to the States including the U.S. territories.² DOE believes it would be contrary to the public interest to delay the allocation of weatherization funds made available under the American Recovery and Reinvestment Act of 2009. Thus, a delay to the final rule would be inconsistent with the

²The comment from the Governor of the Virgin Islands encouraged DOE to apply the amended definition and allocation formula to funds made available under the Consolidated Security, Disaster Assistance, and Continuing Appropriations Act, 2009 (Pub. L. No. 110–329; September 30, 2008). Today's final rule will apply to fund allocation determinations made following the issuance date of today's final rule.

Congressional direction to commence expenditures as quickly as possible, and thereby unnecessary, impracticable, and contrary to public interest. For the reasons stated above, DOE finds good cause, pursuant to 5 U.S.C. 553(d)(3), to waive the 30-day delay in effective date required by the rulemaking provisions of the Administrative Procedures Act.

VI. Regulatory Analysis

A. Review under Executive Order 12866

Today's final rule is not a significant regulatory action under section 3(f)(1) of Executive Order 12866, "Regulatory Planning and Review" (58 FR 51735; October 4, 1993). Accordingly, today's action was not subject to review by the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget (OMB).

B. Review under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires the preparation of an initial regulatory flexibility analysis for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. As required by Executive Order 13272, "Proper Consideration of Small Entities in Agency Rulemaking," (67 FR 53461; August 16, 2002), DOE published procedures and policies on February 19, 2003, to ensure that the potential impacts of its rules on small entities are properly considered during the rulemaking process (68 FR 7990). DOE has made its procedures and policies available on the Office of General Counsel's Web site: <http://www.gc.doe.gov>.

DOE has reviewed today's final rule for the Weatherization Assistance Program under the provisions of the Regulatory Flexibility Act. Today's final rule incorporates statutory changes made to the Weatherization Assistance Program. The amendments include the U.S. territories in the Weatherization Assistance Program to the same extent as States are currently included. This rule will directly affect States and individual recipients of assistance. It will not have an economic impact on small entities. On this basis, DOE certifies that today's final rule will not have a significant economic impact on a substantial number of small entities. Accordingly, DOE has not prepared a regulatory flexibility analysis for this rulemaking.

C. Review Under the National Environmental Policy Act of 1969

DOE has determined that today's final rule is covered under the Categorical Exclusion found in DOE's National Environmental Policy Act regulations at paragraph A.6. of Appendix A to subpart D, 10 CFR part 1021. That Categorical Exclusion applies to rulemakings that are strictly procedural, such as rulemaking establishing the administration of grants. Today's final rule establishes the procedure for allocating funds under the Weatherization Assistance Program so as to cover, in addition to the States and the District of Columbia, the U.S. territories. The regulations will not have any independent environmental impact. Accordingly, DOE has not prepared an environmental assessment or an environmental impact statement.

D. Review Under Executive Order 13132, "Federalism"

Executive Order 13132, 64 FR 43255 (August 4, 1999), imposes certain requirements on agencies formulating and implementing policies or regulations that pre-empt State law or that have federalism implications. Agencies are required to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and carefully assess the necessity for such actions. DOE has examined today's final rule and has determined that it will not pre-empt State law and will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. No further action is required by Executive Order 13132.

E. Review Under Executive Order 12988

With respect to the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, Civil Justice Reform, 61 FR 4729 (February 7, 1996), imposes on Executive agencies the general duty to adhere to the following requirements: (1) Eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; and (3) provide a clear legal standard for affected conduct rather than a general standard and promote simplification and burden reduction. The review required by sections 3(a) and 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the pre-

emptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether they are met or it is unreasonable to meet one or more of them.

DOE has completed the required review and determined that, to the extent permitted by law, today's final rule meets the relevant standards of Executive Order 12988.

F. Review Under the Unfunded Mandates Reform Act of 1995

The Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4) generally requires Federal agencies to examine closely the impacts of regulatory actions on State, local, and tribal governments. Subsection 101(5) of Title I of that law defines a Federal intergovernmental mandate to include any regulation that would impose upon State, local, or tribal governments an enforceable duty, except a condition of Federal assistance or a duty arising from participating in a voluntary Federal program. Title II of that law requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and tribal governments, in the aggregate, or to the private sector, other than to the extent such actions merely incorporate requirements specifically set forth in a statute. Section 202 of that title requires a Federal agency to perform a detailed assessment of the anticipated costs and benefits of any rule that includes a Federal mandate which may result in costs to State, local, or tribal governments, or to the private sector, of \$100 million or more. Section 204 of that title requires each agency that proposes a rule containing a significant Federal intergovernmental mandate to develop an effective process for obtaining meaningful and timely input from elected officers of State, local, and tribal governments.

Today's final rule will not impose a Federal mandate on State, local or tribal governments, and it will not result in the expenditure by State, local, and tribal governments in the aggregate, or by the private sector, of \$100 million or more in any one year. Accordingly, no assessment or analysis is required under

the Unfunded Mandates Reform Act of 1995.

G. Review Under the Treasury and General Government Appropriations Act of 1999

Section 654 of the Treasury and General Government Appropriations Act of 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. Today's final rule will not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

H. Review Under the Treasury and General Government Appropriations Act of 2001

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516, note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (February 22, 2002), and DOE's guidelines were published at 67 FR 62446 (October 7, 2002). DOE has reviewed today's final rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

I. Review Under Executive Order 13211

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to the OMB a Statement of Energy Effects for any proposed significant energy action. A "significant energy action" is defined as any action by an agency that promulgated or is expected to lead to promulgation of a final rule, and that: (1) Is a significant regulatory action under Executive Order 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy, or (3) is designated by the Administrator of the Office of Information and Regulatory Affairs (OIRA) as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use, should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

Today's regulatory action will not have a significant adverse effect on the supply, distribution, or use of energy and is therefore not a significant energy action. Accordingly, DOE has not prepared a Statement of Energy Effects.

J. Review Under Executive Order 13175

Executive Order 13175. "Consultation and Coordination with Indian Tribal Governments" (65 FR 67249; November 9, 2000), requires DOE to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." "Policies that have tribal implications" refers to regulations that have "substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes." Today's regulatory action is not a policy that has "tribal implications" under Executive Order 13175.

Under the Weatherization Assistance Program, a tribal organization may qualify as a unit of general purpose local government and, therefore, be eligible to apply for funds. See 10 CFR 440.11. Today's regulatory action will not change the eligibility of Indian tribes to apply for or receive funds under the Weatherization Assistance Program. Today's regulatory action will include the U.S. territories in the allocation of available funds. DOE has reviewed today's final rule under Executive Order 13175 and has determined that it is consistent with applicable policies of that Executive Order.

VII. Congressional Notification

As required by 5 U.S.C. 801, DOE will report to Congress on the promulgation of this rule prior to its effective date. The report will state that it has been determined that the rule is not a "major rule" as defined by 5 U.S.C. 804(2).

VIII. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of today's final rule.

List of Subjects in 10 CFR Part 440

Administrative practice and procedure, Energy conservation, Grant programs—energy, Grant programs—housing and community development, Housing standards, Indians, Individuals with disabilities, Reporting and record keeping requirements, Weatherization.

Issued in Washington, DC, on March 12, 2009.

Steve Chalk,

Acting Assistant Secretary, Energy Efficiency and Renewable Energy.

■ For the reasons set forth in the preamble, DOE amends part 440 of chapter II of title 10, Code of Federal Regulations, to read as follows:

PART 440—WEATHERIZATION ASSISTANCE PROGRAM FOR LOW-INCOME PERSONS

■ 1. The authority citation for Part 440 continues to read as follows:

Authority: 42 U.S.C. 6861 *et seq.*; 42 U.S.C. 7101 *et seq.*

■ 2. Section 440.3 is amended by revising the definitions of "low income" and "State" to read as follows:

§ 440.3 Definitions.

* * * * *

Low Income means that income in relation to family size which:

(1) At or below 200 percent of the poverty level determined in accordance with criteria established by the Director of the Office of Management and Budget, except that the Secretary may establish a higher level if the Secretary, after consulting with the Secretary of Agriculture and the Secretary of Health and Human Services, determines that such a higher level is necessary to carry out the purposes of this part and is consistent with the eligibility criteria established for the weatherization program under Section 222(a)(12) of the Economic Opportunity Act of 1964;

(2) Is the basis on which cash assistance payments have been paid during the preceding twelve month-period under Titles IV and XVI of the Social Security Act or applicable State or local law; or

(3) If a State elects, is the basis for eligibility for assistance under the Low Income Home Energy Assistance Act of 1981, provided that such basis is at least 200 percent of the poverty level determined in accordance with criteria established by the Director of the Office of Management and Budget.

* * * * *

State means each of the States, the District of Columbia, American Samoa, Guam, Commonwealth of the Northern Mariana Islands, Commonwealth of Puerto Rico, and the Virgin Islands.

* * * * *

■ 3. Section 440.10 is amended by:

■ a. Removing the phrase "total program allocations under Pub. L. 103-332" in paragraph (b) introductory text and adding in its place "\$209,724,761";

■ b. Revising Table 1 in paragraph (b)(1) and paragraph (c) to read as follows:

§ 440.10 Allocation of funds.

* * * * *

(b) * * *

(1) * * *

BASE ALLOCATION TABLE

State	Base allocation
Alabama	\$1,636,000
Alaska	1,425,000
Arizona	760,000
Arkansas	1,417,000
California	4,404,000
Colorado	4,574,000
Connecticut	1,887,000
Delaware	409,000
District of Columbia	487,000
Florida	761,000
Georgia	1,844,000
Hawaii	120,000
Idaho	1,618,000
Illinois	10,717,000
Indiana	5,156,000
Iowa	4,032,000
Kansas	1,925,000
Kentucky	3,615,000
Louisiana	912,000
Maine	2,493,000
Maryland	1,963,000
Massachusetts	5,111,000
Michigan	12,346,000
Minnesota	8,342,000
Mississippi	1,094,000
Missouri	4,615,000
Montana	2,123,000
Nebraska	2,013,000
Nevada	586,000
New Hampshire	1,193,000
New Jersey	3,775,000
New Mexico	1,519,000
New York	15,302,000
North Carolina	2,853,000
North Dakota	2,105,000
Ohio	10,665,000
Oklahoma	1,846,000
Oregon	2,320,000
Pennsylvania	11,457,000
Rhode Island	878,000
South Carolina	1,130,000
South Dakota	1,561,000
Tennessee	3,218,000
Texas	2,999,000
Utah	1,692,000
Vermont	1,014,000
Virginia	2,970,000
Washington	3,775,000
West Virginia	2,573,000
Wisconsin	7,061,000
Wyoming	967,000
American Samoa	120,000
Guam	120,000
Puerto Rico	120,000
Northern Mariana Islands	120,000
Virgin Islands	120,000
Total	171,858,000

* * * * *

(c) Should total program allocations for any fiscal year fall below \$209,724,761, then each State's program allocation shall be reduced from its allocated amount under a total program allocation of \$209,724,761 by the same

percentage as total program allocations for the fiscal year fall below \$209,724,761.

* * * * *

■ 4. Section 440.18 is amended by revising paragraphs (a) and (c) introductory text to read as follows:

§ 440.18 Allowable expenditures.

(a) Except as adjusted, the expenditure of financial assistance provided under this part for labor, weatherization materials, and related matters included in paragraphs (c)(1) through (9) of this section shall not exceed an average of \$6,500 per dwelling unit weatherized in the State, except as adjusted in paragraph (c) of this section.

* * * * *

(c) The \$6,500 average will be adjusted annually by DOE beginning in calendar year 2010 and the \$3,000 average for renewable energy systems will be adjusted annually by DOE beginning in calendar year 2007, by increasing the limitations by an amount equal to:

* * * * *

■ 5. Section 440.22 is amended by revising paragraph (a) to read as follows:

§ 440.22 Eligible dwelling units.

(a) A dwelling unit shall be eligible for weatherization assistance under this part if it is occupied by a family unit:

(1) Whose income is at or below 200 percent of the poverty level determined in accordance with criteria established by the Director of the Office of Management and Budget,

(2) Which contains a member who has received cash assistance payments under Title IV or XVI of the Social Security Act or applicable State or local law at any time during the 12-month period preceding the determination of eligibility for weatherization assistance; or

(3) If the State elects, is eligible for assistance under the Low-Income Home Energy Assistance Act of 1981, provided that such basis is at least 200 percent of the poverty level determined in accordance with criteria established by the Director of the Office of Management and Budget.

* * * * *

■ 6. Section 440.23 is amended by revising paragraph (e) to read as follows:

§ 440.23 Oversight, training, and technical assistance.

* * * * *

(e) The Secretary may reserve from the funds appropriated for any fiscal year an amount not to exceed 20 percent to provide, directly or indirectly,

training and technical assistance to any grantee or subgrantee. Such training and technical assistance may include providing information concerning conservation practices to occupants of eligible dwelling units.

[FR Doc. E9-6628 Filed 3-24-09; 8:45 am]

BILLING CODE 6450-01-P

DEPARTMENT OF ENERGY

Federal Energy Regulatory Commission

18 CFR Part 37

[Docket Nos. RM05-17-004 and RM05-25-004; Order No. 890-C]

Preventing Undue Discrimination and Preference in Transmission Service

March 19, 2009.

AGENCY: Federal Energy Regulatory Commission.

ACTION: Order on Rehearing and Clarification.

SUMMARY: The Federal Energy Regulatory Commission affirms its basic determinations in Order Nos. 890, 890-A and 890-B, granting rehearing and clarification regarding certain revisions to its regulations and the *pro forma* open-access transmission tariff, or OATT, adopted in Order Nos. 888 and 889 to ensure that transmission services are provided on a basis that is just, reasonable, and not unduly discriminatory. The Commission grants clarification of the degree of consistency required in the calculation of available transfer capability by transmission providers and denies rehearing regarding the requirement to undesignate network resources used to serve off-system sales

DATES: *Effective Date:* This rule will become effective March 25, 2009.

FOR FURTHER INFORMATION CONTACT: W. Mason Emmett, Office of the General Counsel—Energy Markets, Federal Energy Regulatory Commission, 888 First Street, NE., Washington, DC 20426, (202) 502-6540.

SUPPLEMENTARY INFORMATION:

Before Commissioners: Jon Wellinghoff, Acting Chairman; Suedeem G. Kelly, Marc Spitzer, and Philip D. Moeller.

1. On February 16, 2007, the Commission issued Order No. 890,¹

¹ *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, 72 FR 12,266 (March 15, 2007), FERC Stats. & Regs. ¶ 31,241, *order on reh'g*, Order No. 890-A, 73 FR 2984 (January 16, 2008), FERC Stats. & Regs. ¶ 31,261 (2007), *order on reh'g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008).

addressing and remedying opportunities for undue discrimination under the *pro forma* Open Access Transmission Tariff (OATT) adopted in Order No. 888.² The *pro forma* OATT was intended to foster greater competition in wholesale power markets by reducing barriers to entry in the provision of transmission service. In the ten years since Order No. 888, however, flaws in the *pro forma* OATT undermined its ability to realize the core objective of remedying undue discrimination. The Commission acted in Order No. 890 to correct these flaws by reforming the terms and conditions of the *pro forma* OATT in several critical areas, including the calculation of available transfer capability (ATC), the planning of transmission facilities, and the conditions of services offered by each transmission provider.

2. In Order Nos. 890-A and 890-B, the Commission largely affirmed the reforms adopted in Order No. 890. The Commission concluded that, taken together, these reforms will better enable the *pro forma* OATT to achieve the core objective of remedying undue discrimination in the provision of transmission service. The Commission did, however, grant rehearing and clarification regarding certain revisions to its regulations and the *pro forma* OATT. NorthWestern Corporation (NorthWestern) and South Carolina Electric and Gas Co. (SCE&G) have requested further rehearing and clarification of Order No. 890-B on certain discrete issues, which we address below.

I. Reforms of the OATT

A. Consistency and Transparency of ATC Calculations

3. In Order No. 890-B, the Commission among other things affirmed a clarification provided in Order No. 890-A that adjacent transmission providers must coordinate and exchange data and assumptions to achieve consistent available transfer capability (ATC) values on either side of a single interface.³ The Commission stated that it disagreed with petitioners arguing that consistent ATC values

² *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, 61 FR 21,540 (May 10, 1996), FERC Stats. & Regs. ¶ 31,026 (1996), *order on reh'g*, Order No. 888-A, 62 FR 12,274 (Mar. 14, 1997), FERC Stats. & Regs. ¶ 31,048 (1997), *order on reh'g*, Order No. 888-B, 81 FERC ¶ 61,248 (1997), *order on reh'g*, Order No. 888-C, 82 FERC ¶ 61,046 (1998), *aff'd in relevant part sub nom. Transmission Access Policy Study Group v. FERC*, 225 F.3d 667 (DC Cir. 2000)(*TAPS v. FERC*), *aff'd sub nom. New York v. FERC*, 535 U.S. 1 (2002).

³ Order No. 890-B at P 15.

APPENDIX A—STANDARDS FOR WEATHERIZATION MATERIALS

If the standards listed in this appendix conflict with those required by current local codes, the local code shall have precedence and a copy of the applicable section will be retained with procurement records.

The following Government standards are produced by the Consumer Product Safety Commission and are published in title 16, Code of Federal Regulations:

Thermal Insulating Materials for Building Elements Including Walls, Floors, Ceilings, Attics, and Roofs Insulation—organic fiber—conformance to Interim Safety Standard in 16 CFR part 1209;

Fire Safety Requirements for Thermal Insulating Materials According to Insulation Use—Attic Floor—insulation materials intended for exposed use in attic floors shall be capable of meeting the same flammability requirements given for cellulose insulation in 16 CFR part 1209;

Enclosed spaces—insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting smoldering combustion requirements in 16 CFR part 1209.

The following standards which are not otherwise set forth in part 440 are incorporated by reference and made part of part 440. The following standards have been approved for incorporation by reference by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on January 3, 2002 and a notice of any change in these materials will be published in the FEDERAL REGISTER. The standards incorporated by reference are available for inspection at the Office of the Federal Register Information Center, 800 North Capitol Street, Suite 700, Washington, DC 20001.

The standards incorporated by reference in part 440 can be obtained from the following sources:

Air Conditioning and Refrigeration Institute, 4301 N. Fairfax Drive, Suite 425, Arlington, VA 22203; (703) 524-8800.
American Architectural Manufacturers Association, 1827 Walden Office Square, Suite 104, Schaumburg, Illinois 60173-4268; (847) 303-5664.
American Gas Association, 400 N. Capitol Street, NW, Washington, DC 20001; (202) 824-7000.
American National Standards Institute, Inc., 11 West 42nd Street, New York, NY 10036; (212) 642-4900.
American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990; (212) 591-7722.

American Society for Testing and Materials, 100 Bar Harbor Drive, West Conshohocken, PA 19428-2959; (610) 832-9585.

Association of Home Appliance Manufacturers, 1111 19th Street, NW, Suite 402, Washington DC, 20036; (202) 872-5955.

Federal Specifications, General Services Administration, General Services Administration, Federal Supply Service, Office of the CIO and Marketing Division, Room 800, 1941 Jefferson Davis Hwy., Arlington, VA 22202; (703) 305-6288.

Gas Appliance Manufacturers Association, 2107 Wilson Boulevard, Suite 600, Arlington, Virginia 22201; (703) 525-7060.

National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1847, Rosslyn, VA 22209; (703) 841-3200.

National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101; (617) 770-3000.

Sheet Metal and Air Conditioning Contractors Association, 4201 Lafayette Center Drive, Chantilly, Virginia 20151-1209; (703) 803-2980.

Solar Rating and Certification Corporation, c/o FSEC, 1679 Clearlake Road, Cocoa, FL 32922-5703; (321) 638-1537.

Steel Door Institute, 30200 Detroit Road, Cleveland, OH 44145-1967; (440) 899-0010.

Steel Window Institute, 1300 Sumner Avenue, Cleveland, OH 44115-2851; (216) 241-7333.

Tubular Exchanger Manufacturers Association, 25 North Broadway, Tarrytown, NY 10591; (914) 322-0040.

Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096; (847) 272-8800.

Window & Door Manufacturers Association, 1400 East Touhy Avenue, Suite 470, Des Plaines, IL 60018; (800) 223-2301.

More information regarding the standards in this reference can be obtained from the following sources:
Environmental Protection Agency, 401 M Street, NW, Washington, DC 20006; (202) 554-1080.

National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, MD 20899; (301) 975-2000.

Weatherization Assistance Program, Office of Building Technology Assistance, Energy Efficiency and Renewable Energy, 1000 Independence Avenue, SW, EE-42, Washington, DC 20585-0121; (202) 586-4074.

THERMAL INSULATING MATERIALS FOR BUILDING ELEMENTS INCLUDING WALLS, FLOORS, CEILINGS, ATTICS, AND ROOFS

[Standards for conformance]

Insulation--mineral fiber:	
Blanket insulation	ASTM ¹ C665-98.
Roof insulation board	ASTM C726-00a.
Loose-fill insulation	ASTM C764-99.
Insulation--mineral cellular:	
Vermiculite loose-fill insulation	ASTM C516-80 (1996)e1.
Perlite loose-fill insulation .	ASTM C549-81 (1995)e1.
Cellular glass insulation block	ASTM C552-00.
Perlite insulation board . . .	ASTM C728-97.
Insulation--organic fiber:	
Cellulosic fiber insulating board	ASTM C208-95.
Cellulose loose-fill insulation	ASTM C739-00.
Cellulose wet-spray insulation	ASTM C1149-97.
Insulation--organic cellular:	
Preformed block-type polystyrene insulation	ASTM C578-95.
Rigid preformed polyurethane insulation board	ASTM C591-00.
Polyurethane or polyisocyanurate insulation board face with aluminum foil on both sides	FS ² HH-I-1972/1 (1981).
Polyurethane or polyisocyanurate insulation board face with felt on both sides	FS HH-I-1972/2 (1981) and Amendment 1, October 3, 1985).
Insulation--composite boards:	
Mineral fiber insulation board	ASTM C726-00a.
Perlite board	ASTM C728-97.
Gypsum board and polyurethane or polyisocyanurate composite board	FS HH-I-1972/4 (1981).

¹ ASTM indicates American Society for Testing and Materials.

² FS indicates Federal Specifications.

THERMAL INSULATING MATERIALS FOR BUILDING ELEMENTS INCLUDING WALLS, FLOORS, CEILINGS, ATTICS, AND ROOFS--Continued

[Standards for conformance]

Materials used as a patch to reduce infiltration through the building envelope	Commercially available.
THERMAL INSULATING MATERIALS FOR PIPES, DUCTS, AND EQUIPMENT SUCH AS BOILERS AND FURNACES	
[Standards for conformance]	
Insulation--mineral fiber:	
Preformed pipe insulation .	ASTM ¹ C547-00.
Blanket and felt insulation (industrial type)	ASTM C553-00.
Blanket insulation and blanket type pipe insulation (metal-mesh covered, industrial type)	ASTM C592-00.
Block and board insulation	ASTM C612-00.
Spray applied mineral fiber thermal and sound absorbing insulation	ASTM C1014-99ae1.
High-temperature fiber blanket insulation	ASTM C892-00.
Duct work insulation	ASTM C1290-00.
Insulation--mineral cellular:	
Calcium silicate block and pipe insulation	ASTM C533-95.
Cellular glass insulation . .	ASTM C552-00.
Expanded perlite block and pipe insulation	ASTM C610-99.
Insulation--organic cellular:	
Preformed flexible elastomeric cellular insulation in sheet and tubular form	ASTM C534-99.
Unfaced preformed rigid cellular polyurethane insulation	ASTM C591-00.
Insulation skirting	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

FIRE SAFETY REQUIREMENTS FOR INSULATING MATERIALS ACCORDING TO INSULATION USE

[Standards for conformance]

Attic floor	Insulation materials intended for exposed use in attic floors shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM ¹ C739-00.
Enclosed space	Insulation materials intended for use within enclosed stud or joist spaces shall be capable of meeting the same smoldering combustion requirements given for cellulose insulation in ASTM C739-00.
Exposed interior walls and ceilings	Insulation materials, including those with combustible facings, which remain exposed and serve as wall or ceiling interior finish, shall have a flame spread classification not to exceed 150 (per ASTM E84-00a).
Exterior envelope walls and roofs	Exterior envelope walls and roofs containing thermal insulation shall meet applicable local government building code requirements for the complete wall or roof assembly.
Pipes, ducts, and equipment	Insulation materials intended for use on pipes, ducts, and equipment shall be capable of meeting a flame spread classification not to exceed 150 (per ASTM E84-00a).

¹ ASTM indicates American Society for Testing and Materials.

STORM WINDOWS

[Standards for conformance]

Storm windows:	
All storm windows . .	AAMA/NWWDA ¹ 101/I.S. 2-97.
Aluminum frame storm windows	AAMA ² 1002.10-93.
Rigid vinyl frame storm windows	ASTM ³ D4726-00.
Frameless plastic glazing storm	Required minimum thickness for windows is 6 mil (0.006 inches). Commercially available.
Movable insulation systems for windows	

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² AAMA indicates American Architectural Manufacturers Association.

³ ASTM indicates American Society for Testing and Materials.

REPLACEMENT WINDOWS

[Standards for conformance]

Replacement windows:	
All windows	AAMA/NWWDA ¹ 101/I.S. 2-97.
Steel frame windows	Steel Window Institute recommended specifications for steel windows, 1990.
Rigid vinyl frame windows	ASTM ² D4726-00.

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² ASTM indicates American Society for Testing and Materials.

STORM DOORS

[Standards for conformance]

Storm doors:	
All storm (glass) doors	AAMA/NWWDA ¹ 101/I.S. 2-97.
Aluminum frame storm doors	AAMA ² 1102.7-89.
Sliding glass storm doors	AAMA 1002.10-93.
Rigid vinyl storm doors .	ASTM ³ D3678-97 and D4726-00..
Vestibules:	
Materials to construct vestibules	Commercially available.

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² AAMA indicates American Architectural Manufacturers Association.

³ ASTM indicates American Society for Testing and Materials.

REPLACEMENT DOORS

[Standards for conformance]

Replacement doors:	
All replacement doors	AAMA/NWWDA ¹ 101/I.S. 2-97.
Steel doors	ANSI ² A250.8-98.
Wood doors:	
Flush doors	ANSI/NWWDA ³ I.S. 1-97 (Amendment, exterior door provisions).
Stile and rail doors	NWWDA ⁴ I.S. 6-97.

¹ AAMA/NWWDA indicates American Architectural Manufacturers Association/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

² ANSI indicates American National Standards Institute.

³ ANSI/NWWDA indicates American National Standards Institute/National Wood Window & Door Association (now the Window & Door Manufacturers Association).

⁴ NWWDA indicates National Wood Window & Door Association (now the Window & Door Manufacturers Association).

CAULKS AND SEALANTS

[Standards for conformance]

Caulks and sealants:	
Glazing compounds for metal sash	ASTM ¹ C669-00.
Oil and resin base caulks	ASTM C570-00.
Acrylic (solvent types) sealants	ASTM C920-98e1.
Butyl rubber sealants	FS ² Commercial Item Description A-A-272 (6/7/95).
Chlorosulfonated polyethylene sealants	ASTM C920-98e1.
Latex sealing compounds	ASTM C834-00e1.
Elastomeric joint sealants (normally considered to include polysulfide, polyurethane, and silicone)	ASTM C920-98e1.
Preformed gaskets and sealing materials	ASTM C509-00.
Duct sealing mastic	UL ³ 181A-M, Second Edition, 1994 and UL 181B-M, First Edition, 1995.

¹ ASTM indicates American Society for Testing and Materials.

² FS indicates Federal Specifications.

³ UL indicates Underwriters Laboratories.

WEATHERSTRIPPING

[Standards for conformance]

Weatherstripping	Commercially available. Selected according to the provisions cited in ASTM ¹ C755-97. Permeance not greater than 1 perm when determined according to the desiccant method described in ASTM E96-00.
Vapor retarders	
Items to improve attic ventilation	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

BOILER/FURNACE CONTROL SYSTEMS

[Standards for conformance]

Automatic set back thermostats	Listed by UL ¹ . Conformance to NEMA ² DC3-1989 (R1996).
Line voltage or low voltage room thermostats	Listed by UL. Conformance to NEMA DC3-1989 (R1996).
Clock thermostats	Listed by UL. Conformance to NEMA DC3-1989 (R1996).
Automatic gas ignition systems	ANSI ³ Z21.21-2000. AGA ⁴ Laboratories Certification Seal.
Energy management systems	Listed by UL.
Hydronic boiler controls	Listed by UL.
Other burner controls . .	Listed by UL.

¹ UL indicates Underwriters Laboratories.

² NEMA indicates National Electrical Manufacturers Association.

³ ANSI indicates American National Standards Institute.

⁴ AGA indicates American Gas Association.

HEAT EXCHANGERS

[Standards for conformance]

Heat exchangers, water-to-water and steam-to-water	ASME ¹ Boiler and Pressure Vessel Code, 1998, Sections II, V, VIII, IX, and X, as applicable to pressure vessels. Standards of Tubular Exchanger Manufacturers Association, Eighth Edition, 1999.
Heat exchangers with gas-fired appliances ²	ANSI/UL ³ 462, Ninth Edition, approved by ANSI February 28, 1997.

¹ ASME indicates American Society for Mechanical Engineers.

² The heat reclaimer is for installation in a section of the vent connector from appliances equipped with draft hoods or appliances equipped with powered burners or induced draft and not equipped with a draft hood.

³ ANSI/UL indicates American National Standards Institute/Underwriters Laboratories.

WATER HEATER MODIFICATIONS

[Standards for conformance]

Insulate tank and distribution piping	(See insulation section of this appendix)
Install heat traps on inlet and outlet piping	Applicable local plumbing code.
Install/replace water heater heating elements	Listed by UL ¹ .
Electric, freeze-prevention tape for pipes	Listed by UL.
Install stack damper, gas-fueled	ANSI ² Z21.66-1996, including Exhibits A & B, and ANSI Z223.1-1999 (same as NFPA ³ 54-1999).
Install stack damper, oil-fueled	UL 17, Third Edition, 1994, NFPA 31-2001, NFPA 211-2000 (same as ANSI A52.1), and ANSI/NFPA 70-1999 (same as IEEE ⁴ National Electrical Code).
Install water flow modifiers	Commercially available.

¹ UL indicates Underwriters Laboratories.

² ANSI indicates American National Standards Institute.

³ NFPA indicates National Fire Prevention Association.

⁴ IEEE indicates Institute of Electrical and Electronics Engineers.

REPLACEMENT WATER HEATERS

[Standards for conformance]

Electric (resistance) water heaters	10 CFR ¹ 430 and UL ³ 174.
Heat pump water heaters	UL 1995, Second Edition, 1995. Electrical components to be listed by UL.
Gas water heaters: Rated ≤ 75 kBtu/hr . .	10 CFR 430 and ANSI ⁴ Z21.10.1-1998.
Rated ≥ 75 kBtu/hr . .	ANSI Z21.10.3-1998.
Oil water heaters	UL 732, Fifth Edition, 1995.

¹ CFR indicates Code of Federal Regulations.

² UL indicates Underwriters Laboratories.

³ ANSI indicates American National Standards Institute.

SOLAR WATER HEATING SYSTEMS

[Standards for conformance]

Solar water heating systems including forced circulation, integral collector storage, thermo-syphon, and self-pumping systems	System must be certified per SRCC ¹ OG 300, July 16, 1998.
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¹ SRCC indicates Solar Rating and Certification Corporation.

WASTE HEAT RECOVERY DEVICES

[Standards for conformance]

Desuperheater/water heaters	ARI ¹ 470-1995 and UL 1995, Second Edition, 1995.
Condensing heat exchangers	Commercially available components installed per manufacturers' specifications. NFPA ² 211-2000 (same as ANSI A52.1) may apply in certain instances. See also the Heat Exchangers section of this appendix.
Heat pump water heating heat recovery systems	UL 1995, Second Edition, 1995. Electrical components to be listed by UL.
Energy recovery equipment	Energy Systems Analysis and Management, 1997 (SMACNA ³).

¹ ARI indicates Air Conditioning and Refrigeration Institute.

² NFPA indicates National Fire Prevention Association.

³ SMACNA denotes Sheet Metal and Air Conditioning Contractors' National Association.

BOILER REPAIR AND

		BOILER REPAIR AND MODIFICATIONS/EFFICIENCY IMPROVEMENTS—Continued	
		[Standards for conformance]	
Install gas conversion burners	ANSI ¹ Z21.8-1994 (for gas- or oil-fired systems), ANSI Z21.17-1998, and ANSI Z223.1-1999 (same as NFPA 54-1999). AGA ² Laboratories Certification Seal.	Replace heat exchangers, tubes	Protection from flame contact with conversion burners by refractory shield.
Replace oil burner	UL ³ 296, Ninth Edition, 1994 and NFPA 31-2001.	Install/replace thermostatic radiator valves	Commercially available. One-pipe steam systems require air vents on each radiator; see manufacturers' requirements.
Install burners (oil/gas)	ANSI Z223.1-1999 for gas equipment and NFPA ⁴ 31-2001 for oil equipment.	Install boiler duty cycle control system	Commercially available. ANSI/NFPA 70-1999 (same as IEEE National Electrical Code) and local electrical code provisions for wiring.
Re-adjust boiler water temperature or install automatic boiler temperature reset control	ASME ⁵ CSD-1-1998, ANSI Z223.1-1999, and NFPA 31-2001.		
Replace/modify boilers	ASME Boiler and Pressure Vessel Code, 1998, Section II, IV, V, VI, VIII, IX, and X. Boilers must be Hydronics Institute Division of GAMA equipment.		
Clean heat exchanger, adjust burner air shutter(s), check smoke no. on oil-fueled equipment. Check operation of pump(s) and replacement filters.	Per manufacturers' instructions.		
Replace combustion chambers	Refractory linings may be required for conversions.		

¹ ANSI indicates American National Standards Institute.
² AGA indicates American Gas Association.
³ UL indicates Underwriters Laboratories.
⁴ NFPA indicates National Fire Prevention Association.
⁵ ASME indicates American Society for Mechanical Engineers.

HEATING AND COOLING SYSTEM REPAIRS AND
TUNE-UPS/EFFICIENCY IMPROVEMENTS
[Standards for conformance]

Install duct insulation . .	ASTM ¹ C612-00 (see insulation sections of this appendix).
Reduce Input of burner; derate gas-fueled equipment	Local utility company and procedures if applicable for gas-fueled furnaces and ANSI ² Z223.1-1999 (same as NFPA ³ 54-1999) including Appendix H.
Repair/replace oil-fired equipment	NFPA 31-2001.
Replace combustion chamber in oil-fired furnaces or boilers	NFPA 31-2001.
Clean heat exchanger and adjust burner; adjust air shutter and check CO ₂ and stack temperature. Clean or replace air filter on forced air furnace	ANSI Z223.1-1999 (same as NFPA 54-1999) including Appendix H.
Install vent dampers for gas-fueled heating systems	Applicable sections of ANSI Z223.1-1999 (same as NFPA 54-1999) including Appendix H, I, J, and K. ANSI Z21.66-1996 and Exhibits A&B for electrically operated dampers.
Install vent dampers for oil-fueled heating systems	Applicable sections of NFPA 31-2001 for installation and in conformance with UL ⁴ 17, Third Edition, 1994.

HEATING AND COOLING SYSTEM REPAIRS AND
TUNE-UPS/EFFICIENCY IMPROVEMENTS—Continued
[Standards for conformance]

Reduce excess combustion air: A: Reduce vent connector size of gas-fueled appliances B: Adjust barometric draft regulator for oil fuels	ANSI Z223.1-1999 (same as NFPA 54-1999) part 9 and Appendices G & H. NFPA 31-2001 and per furnace and boiler manufacturers' instructions. ANSI Z21.71-1993.
Replace constant burning pilot with electric ignition device on gas-fueled furnaces or boilers	ANSI Z21.71-1993.
Readjust fan switch on forced air gas-or oil-fueled furnaces	Applicable sections and Appendix H of ANSI Z223.1-1999 (same as NFPA 54-1999) for gas furnaces and NFPA 31-2001 for oil furnaces.
Replace burners	See install burners (oil/gas).
Install/replace duct furnaces (gas)	ANSI Z223.1-1999 (same as NFPA 54-1999).
Install/replace heat pumps	ARI ⁵ 210/240-1994. UL 1995, Second Edition, 1995. Commercially available.
Replace air diffusers, intakes, registers, and grilles	Commercially available.
Install/replace warm air heating metal ducts	UL 181, Ninth Edition 1996, including UL 181A, Second Edition 1994 and 181B, First Edition, 1995.
Filter alarm units	Commercially available.

¹ ASTM indicates American Society for Testing and Materials.

² ANSI indicates American National Standards Institute.

³ NFPA indicates National Fire Prevention Association.

⁴ UL indicates Underwriters Laboratories.

⁵ ARI indicates Air Conditioning and Refrigeration Institute.

REPLACEMENT FURNACES, BOILERS, AND
WOOD STOVES

[Standards for conformance]

Chimneys, fireplaces, vents and solid fuel burning appliances	NFPA ¹ 211-2000 (same as ANSI ² A52.1).
Gas-fired furnaces	ANSI Z21.47-1998 and ANSI Z223.1-1999 (same as NFPA 54- 1999).
Oil-fired furnaces	UL ³ 727, Eighth Edition, 1994 and NFPA 31- 2001.
Liquefied petroleum gas storage	NFPA 58-2001.
Ventilation fans: Including electric attic, ceiling, and whole-house fans	UL 507, Ninth Edition, 1999.

¹ NFPA indicates National Fire Prevention Association.
² ANSI indicates American National Standards Institute.
³ UL indicates Underwriters Laboratories.

SCREENS, WINDOW FILMS, AND REFLECTIVE
MATERIALS

[Standards for conformance]

Insect screens	Commercially available.
Window films	Commercially available.
Shade screens:	
Fiberglass shade screens	Commercially available.
Polyester shade screens	Commercially available.
Rigid awnings:	
Wood rigid awnings	Commercially available.
Metal rigid awnings .	Commercially available.
Louver systems:	
Wood louver awnings	Commercially available.
Metal louver awnings	Commercially available.
Industrial-grade white paint used as a heat- reflective measure on roofs, awnings, window louvers, doors, and exterior duct work (exposed)	Commercially available.

AIR CONDITIONERS AND COOLING EQUIPMENT

[Standards for conformance]

Air conditioners: Central air conditioners Room size units	ARI ¹ 210/240-1994. ANSI/AHAM ² RAC 1- 1992.
Other cooling equipment: Including evaporative coolers, heat pumps, and other equipment	UL ³ 1995, Second Edition, 1995.

¹ ARI indicates Air Conditioning and Refrigeration
Institute.
² ANSI/AHAM indicates American National Standards
Institute/Assodation of Home Appliance Manufacturers.
³ UL indicates Underwriters Laboratories.

REFRIGERATORS

[Standards for conformance]

Refrigerator/freezers (does not include freezer-only units)	UL ¹ 250. Replaced units must be disposed of properly per Clean Air Act 1990, Section 608, as amended by 40 CFR ² 82, May 14, 1993.
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¹ UL indicates Underwriters Laboratories.
² CFR indicates Code of Federal Regulations.

FLUORESCENT LAMPS AND FIXTURES

[Standards for conformance]

Compact fluorescent lamps	ANSI/UL ¹ 542, Seventh Edition, February 6, 1997 and UL 1993, First Edition, 1993.
Fluorescent lighting fixtures	UL 1570, Fourth Edition, 1995.

¹ ANSI/UL indicates American National Standards
Institute/Underwriters Laboratories.

CLIENT COMMUNICATION AND EDUCATION

Often, people's knowledge about energy and its uses is not very accurate. This is especially true of low-income persons, who tend to be less informed about energy. Research shows that residential energy use per square foot of living space is higher for the low-income than for the general population. This is due, in part, to differences in housing stock. However, it is also due to energy-related behaviors. This suggests that low-income persons can benefit from information about how energy is used in their homes and what actions would make the most difference in controlling their energy bills.

Client communication and education is very important throughout the entire process from the initial contact with the client to schedule the evaluation of the client's house through the time the work is being done on the house. Client communication is important for a number of reasons. Early in the process communication with the client will help in the following ways:

- It can provide information to the agency that could prevent unnecessary trips to the house (e.g. the house is for sale, has extensive roof damage, is being remodeled, etc.).
- It can help to decrease the amount of time it will take to do the evaluation by having the client move stored items ahead of time to ensure there is access to all areas of the house.
- It can make the weatherization process easier for evaluators and crews/contractors by ensuring client understanding of the weatherization process (e.g. a furnace contractor will come to inspect the furnace, siding may be removed in order to insulate the walls, a person will come to the house after the work is completed in order to inspect the work, etc.).
- It can make the weatherization process easier for evaluators and crews/contractors by ensuring client understanding of the services that will or will not be provided (e.g. will not replace all the windows, will not re-roof the house, will not paint the house, etc.).
- It can provide information that can assist the evaluator in determining how the house is working (e.g. cold areas in the house, moisture on windows, etc.).

Many client complaints are due to the fact that the clients expected the program to do things that the program either is not allowed to do by rule or regulation, or does not do because it is not cost effective. These clients may have expected the program to do rehab work, fix major structural problems, make the dwelling handicapped accessible, install new windows, paint the house, etc. When the program does not address these problems, the clients complain because they didn't receive the services that they either thought they would receive or hoped they would receive.

By spending time, at the very beginning of the process, to clearly explain to clients what the program can and cannot do, you may be able to significantly reduce the number of client complaints received and the time and, in some cases, frustration involved in resolving the complaints.

- A good way of communicating with clients is through a screening process that provides useful information to the agency when the client is first contacted. The screening process consists of asking a client a number of questions that provide important feedback to the agency and evaluator. An example of a pre-evaluation screening questionnaire is available on the State of Iowa Weatherization web page in the Members Only section: www.weatherization.iowa.gov.
- It is recommended that agencies provide information to clients on the weatherization process so they know what to expect. An example of a client information sheet is available on the State of Iowa Weatherization web page in the Members Only section: www.weatherization.iowa.gov.

It is very important for the evaluator to communicate with the client as the house is being evaluated. It not only informs the client of what the evaluator will be doing but can also be used to obtain information about how the client uses the house and is very important in the client education process. It will also help you find any existing heating/cooling/moisture problems and understand energy or health and safety issues with the house. Following is a list of suggested things the evaluator should discuss with the client before and during the evaluation.

GETTING STARTED

After the initial meeting and introduction the client is given general information about the program:

- The program is at no cost to you and the main focus of the program is to save energy.
- Inform the client of what you will be doing during the evaluation of the home (drawing the home or taking pictures, checking for insulation, performing a blower door test, etc.) in general terms.
- Clients will be required to sign a Client Consent Form describing possible issues before the evaluation. **If the client refuses to sign the form, no work will be completed on the house and it will be closed incomplete.** The original of the signed release must be in the client file, and the copy will be left with the client. A sample of this form is available on the State of Iowa Weatherization web page in the Members Only section: www.weatherization.iowa.gov as well as in the Weatherization Standards Appendix Manual.
- Results of the evaluation will be entered into a computerized energy audit that will tell us what measures are cost effective to do.
- The refrigerator and freezer will also be metered to tell us how much electricity these appliances are using.
- If the agency is a contractor agency there will be at least two contractors doing the work, one furnace contractor and a weatherization contractor. The evaluator should have a list of who they have as contractors.
- If the agency is a crew based agency the evaluator should at least tell the client who the crew foreman is as well as the company or person doing the furnace inspection.
- Either contractor may come to look at the home so they may submit a more accurate bid. The contractor should call first. The contractor should be able to identify them selves as working for the agency involved and should be able to identify the evaluator.
- The bid process and a timeline for the work to be started are discussed with the client.
- It is the responsibility of the contractor to discuss lead paint issues but sometimes the evaluator may discuss this with the client. If it is a crew based agency, the evaluator is responsible to give the client the pamphlet and have the client read and sign the disclosure statement. Both the pamphlet and disclosure statements are available on the State of Iowa Weatherization Members Only web page: www.weatherization.iowa.gov .
- If there are problems between the client and contractors/crews (scheduling, communication difficulties, work being performed, etc.) that cannot be resolved, the client is told who to call.

COMBUSTION APPLIANCE TESTING

- During the evaluation the furnace and all combustion appliances will need to be operated in order to test them.
- The home will need to be closed up (exterior windows and doors closed) during this testing.
- During some of the testing (furnace testing) the exhaust fans as well as the dryer will need to be running.
- We will check the furnace filter to make sure it is clean, and all of the registers to see if they are open, or in some instances if they are closed (supply register in the combustion appliance zone).
- We may also need to open or shut certain interior doors during this testing.
- All combustion appliances will be tested for carbon monoxide.
- Vented appliances will be tested to make sure they are drafting, to make sure the combustion gases are going up the chimney.
- Gas lines will be checked to see if they have any leaks.
- The general operation of the furnace will be checked to see if it is running properly.
- If there is an attached garage a carbon monoxide alarm will be installed. If there are other situations that warrant a carbon monoxide alarm or smoke alarm one will be installed. If a carbon monoxide alarm or smoke alarm are installed the client is instructed on the use of the alarm. The expiration date of the carbon monoxide alarm is to be written on the alarm. Symptoms of carbon monoxide poisoning are discussed if in the past or currently there are problems with any of the combustion appliances. The oven is tested for carbon monoxide.

- If there are any obstructions such as aluminum foil blocking the air holes, the client is informed of the problem.
- Furnaces, gas dryers, gas water heaters are tested for carbon monoxide, spillage, draft pressure, and the vent pipe inspected. The hot water may need to be turned on so the water heater will operate.
- In most cases a furnace contractor/crew will come and do a clean and tune on the furnace.
- If a cracked heat exchanger is found during the evaluation or some other serious condition that would cause the furnace to be replaced a clean and tune is not done. Program funds will cover the cost of the furnace replacement for home owners. Also other problems found during the tune and clean will be covered by program funds.
- The duct work may also be checked for leakage. This is checked with the furnace fan running. The contractors/crews may be asked to seal holes and cracks in the ducts as part of their work.
- Room pressure may be checked to make sure that air coming out of the hot air or supply registers is getting back to the furnace through the cold or return air register. This is also done with the furnace fan running.

BLOWER DOOR TESTING

- During the blower door testing the exterior doors and windows must be shut and all interior doors need to be open.
- A large fan will be installed in the door and used to depressurize the home. It will pull air through cracks and holes in the envelope of the home and show us where we need to seal the home. The blower door also gives a number to use to tell us how loose or tight the home is. When the blower door is running we will look around the home to try and find the areas with the most air leakage.
- The general condition of the windows and doors will be noted.
- Sometime during the evaluation a diagram of the home will done and pictures of the home may be taken for the agency and/or contractors use.
- We will inspect the home for existing insulation. The computerized audit will determine if insulation can be added and the amount of insulation that will be installed.
- The attic will be inspected for the amount and type of existing insulation. It will be checked for openings into the envelope of the home and venting.
- While in the attic the appliance and exhaust venting will be inspected for any problems.
- Insulation in the sidewalls can be checked by several methods, drilling holes in the wall (exterior or interior), taking off electric switch plates, etc.
- In the basement the band joist is inspected to see if insulation is needed.
- If crawlspaces are accessible they are inspected to see if they can be insulated.

CLIENT INPUT AND RESPONSIBILITIES

Client input concerning the home can be very important in decision about weatherizing their home. The following are questions that should be asked:

- Are there any places in the home that don't seem to get enough heat in the winter?
- Are there any leaking roofs?
- What areas of the home are unheated? There may be areas of the home that are questionable if they are in the heated envelope of the home. The client needs to have input on this but the decision must be made by the evaluator with consideration given for registers in the room, if the room can be weatherized without excessive cost, and if the room is necessary for the size of the family, etc.
- Are the combustion appliances working well from the client's perspective? Does the furnace heat the home well, how long does it run for, do the burners shut off and on without the fan stopping, do the ducts make a lot of noise, etc?
- Do they change the furnace filter regularly even in the summer if they have central air conditioning?
- Is there excessive moisture in any of the rooms or on any windows in particular?
- Ask which light bulbs they leave on the most in the home and approximately how long they are left on?
- If you have concerns that the home might be for sale ask the client if it is for sale.

In some cases the client may need to do some items prior to weatherization. These items need to be discussed and include:

- If there is a lot of storage in the attic, basement, and/or in areas to be worked on talk to the client to make sure they can move the items prior to work being done.
- There may be some housekeeping items the client must do such as; spray for insects, clean up areas of the home, exterminate rodents, etc.
- They need to be told that they are responsible to work with the contractors/crews in being accessible so they can get into the home.
- It may also be necessary for the client to move or remove animals from areas to be worked on so the contractor/crews can do there job.
- Keeping an eye on children and pets are not the responsibility of the workers.
- Once the evaluation is complete the client must give written consent for the work to proceed. There may be other forms for the client to sign as well (refrigerator forms, interior wall insulating form, etc.) before work may proceed.

CONTRACTOR RESPONSIBILITIES

The weatherization contractor is primarily responsible for work done on the shell or envelope of the home.

- This work consists of insulation in the attic, walls, and crawlspace or basement, sealing by-passes, and infiltration work. This work depends on what the audit and evaluator call for being done.
- Other work may include weatherstripping, glass repair, attic access sealing, wall repair, etc.
- The process used to insulate the walls is explained as far as taking off the siding, opening up the sheathing, and running a tube up the wall cavity. The possibility of some siding damage is discussed with the client and potential for some minor dust in the home are also discussed.
- If doors and windows will need to be replaced discuss with the client as to which ones will be replaced and what will be used to replace the existing window or door.

HOW THE CLIENT CAN SAVE ENERGY

- The Iowa Weatherization Program has a client energy education brochure called the, *Iowa Energy Savings Guide*. Reviewing this guide, which was produced by the Iowa Weatherization Assistance Program and Iowa Community Action Agencies, is a good place to start. The *Guide* describes things clients can do to reduce their energy usage and utility bills. The *Guide* should be given to those clients that may benefit from the information contained in it.
- Give the client suggestions as to what to set the thermostat on in the winter and also the summer if there is central air conditioning.
- If there are high ceilings you might suggest that ceiling fans be installed.
- Make sure they know how to change the furnace filter. Suggest that they check the filter every month when they get a utility bill. If a new furnace has been installed suggest that they check it even more often because the faster fan speed will pull old debris into the new filter and clog it more readily. If they have central air conditioning they need to be told to check the filter every month also.
- It is recommended that the furnace filter size be written on the cold air drop so the client easily knows the size and as a reminder to them.
- Make sure the client knows the importance of keeping the registers and grills clean and free from objects sitting on them.
- You may suggest that the coils on the refrigerator be cleaned if they appear to be dirty.
- If there is a fireplace the client should be shown how to shut the damper if they do not know. It could be sealed if the client no longer wants to use the fireplace. The damper should be closed whenever the fireplace is not in use.
- The client should be told the importance of closing windows and doors (even the storm windows) when they are running the furnace or air conditioning. Plastic on the windows can save additional money and stop drafts.
- Suggest that the water heater temperature be turned down. If the client is agreeable adjust it to 120°F. or 140°F. if there is a dishwasher.

- Suggest that when the client is replacing incandescent light bulb they install florescent bulbs or high efficiency bulbs.
- Discuss with the client the results of the refrigerator and freezer monitoring. Make them aware of how much electricity they are using. If there are multiple refrigerators or freezers suggest that they unplug the extra appliance and provide them with the amount that that particular appliance is costing them.

CLIENT HEALTH & SAFETY

- In addition to affecting energy use, people's behavior can also affect their health and safety. People's behavior may result in moisture problems (and therefore mold and mildew) in homes. It may also increase the risk of backdrafting of combustion appliances.
- It is important to discuss with clients how things such as showers, humidifiers, thermostat settings, appliances, opening and closing doors and windows, and using ovens for space heating can have an impact on their health and safety as well as their energy costs.

WRAP UP

- If the metering of the refrigerator shows replacement to be cost effective the available options for its replacement need to be discussed. The client needs to be told who the vendor is who does the replacement, and given a timeline on when to expect delivery of the appliance.
- The client needs to sign all applicable forms (refrigerator replacement, lead notification, etc.) and the permission to proceed with the weatherization. The Health & Safety Assessment Findings Sheets (Part 1 & Part 2) must be completed. These forms are required in the client file. If the client will be responsible for remediation of any findings, the client must sign the form and a copy of those findings must be left with the client. Samples of these forms are available on the State of Iowa Weatherization Members Only web page: www.weatherization.iowa.gov as well as in the Weatherization Standards Appendix Manual.
- Tell the client what work is likely to be done and an approximate time frame to expect the work to begin.
- If there are problems or concerns give the client your business card or number to call.
- There will be a final inspection of the work done by the agency. During the final inspection the inspector will be looking at all the things that I have and be doing most of the testing that I have done (furnace testing, blower door testing etc.).
- In some cases there will be on going monitoring of the job by myself or someone from the agency to make sure the work is proceeding as planned as well as inspecting the work as it is being done. I
- If there are problems with the work not done to the standards, the contractor will be sent back to correct the work.
- The state does sometimes inspect some of the work that is done by the agency, so there may also be someone from the state to look at the work done. They will try to contact you prior to their inspection.
- Ask the client they have any question and thank them for their cooperation and time.

ENERGY PRINCIPLES

ENERGY

More than 99% of the energy used comes from the sun. The only other significant source is nuclear material in the earth. Plants build their tissues with sunlight, and the composition of all fossil fuels is ancient plant and animal tissue. Fossil fuels are burned to produce heat and work energy.

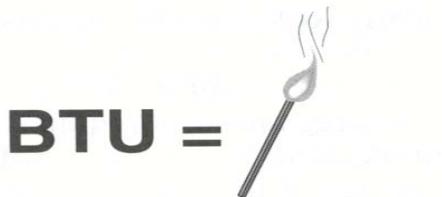
Energy is a measurable quantity of heat, work, or light. Potential energy is stored energy -- like a cord of wood. Kinetic energy is transitional energy -- like a flame. Energy is called many things. Calories, kilowatt-hours, and therms of natural gas are some measurements of energy. Although energy can take many forms it is all equivalent and can change from one form to another. Energy can flow between objects such as a battery and light or between hot water and skin.

There are two laws of science (thermodynamics) apply to energy in our universe. The first says energy is neither created nor destroyed. Energy merely moves from place to place and changes form. The second says heat moves from high temperature regions to low temperature regions. Heat never naturally moves from low temperature areas to high temperature areas, unless there is an external source of energy.

TEMPERATURE AND HEAT

Temperature is a measure of how fast the molecules in a substance are moving or vibrating. In a thermometer, molecules race around randomly in a fluid. The average speed of travel is actually what a thermometer measures. Heat flows because of a difference in temperature between two areas. Heat is measured in British thermal units (Btu), which is the amount of heat required to raise a pound of water 1°F (equivalent to the amount of heat contained in one wooden kitchen match).

Measurement of Heat Energy



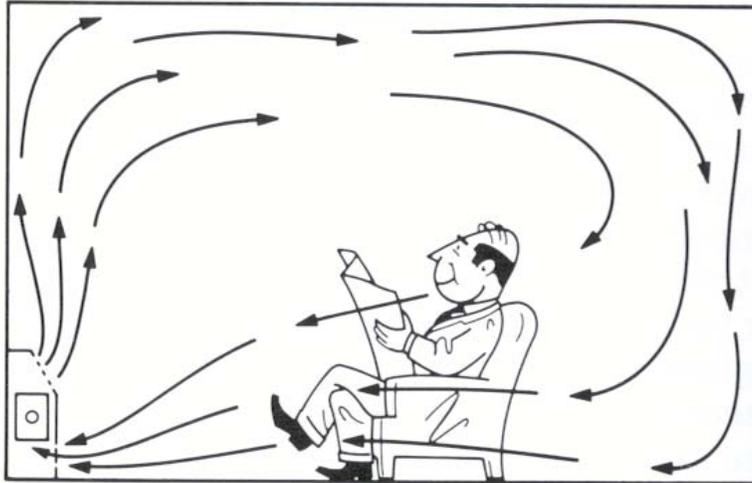
A kitchen match contains about one Btu of heat energy.

Heat travels from area of high temperature to areas of low temperature in three ways: conduction, convection, and radiation.

Conduction is the most familiar and predictable type of heat flow. Heat conducts through solid objects touching one another. An example is when touching something hot, heat is conducted to skin.

Convection is heat transferred by a moving fluid like air or water. Convection happens because of density differences between warmer and cooler parts of the fluid. An example of convection is the hot combustion gases convect against the metal surfaces of the heat exchanger, transferring heat to the metal. Hot air or hot water rises to the top because it is less dense than the cooler air or water, not because heat rises.

CONVECTIVE HEATING



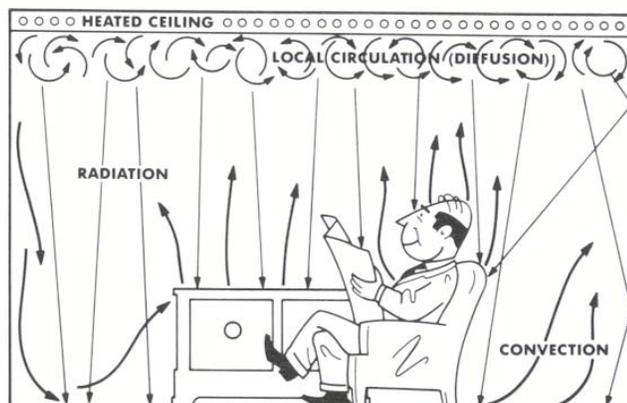
Convection heating devices include:

- Forced warm air- this device employs a gas, oil or electric burner or heat pump to heat a convector, usually called a heat exchanger. A blower passes air over the convector and through ducts into the heated spaces.
- Hydronic devices- these devices employ a convector heated by hot water. Baseboard units use hot water to heat convector fins with the air passing over them.
- Electric baseboard- in these units, the convector is heated by electric.

Radiation heat flies through space from one object to another. An example is the sun's radiant heat felt on the skin. There's a continuous unequal exchange of heat radiation between all objects in the universe, with a net heat flow going from high temperature to low temperature as dictated by the second law of thermodynamics.

Radiant heating occurs mainly by radiant heat transfer from the heating surface to one or more of the surfaces in a room.

RADIANT HEATING

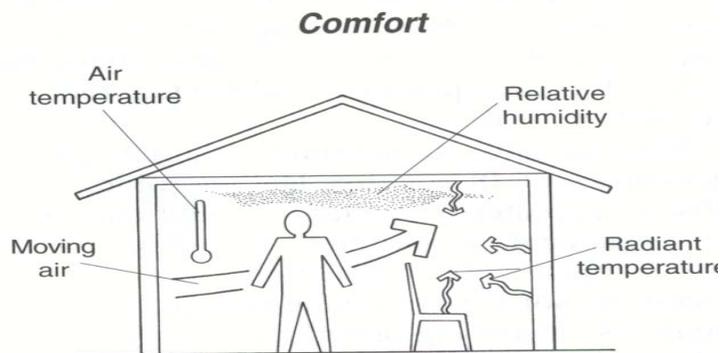


Radiant heating devices include:

- Heat sources in ceilings and floors, such as electric cable, radiant ceiling panels, or pipes heated by hot water or steam.
- Radiant heat with hot water or steam.
- Electric or gas radiant heaters.

COMFORT

Outdoor climate has the most influence on human comfort of any common factor. The temperature, relative humidity, solar radiation, precipitation, and wind affect the immediate comfort of people who are outside. Buildings temper the elements to one degree or another, but the conditions outdoors determine what needs to be done to maintain indoor comfort. Thermal equilibrium with the environment creates comfortable conditions --- the body is losing as much heat as it is gaining from metabolism and from our surroundings. Air temperature is usually the most important factor determining comfort.



Comfort in both winter and summer is related to four factors: air temperature, relative humidity, radiant temperature, and air movement.

Relative humidity is a very important summer comfort factor, since it determines how rapidly sweat can evaporate from the skin. Humid air contains more heat than dryer air, this fact exercises less influence on comfort. Humid air may feel better to the throat and lungs indoors during winter, but there is no heating energy advantage to humidifiers. Moving air is very important for summer comfort. Rapidly moving air increases bodily heat loss through convection and sweat evaporation. Air circulation is important in winter also to avoid air stagnation and large room temperature differences.

Temperature is the most noticeable characteristic of climate and the most important factor in determining heating energy use. Outdoor temperature is always changing according to the season, the weather, and the time of day. Heating engineers use a unit of measurement called a heating degree-day to describe how long the temperature is below 65°F during each day, month, or year. Cooling degree-days measure the air temperature differences between the outdoors and 78°F over the hot summer season. The temperature from which the degree-day difference is measured is called the balance point. The heating balance point is the outdoor temperature where no heating is needed, usually assumed to be 65°F. A very well insulated home may need no heat even at an outdoor temperature of 50°F, so its balance point is 50°F. The local weather bureau computes the number of degree-days daily by figuring how long the average outdoor temperature is below 65°F. If the high was 30°F and the low temperature was 0°F, then the average temperature for the day is 15°F. Subtract 15°F from the 65°F balance point for a 50°F difference in temperature between indoors and outdoors. The symbol " ΔT " (delta T) is often used to symbolize this temperature difference. Heating degree-days are directly related to heating costs. It will

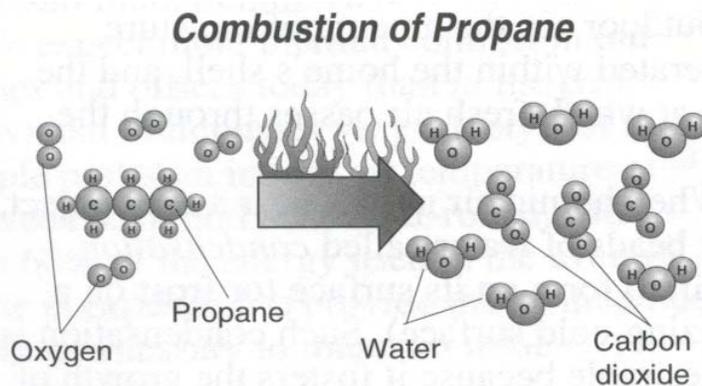
take twice as much fuel to heat a home in Duluth, Minnesota with 10,000 degree-days annually as an identical home in St. Louis, Missouri, where there are 5000 degree-days. Degree-days are abbreviated HDD, for heating degree-days. Cooling degree-days measure the intensity of the summer climate. To find cooling degree-days, calculate how long the average temperature was above the cooling balance point of 78°F by totaling up the daily degree-day values. Cooling degree-days are less reliable as predictor of summer cooling costs than heating degree-days for winter heating costs. Their unreliability is because the amount of shade and relative humidity are often more important than the outdoor air temperature in determining comfort.

The air temperature and amount of water vapor in the air determine how much heat the air contains. The higher the humidity at a given temperature, the more heat the air holds. Relative humidity (rh) measures how saturated the air is with water vapor as a percent. Completely saturated air has 100% rh. Warmer air can hold more moisture than cooler air. The outdoor relative humidity depends on rainfall, nearness to bodies of water, cloudiness, windiness, and other environmental factors. Indoor humidity is governed by the temperature and humidity of outdoor air, the amount of moisture generated within the home's shell, and the rate at which fresh air passes through the home. When humid air moves near a cool object, tiny beads of water called condensation begin to form on its surface (or frost on a freezing-cold surface). Such condensation is undesirable because it fosters the growth of fungus, dust mites, and wood-eating insects. Keeping indoor relative humidity at less than 60% during the summer promotes comfort, and will prevent condensation on cooler surfaces of an air conditioned home. Indoor humidity should be less than 40% during cold weather to prevent condensation on cold windows and other surfaces.

HOME ENERGY USE

Energy is converted from one form to another within a home to provide comfort, water heating, refrigeration, lighting, and other services.

Combustion heating systems convert natural gas, propane, or oil into heat. When the carbon and hydrogen atoms in fuel molecules mix with oxygen and a flame, a chemical reaction called burning starts. Heat is liberated in the chemical process, and this heat is used for space heating and water heating.



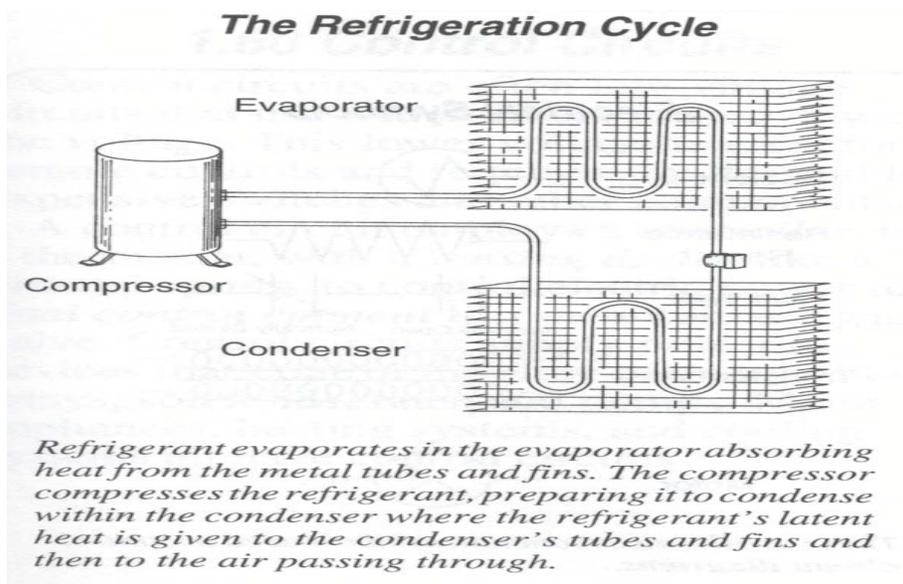
Propane, C_3H_8 , combusts by combining with oxygen (O_2) to form water (H_2O) and carbon dioxide (CO_2).

The heat from the flame and hot gases heats a metal enclosure called a heat exchanger, which then heats the air or water. Pipes or ducts carry the heat or heated water to the building's rooms. Every time heat travels across a metal heat exchanger or through ducts and pipes some of the heat escapes the heating system.

Electric resistance heating changes electricity, usually generated by heat, back into heat. The electric current passes through resistive wires, bars, or plates. Electric heaters are very often located in rooms and provide heat through natural convection and radiation. Electric furnaces blow air through electric

resistance coils. Electric water heaters and heating boilers have electric resistance bar surrounded by water, providing heat directly by conduction.

Refrigerators, air conditioners, and heat pumps move heat from one location to another using latent heat. When the liquid refrigerant vaporizes in the evaporator, it absorbs heat from the metal in the evaporator coil, which becomes cold and removes heat from the warm air being blown through the coil. The vaporized refrigerant then carries the heat it has collected from the indoor air to the compressor, where it is pressurized, returning it to its liquid state and releasing its latent heat of vaporization in the process. The condenser coil has a higher temperature than the outdoor air, so the heat flows from the coil to the outdoor air. The liquid refrigerant collects in the condenser and is forced into the liquid receiver with pressure created by the compressor. The liquid flows through the liquid receiver toward the expansion device, which is simply a spray nozzle. The liquid is sprayed back into the evaporator, where it evaporates and heat is again removed from the metal in the evaporator coil, and the cycle begins again.



Electricity is converted into lighting via incandescent or fluorescent lighting. In an incandescent light bulb, a tiny metal wire called a filament glows white hot when electric current passes through it. Only 10% of the electricity is converted into light, with the other 90% becoming heat. Fluorescent lights produce light by passing electric current through a metallic gas. The flow of electricity through the gas excites special chemicals called phosphors, causing them to glow or fluoresce. The glowing phosphors coat the inside of the fluorescent tube. Fluorescent lamps convert 80% of the electricity they use into light. Using fluorescent lights instead of incandescent lights can reduce the amount of electricity used for lighting by about 75%.

CALCULATING COMFORT

Heat can be added or removed to maintain comfort in a home. Through calculations and measurements it can be predicted how much heating and cooling will be necessary for comfort, and how much energy will be used.

Heat flowing in and out of the home is a major energy drain. The need for heating, called heating load, is how many Btu's per hour (Btuh) need to be added or removed to provide comfort. Heating load is based on a worst-case temperature difference determined from established weather statistics.

The two main components of the heating load are conduction and air leakage. Heat loss is the number of Btu's flowing through the building annually or some other longer period of time. Heat loss is a measurement of energy expended to heat the building. Heat loss can be calculated from building shell characteristics and then compared with actual energy consumption from the utility bill.

Cooling load is the number of Btu/h the cooling system needs to remove during the hottest summer weather, it is used to determine the power of the cooling system needed. Cooling load is completely different from heating load. It is less predictable because of its important variables (solar heat, air leakage, and internally generated heat) differ widely from home to home. Cooling load calculations also include the power needed to remove moisture from the air.

When calculating the heat flow through a wall, floor, or ceiling, pretend the heat flows purely by conduction. In truth it's not all conduction, but convection inside building cavities, and radiation carrying heat across air gaps. However the formulas predict this imperfect heat conduction accurately enough.

Air exchange is a separate component of heating and cooling load consisting of air leakage and ventilation. Air leakage and ventilation intake is heated or cooled by the home's space conditioning equipment. For every cubic foot of air entering a home, a cubic foot of air must leave the home, taking with it the energy used to heat or cool it.

HEATING LOAD

A combustion heating system has to supply not only the heat lost through the shell but also its own wasted heat. The more heat loss through the shell, the longer the heating system operates and the more heat it wastes because of its own inefficiency.

Insulation and air sealing not only slow the flow of heat through the shell, but they also slow the heating system's heat waste. The heating system also operates for a shorter duration after insulation and air sealing retrofits. This interaction is accounted for by dividing the shell's heating load (output in Btu/h) by the heating system's delivered efficiency to find the estimated total heating load (input in Btu/h).

Calculations of heat flow through the home's shell are used to estimate the output rating of a building's heating system. To calculate the input rating, divide the output by the heating system's delivered efficiency .

R-value is used to measure thermal resistance of walls, floors, and ceilings. However, U-values are used to calculate power and energy needed for heating. U-values state exactly how much heat conducts through a one-square-foot area of cross-section (wall, floor, or ceiling) in one hour, when there is a 1°F difference in temperature across the two opposite surfaces of the cross-section. U-value is the inverse of R-value, meaning $U = 1 \div R$ and $R = 1 \div U$. Since U-value is the inverse of R-value, when $R = 1$, $U = 1$: when $R = 2$, $U = .5$: when $R = 4$, $U = .25$; and so on. R-values are used to rate the thermal resistance of building components and can be added together. Add R-11 to a wall already insulated to R-3, the wall now has an R-value of R-14. To find the U-value of the wall, divide 1 by 14 (.071).

U-values can't be added together. The amount of heat flowing through a building's cross-section depends on: its U-value: its area: the temperature difference between indoors and outdoors: and the period of time (hour, month, or year) being considered.

A simple heat load (q) calculation is: U-value X Area (surface area) X ΔT . The ΔT is the difference in temperature between the inside and outside the building shell found by subtracting 65°F from the region's design temperature. The design temperature is temperature which is exceeded 97.5% of the time. Mason City, Iowa has design temperature of -10. This calculation can be used to estimate the size of heating unit needed.

Heat loss is the amount of energy lost over a period of time longer than an hour. It is calculated by taking the heating load (Btu/h) by the number of hours in the heat loss time period. The primary reason for

calculating heat loss is to predict savings from weatherization retrofits. This involves two calculations: one for the current condition and a second for the retrofitted condition. Another reason for calculating heat loss is to compare actual heating costs with predicted ones in order to troubleshoot a building's energy consumption. Heat loss (Q) in Btus over any time period may be calculated by multiplying the following values together: U-value X area X the difference in temperature between inside and outside of the building ΔT and the amount of time during which heat flows (t).

There is a combined measurement for time and temperature called degree-day. It measures the duration and severity of outdoor temperature compared to a balance point temperature. The balance point is the minimum outdoor temperature at which no heating is required. With 72°F as the desired indoor temperature, a building's balance point may be 65°F or less, meaning it doesn't need heat until the outdoor temperature goes below 65°F. If the average temperature outdoors is 30°F on a particular day, the outdoor temperature is 35°F below the 65°F balance point, so there are 35 degree days accumulated for the day. This shortens the calculation for heat loss to U-value X area X heating degree days.

PRINCIPLES OF AIR SEALING

Air leakage requires a hole and a pressure to push air through the hole. The air flow rate through a hole or group of holes depends on two factors: the size of the hole and the difference in pressure. It is nearly impossible to measure the size of the building's holes and cracks, but by measuring pressure and flow, the flow rate may be used to calculate leakage in buildings.

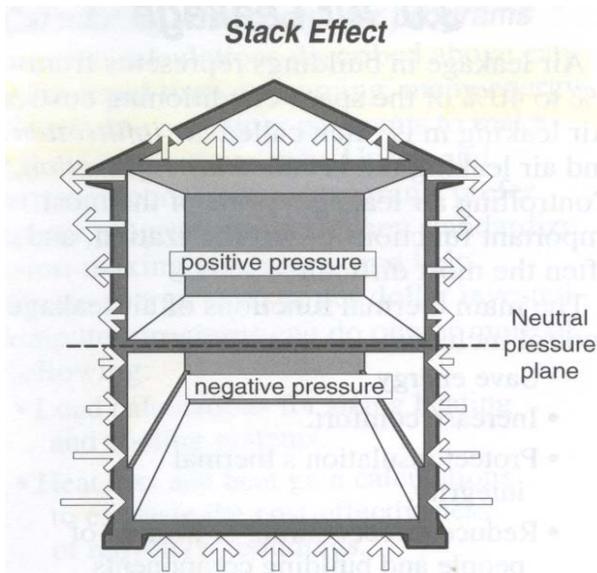
Direct air leaks occur at windows, doors, and seams in the house shell. Indirect leaks occur where air leaks into the shell and flows through the home exiting at a different location. Forces which drive flow can come from: wind, exhaust fans, stack effect, chimneys, and furnace blowers. Chimneys and exhaust fans can create a slight vacuum, often called depressurization. Wind, furnace blower, and stack effect tend to pressurize some areas of the home and depressurize others.

Beyond direct air leakage, air can also move around inside building cavities, increasing the rate of heat flow. This is called convective looping. Air convects inside building cavities, carrying heat from one surface to another. Air can wash over the insulation's surface, convecting heat away. Or, air can penetrate beneath the insulation's surface, reducing its thermal resistance. An effective air barrier completely surrounding the building's conditioned space, along with effective air sealing of the building's thermal flaws, reduces these secondary effects.

DRIVING FORCES

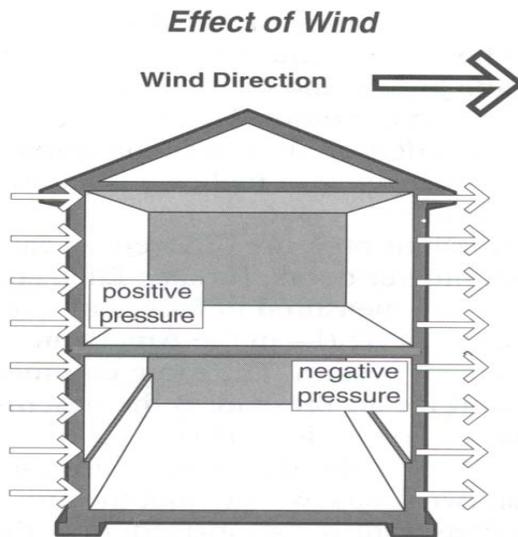
Four major forces which drive air: stack effect, wind effect, exhaust effect, and furnace blower. This is through the process of infiltration and exfiltration.

Stack effect is when the warmer air inside of a home rises and exits the home through openings and cooler air enter the home at a lower level to replace the exiting air. Somewhere near the midpoint of the building height is the point where no air is entering or exiting, this is called the neutral pressure plane. The pressures related to the stack effect are greatest at the highest and lowest points of the home. A hole in the basement will allow more infiltration than a hole at the neutral pressure plan. A hole in the ceiling will exhaust more air than a hole near the mid-point.



The stack effect is caused by the relative buoyancy of warmer air. Warmer air's upward force exerts an outward pressure. Air flow, through holes in the home's top, creates suction at lower levels, pulling air in. Arrows indicate the direction of positive pressure.

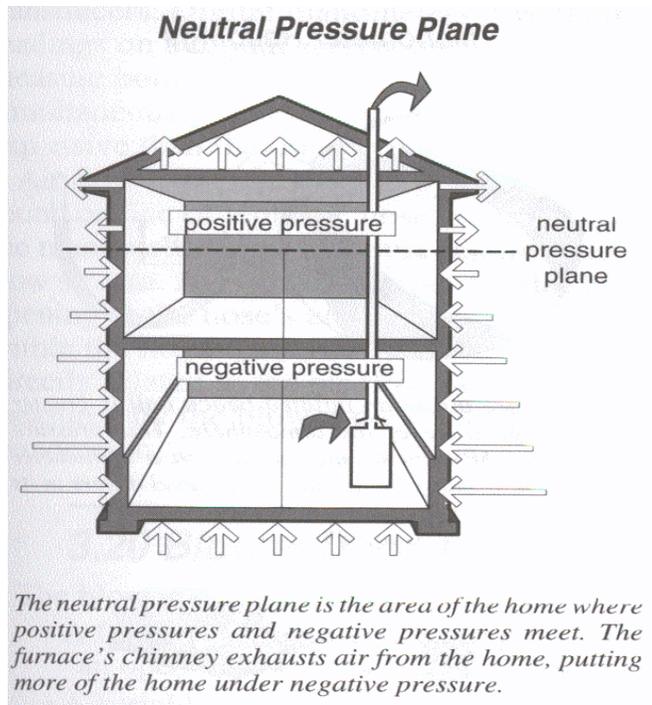
Wind effect is a powerful force. Wind blowing against a wall creates an area of high pressure, driving outdoor air into the windward side of the home. At the same time the leeward side of the home has a negative pressure.



Wind creates a positive pressure on the windward side of the home and negative pressures on other sides. Wind pressures push and pull air through holes in the shell.

Exhaust effect comes from chimneys and exhaust fans which create a vacuum indoors because they exhaust air out of the building. An exhaust fan or chimney blowing air out of the home moves the neutral pressure plane up because most of the holes would be admitting air. The incoming replacement air (make up air for exhaust appliances, or combustion air for combustion appliances) will come into the building following the path of least resistance. This make up air may even come down the chimney, back-

drafting the combustion appliance. The chances of backdrafting become greater with the number of exhaust appliances the home has.



The furnace blower circulates air through the furnace, into a system of supply and return ducts and through their outlets, called registers. Supply registers blow air into a room, pressurizing nearby areas of the room. Return registers suck air out of rooms, depressurizing these nearby areas. If the ducts are leaky or return air is restricted, rooms may have high positive or negative pressures. These pressures can become large enough to double or triple the building shell's air leakage compared to when the furnace blower is off.

Air pressure, airflow, and the size of air leaks are directly related to each other. An increase in pressure on opposite sides of a hole causes an increase in airflow through the hole. Make the hole bigger and airflow increases again. Pressure and airflow can be measured by instruments, called manometers. Manometers come in three types: U-shaped transparent tube, a round gauge with a needle indicating the pressure or amount, or a digital gauge.

The air inside an inflated beach ball is denser than the atmosphere outside. This pressure difference can be measured by attaching a manometer to the beach ball's valve. The lighter atmosphere presses on one side of the liquid, and the denser beach ball air presses on the other. The distance the beach ball's denser air moves the water column, measured in inches, is a unit of air pressure. Smaller air pressures are measured in inches of water column. In the weatherization program pressures are measured in Pascals. There are 250 Pascals per one inch of water column. When talking about pressure differences between two areas, the area having denser air is pressurized, or is the high-pressure area. The area with less dense air is depressurized, is under vacuum, or is the low-pressure area.

Another type of manometer is a round gauge with an arc-shaped scale for measuring either pressure (Pascals) or airflow (CFM, cubic feet per minute). This gauge has two pressure taps: the high-pressure tap and the low-pressure tap. If the gauge is physically located in the low pressure area, as with typical

blower door testing, the low pressure tap is open to the area, and a hose is used to expose its high pressure tap to the high pressure area (outdoors).

The digital manometer measures pressure by way of sensors, called pressure transducers. Digital manometers give their readings on a digital screen, and some can measure both house pressure and flow simultaneously. They are considerably more expensive than the other types.

Airflow is then measured by putting the round orifice of a plastic hose connected to the manometer's low pressure tap into the air flow stream. Air flowing perpendicular to the opening at the hose's end creates vacuum within the hose. This vacuum's strength is directly related to the airflow rate as measured by the blower door's airflow manometer.

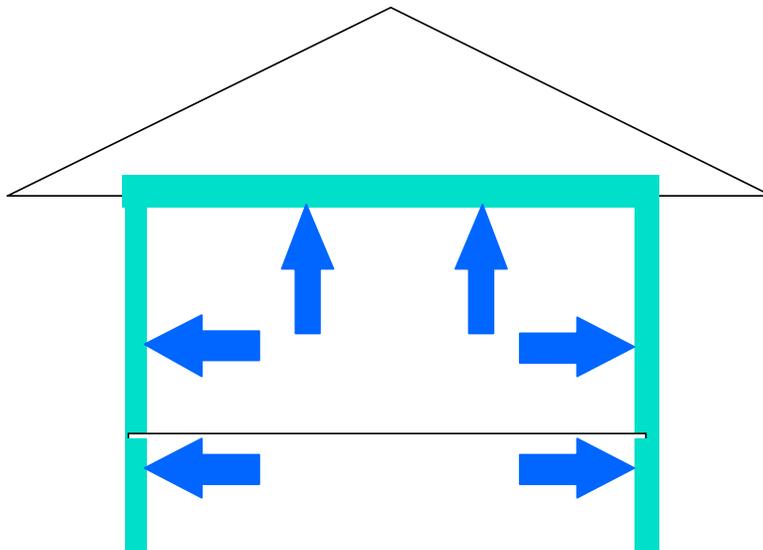
The blower door measures the total air leakage of the pressure boundary of a building.

A blower door can, by itself: measure total leakage rate, indicate the potential for air leakage reduction in a building, provide an estimate of the natural infiltration for a building, and assist in finding air leakage locations.

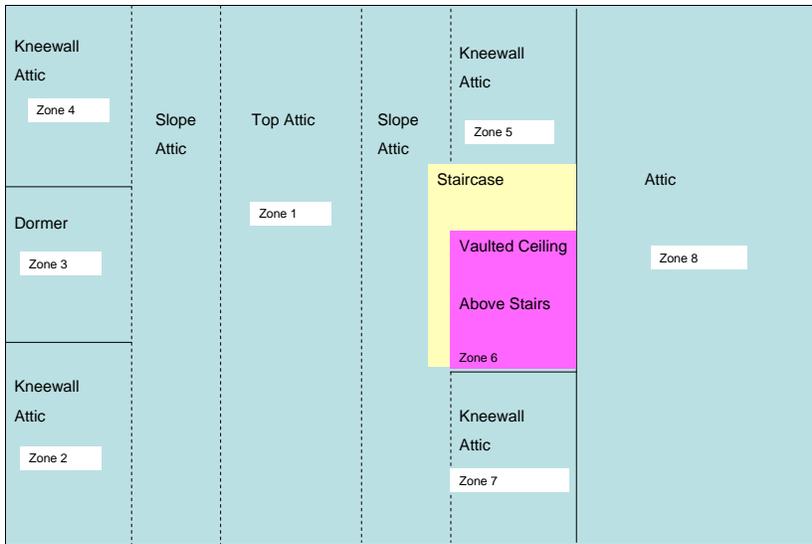
A blower door test by itself does not determine: the location of the pressure boundary, the interconnections between leaks (which are the most important), the relationship of the pressure boundary and the thermal boundary, and the best location to seal an air leakage site.

Zone pressure testing can help align the thermal and pressure boundary. If these are aligned, the amount of surface area through which heat loss can occur can be reduced, increase the effectiveness of the air reduction work, increase the motivation of field staff, increase the performance of the thermal insulation, and increase the energy saving and comfort in a building.

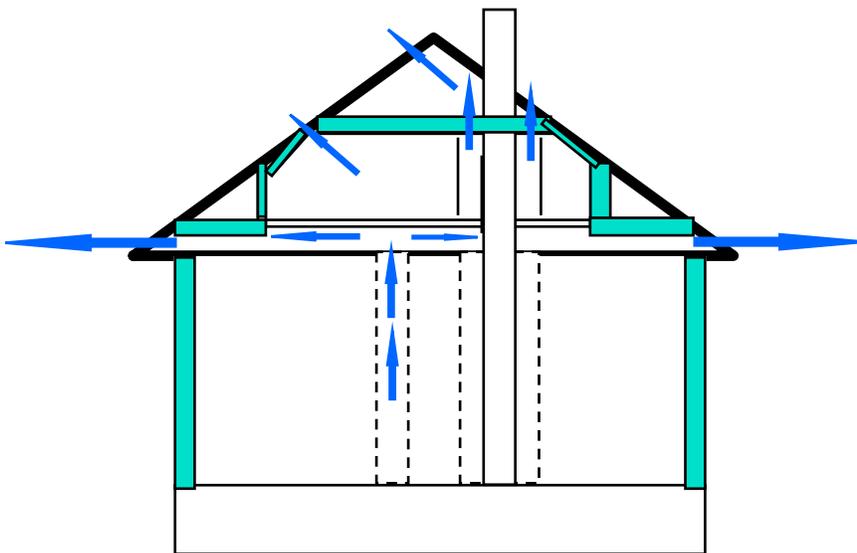
The thermal boundary is the insulation. With insulation in the attic, walls and floor, the thermal boundary of the house will look like this.



To find pressure boundaries identify the thermal boundary and the buffer zones.



When the thermal boundary and the pressure boundary are not aligned, air escapes through breaks in the pressure boundary, making the insulation less effective. It can also cause moisture problems and ice dams.



The buffer zone is a space in a building separating the heated interior of the building from the outside. Buffer zones include kneewalls, crawlspaces, garages, attics, and floored cavities.

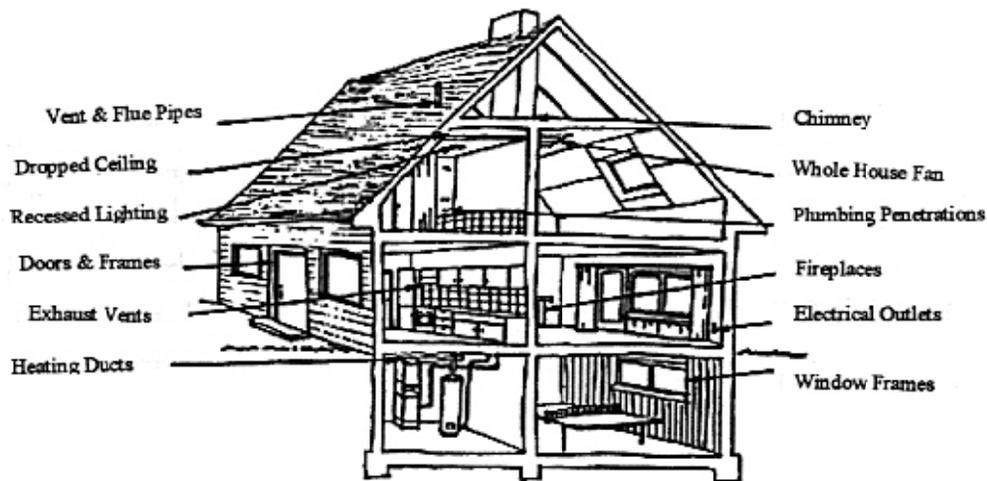
BUILDING CONSTRUCTION PROBLEM AREAS

Houses often have construction flaws that cause energy waste. A house's shell is its bottom floor, exterior walls, and roof. The shell's greatest energy weaknesses are at its edges and corners and where there are protrusions, indentations, and penetrations.

Protrusions include bay windows, dormers, cantilever floors, and porches. Indentations include recessed entryways, porches, and windows. Protrusions and indentations are areas where the house's insulation and air barrier may not be continuous. This allows air leakage between indoors and outdoors and convection within the house's cavities. Convective airflow accelerates heat transfer and reduces the effectiveness of insulation. Protrusions and indentations also increase a house's surface area and contain a concentration of joints between materials that can be pathways for air leakage.

Penetrations occur where mechanical and electrical components enter the house by penetrating the shell.

Following are locations where energy waste is likely to occur in site built homes:



Porches
Roof overhangs
Crawlspaces
Suspended ceilings

Wall cavities
Areas of plumbing near bathrooms and kitchens
Areas containing wires near service boxes
Connections between floors, walls, and ceiling cavities

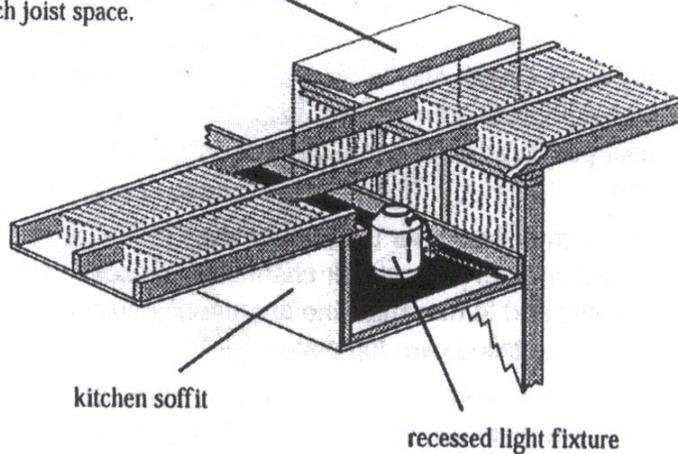
SUSPENDED CEILINGS AND SOFFITS

Suspended ceilings create invisible horizontal cavities that give convection and air leakage a way to transfer heat. Because suspended ceilings are often used to cover up holes in the original ceiling, they often are connected directly to the house's attic.

Soffits often connect directly to unconditioned attics or floor cavities above them. Air convection in the soffits increases heat transfer.

Sealing the kitchen soffit

Install foamboard barrier, sealed to ceiling joist and wood blocking in each joist space.



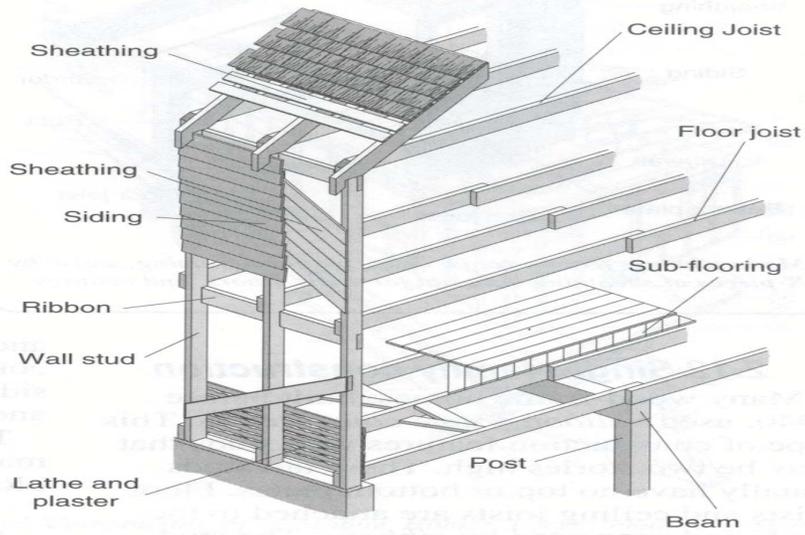
BALLOON FRAMING

Balloon framing creates an air convection raceway around the conditioned area. Even if the shell has an effective air barrier, this convection speeds heat loss. Most balloon-framed walls don't have top or bottom plates. Exterior or interior walls may be open to an unconditioned basement or attic.

If the balloon framing extends to an outdoor porch or bay window, the porch or bay window may connect the balloon-framed floor, wall, and ceiling cavities directly to the outdoors through porch lights or exterior joints.

Balloon-framed walls may be open (bare of interior or exterior sheeting) behind bathtubs, porch roofs, and interior soffits. This provides outdoor or indoor air entry to wall cavities where it convects or leaks through the cavity.

Balloon Framing



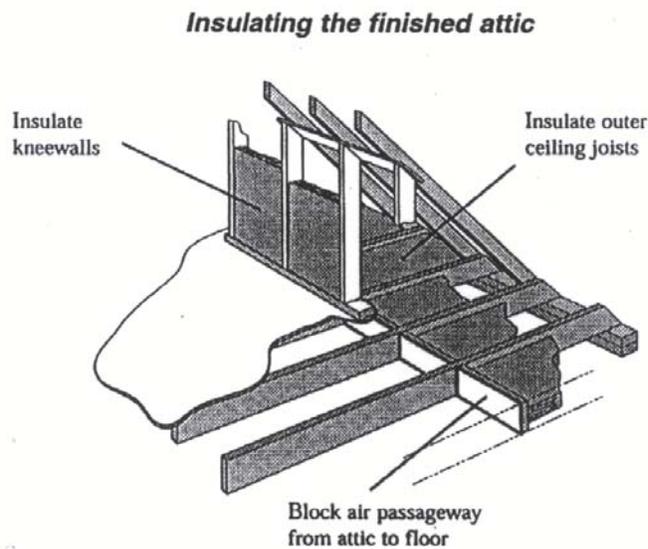
Balloon framing is characteristic of some older homes. The wall cavities of balloon-framed houses are often open to both the basement and attic.

FLOOR CAVITIES CONNECTED TO THE OUTDOORS

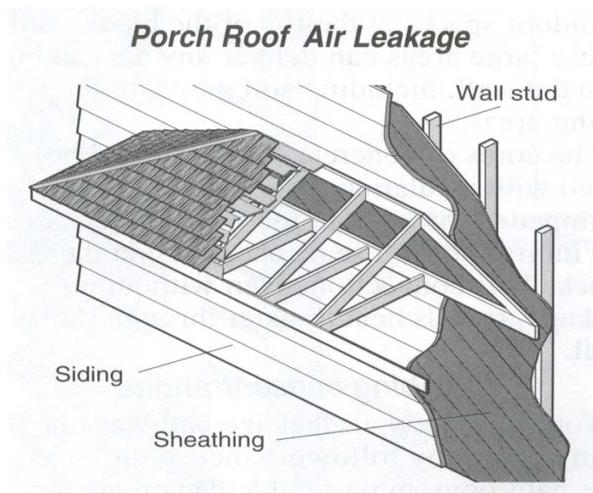
Cantilevered floors may give outdoor air access to the floor cavity. Convection may result in heat transfer.

Finished attics in a one and one-half story house often have floor cavities connected to the outdoors. The wedge shaped section of attic behind the kneewall is often leaky and the floor-joist space beneath the kneewall is usually not sealed. These openings can total dozens of square feet of openings into the floor cavity. The outdoor air convects through the cavity speeding heat loss. Outdoor air also leaks indoors if the floor cavity connects to leaks in the shell's interior.

ROOFS JOINING WALLS



Areas where roofs join walls are often a problem. Porch roofs, in particular, often create a connection between indoors and outdoors through joints in the porch's ceiling or cracks around the porch roof's perimeter. The porch's roof cavity may have direct connections to the second story's floor cavity or exterior wall cavities. Leaky porch ceilings may feed outdoor air into the second story's floor cavity.



Many porches on older homes were attached to the sheathing before the siding was installed. Since the sheathing isn't air tight, any air leakage into the porch can leak into the walls. An even more severe leakage problem results from the porch's rafters being attached to the wall studs in the balloon frame construction, where there is no sheathing behind the porch roof.

WEATHERIZATION TERMINOLOGY

ABBREVIATIONS

AC	Alternating Current
AC	Air Conditioner
ACH	Air Changes per hour
ACH50	Air Changes per hour at 50 Pascal
AFUE	Annual Fuel Utilization Efficiency
AGA	American Gas Association
Amps	Ampere
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigeration & Air Conditioning Engineers
ASTM	American Standards for Testing Materials
BART	Baseload Appliance Rating Tool
BEEP	Baseload Energy Efficiency Program
BD	Blower Door
BLD	Building Summary Report
BOCA	Building Officials and Code Administrators
BTL	Building Tightness Limit
BTUs	British Thermal Unit
BTUh	British Thermal Unit Per Hour
BWR	Building Weatherization Report
CAZ	Combustion Appliance Zone
CCA	A wood preservative formulation containing Chromated Copper Arsenate
CFM50	Cubic Feet per Minute at 50 Pascal's
CIMA	Cellulose Insulation Manufacturers Association
CO	Carbon Monoxide
DC	Direct Current
DCAA	Division of Community Action Agency
DG	Digital Gauge
DOE	Department Of Energy
ECIP	Energy Crisis Intervention Program
ECO	Energy Cut Off
EEM	Energy Efficiency Mortgage
EER	Energy Efficiency Ratio
EPA	Environmental Protection Agency

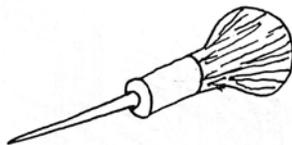
FG	Fiberglass
FHA	Federal Housing Authority
FPM	Feet Per Minute
Ga	Gauge
HDR	House Data Report
HEAP	Home Energy Assistance Program
HEPA	High Energy Particulate Air
HUD	Housing & Urban Development
IAC	Iowa Administrative Code
IAS	International Approval Service
IOSH	Iowa Occupation Safety and Health Standards
IDPH	Iowa Deputy of Public Health
kWh	Kilowatt Hour
LP	Liquid Propane
MCH	Mechanical Change Rate
MEC	MidAmerican Energy Company
MVL	Minimum Ventilation Level
NACH	Natural Air Change per Hour
NACH50	Natural Air Change per Hour at 50 pascal
NAECA	National Appliance Energy Conservation Act
NEAT	National Energy Audit Tool
NEC	National Electrical Code
NFPA	National Fire Prevention Association
O ₂	Oxygen
OC	Oil Over Charge
OSHA	Occupational Safety and Health Act
UG	Microgram
UL	Under Writers Laboratories
μm	Micron
UMC	Uniform Mechanical Code
Pa	Pascal
PCM	Phase Contrast Microscopy
PEL	Permissible Exposure Limit
PMI	Per Manufacturer's Instructions
PNG	Peoples Natural Gas
PPM	Part Per Million
PSI	Pounds Per Square Inch

P/T valve	Pressure/Temperature valve
REP	Building Output Report
rh	Relative Humidity
RO	Rough Opening
SEER	Seasonal Energy Efficiency Ratio
SIR	Savings to Investment Ratio
SSE	Steady State Efficiency
Sq	Square
ΔT	Delta Temperature
ΔP	Delta Pressure
TEM	Transmission Electron Microscopy
TWA	Time Weighted Average
VOC	Volatile Organic Compound
Vol	Volume
WAMS	Weatherization Automated Management System
WAP	Weatherization Assistance Program
WC	Water Column
WRT	With Reference To
WX	Weatherization
W/S	Weatherstrip

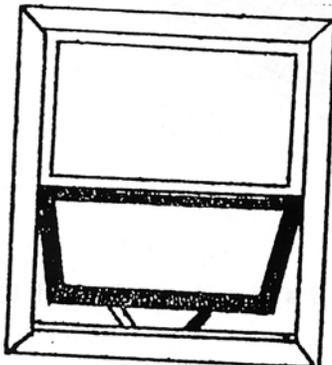
WEATHERIZATION TERMINOLOGY

Acoustical Tile:	Special tile for walls and ceilings made of mineral, wood, vegetable fiber, cork, or metal. Its purpose is to control sound volume while providing cover.
Aggregate:	Material such as sand or gravel used with cement and water to make concrete.
Air Boundary:	The surface of the home that is most relied upon to stop air movement. It should be the surface that is insulated.
Air Changes per hour (ach):	The number of times the complete volume of air in a house is exchanged for outside air in one hour.
Air Handler:	A steel cabinet containing a blower with cooling and or heating coils connected to ductwork which transports indoor air to and from the air handler.
Alternating Current (AC):	An electrical current that periodically changes in magnitude and in direction of the current.
Ambient Temperature:	Temperature of the surrounding air.
Ammeter:	An instrument for measuring AC or DC electrical current in a circuit. Unless magnetically coupled, it must be placed in the current path so the flow is through the meter.
Ampere (Amps):	The rate of flow of electricity through electric wires.
Anchor Bolts:	Bolts use to secure a wooden sill plate to concrete or masonry floor or wall.
Anode Rod:	A metal rod, usually magnesium, placed in a water heater tank to protect the tank from corrosion.
Anticipator:	A small resistive heater located in a thermostat which allows the thermostat to anticipate the need to shut off the gas to the furnace and allows the fan to run until the heat is taken out of the heat exchanger.
Apron:	In building, a plain or molded finish piece below the stool of a window put on to cover the rough edge of the plastering. (See Window Terminology).
Arbor:	A short spindle or shaft on which another rotating part is mounted. The blade in a table saw is usually mounted on an arbor.
Asbestos Shingles:	Shingles made of molded asbestos. Used in both roofing and siding. Rigid and easily broken. (Slate Siding)

- Asphalt Shingles:** Shingles made of felt impregnated with a saturate asphalt then coated with a weather-resistant asphalt and surfaced with mineral granules to reduce flammability and protect it from the sun's heat.
- Attic:** The space between the rafters of the roof and ceiling joist.
- Attic Fan:** A small capacity fan used to vent the attic.
- Attic Ventilators:** In houses, screened openings provided to ventilate an attic space. Sometimes called louvers or just vents.
- Atmospheric Pressure:** The pressure of the surface of the earth exerted by the weight of the air surrounding it. At sea level atmospheric pressure is 14.7 pounds per square inch.
- Automatic Gas Valve:** An automatic or semi-automatic device consisting of a valve and an operator that controls the gas supply to the burner(s) during operation of an appliance.
- Automatic Ignition:** Ignition of the appliance burner(s) in response to an appliance user initiating the operation of the appliance.
- Automatic Pilot Device:** A device incorporated in a gas pilot assembly which acts to automatically shut off the gas supply to the appliance burner if the source of ignition fails.
- Automatic Pilot:** A gas pilot which acts to light the gas at the main burner(s) each time the appliance operates and acts to shut off gas supply to the burner(s) in the event of pilot flame failure. (See Pilot)
- Awl:** A tool shaped like an ice pick that is used to for starting holes to be drilled in wood and to scribe lines on metal or wood.



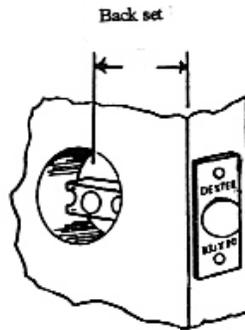
- Awning Window:** A window that is hinged at the top and opens outwards.



Backfill: The gravel or earth replaced in the space around a building wall after foundations are in place.

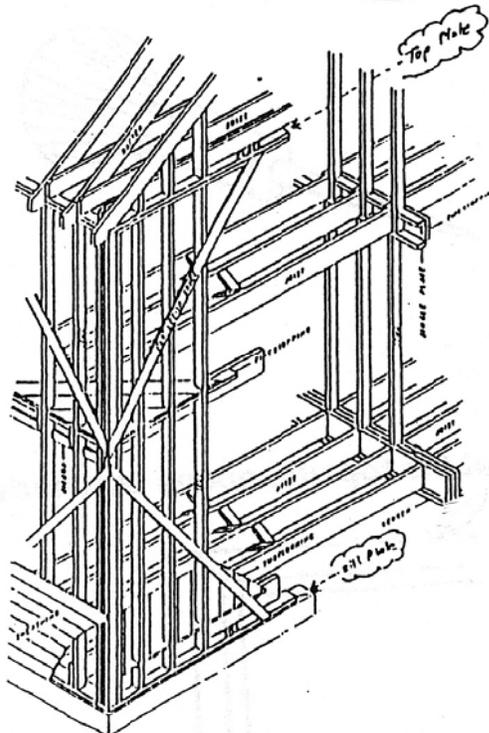
Back Plastering: Also known as double lath and plaster. For insulation purposes, the installing of lath and plaster in the stud space midway between the outside sheathing and the inside lath and plaster of an exterior wall. Thus providing a double air space in the wall. Also, the application of a $\frac{3}{8}$ " thick mortar coat on the outside of the foundation wall for the purpose of moisture proofing and air proofing. Also called parging.

Back Set: The distance from the edge of a door to the center of the lockset. Standard locksets are $2\frac{3}{8}$ " and $2\frac{3}{4}$ "

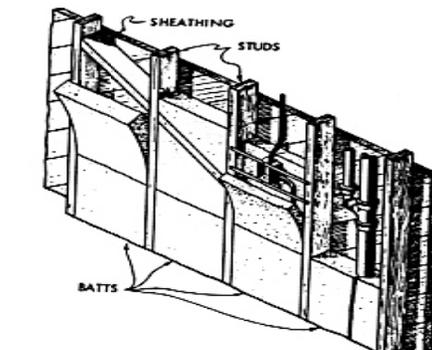


Baffle: An object placed in an appliance to change the direction of, or retard the flow of air, air-gas mixtures or flue gases.

Balloon Framing: Framing in which the studs are continuous from the foundation to the rafters or rafter plate. Second-floor joists are supported by a ribbon board usually mortised into the studs. Unless fire blocking is installed, this type of framing creates an open wall cavity from the attic to the sill.



- Band Joist:** Also called rim joist, it is the floor joist that ties the ends of the other floor joist together.
- Barometric Draft Control:** Usually found on an oil furnace vent pipe. A device attached to a flue outlet on some appliances without draft hoods which has a counter-weighted baffle to allow dilution air to mix with the combustion products. It is used to control excessive draft on an appliance.
- Barrel Bolt:** A sliding door fastener mounted on the inside of the door to keep it from being open.
- Base or Baseboard:** A board placed against the wall around a room next to the floor to finish properly between the floor and the plaster or drywall.
- Baseline Reading:** A pressure reading from one area to another without any equipment operating such as a blower door, exhaust equipment, etc. or a natural state. This reading is taken when using a digital pressure gauge so it may be added or subtracted to the pressure readings. Example- blower door pressure of 50pa wrt outside and baseline of -2 would be an actual blower door reading of -48.
- Batt Insulation:** Insulation that is made to fit between studs or joists. Batts are usually made in widths of 15 inches and inches. Batts may have a vapor barrier attached to them in the form of "Kraft paper" or foil, or they may be "unfaced", i.e., without a vapor barrier.



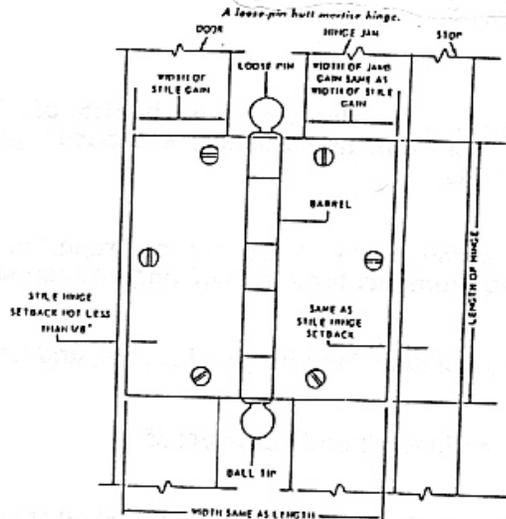
- Batten:** Narrow strips of wood used to cover joints or as decorative members over plywood or wide boards. Sometimes called lath.
- Bay window:** A window, either square, rectangular, polygonal, or curved in shape projecting outward from the wall of a building, forming a recess in a room; a window supported on a foundation extending beyond the main wall of a building; a projecting window similar to a bay window, but carried on brackets or corbels; the term bay window may also be applied to an ordinary window which projects over the street line.
- Bearing Wall:** A wall that supports a floor or roof of a building.

Bevel:	To cut or plane the thickness of a piece of stock to an angle other than a right angle.
Bimetal:	A strip, coil or bar of material formed of two materials of different thermal expansion properties laminated together so a change in temperature causes bending in the strip or twisting of the coil.
Blanket Insulation:	Same as batt insulation only manufactured without a vapor barrier. (See Batt Insulation)
Blind Stop:	A strip of wood, usually 3/4" x 1-3/8" nailed between the outside trim and the outside sash against which screens, or storm windows are fastened. (See Window Terminology)
Blower Door:	A device consisting of a fan mounted in a framework that can be sealed into a doorway to pressurize or depressurize a house. Used to measure and locate air leaks.
Board and Batten:	Exterior siding where boards are nailed vertically to the framing and the cracks between the boards are covered with battens. (See Batten)
Board Foot:	The volume of a piece of wood one inch thick, one foot wide, and one foot long, equivalent to 144 cubic inches.
BOCA Code:	A series of model regulatory construction codes issued by the Building Officials and Code Administrator (BOCA) International, Inc. Frequently used in part or in whole in local building codes.
Bourdon Tube:	A closed-end tube slightly flattened and wound into a coil or spiral so that as pressure is applied to the inside of the tube the coil tends to straighten.
Bow Window:	A window such as a bay window, especially a bay with a curved ground plan.
Brace:	An inclined piece of framing lumber applied to a wall or floor to stiffen the structure. Often used on walls as temporary bracing until framing has been completed.
Braced Facing:	Construction technique using posts and crossbracing for greater rigidity.
Brick Veneer:	A facing of brick laid against and fastened to a wall of any construction sheathing on a frame wall or on the wall construction.
Bridging:	Small wood or metal member that are inserted in a diagonal position between the floor joists at mid-span.
British Thermal Unit:	The quantity of heat required to raise the temperature of one pound of pure water one degree Fahrenheit at or near the temperature of maximum density of water 39 degrees Fahrenheit. (Also see BTUs)
BTUs:	British Thermal Unit, used to measure the amount of heat being gained or lost (Also see British Thermal Unit).

Common Fuels and their BTU values:

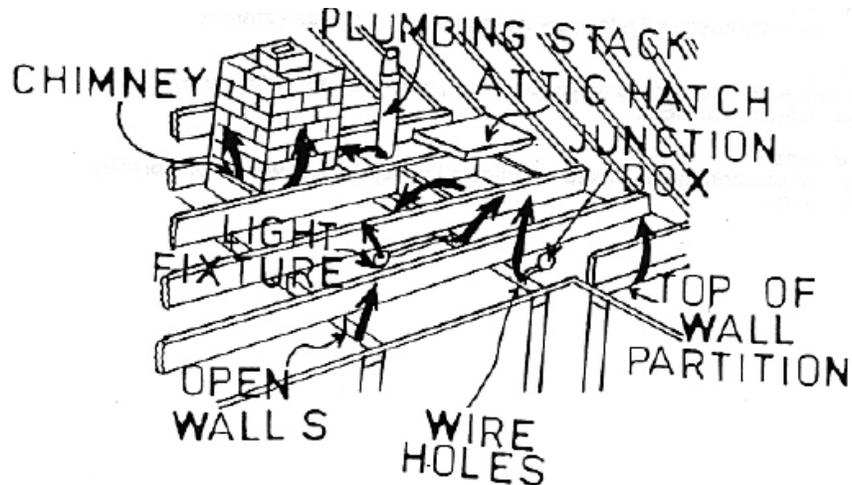
Natural Gas:	1 Cubic foot.....	930 to 1050 Btus
	1 Therm (100cf).....	100,000 Btus
	10 Therms (Mcf).....	1,000,000 Btus
Propane:	1 Gallon.....	95,000 Btus
Fuel Oil:	1 Gallon.....	130,000 to 150,000 Btus
Electricity:	1 Kwh.....	3,413 Btus

- Buffer Zone:** A space in a building which separates the heated interior of a building from the outside. Buffer zones include; attics, crawlspaces, garages, floor cavities, and interior soffits.
- Building Code:** The civil regulations governing the construction and repair of buildings and setting forth the requirements for such building and repair.
- Building Envelope:** The exterior surface of a building, including walls, roof, and floor.
- Building Paper:** A heavy paper used in walls to air and damp proof.
- Building Permit:** A certificate which must be obtained from the local government by the property owner or contractor before a building can be erected or repaired and which must be kept pasted in a conspicuous place until the job is finished.
- Build-Up Roof:** A roof material applied in sealed, water-proof layers, where there is only a slight slope to the roof.
- Bungalow:** A one-story house with low, sweeping lines and a wide veranda.
- Burner:** A devise for the final conveyance of fuel, or a fuel and air mixture to the combustion chamber.
- Butt Gage:** A type of marking gage used to indicate the depths and widths of mortises for butts.
- Butt Hinge:** A hinge secured to the edge of a door and the face of the jamb it meets when the door is closed, as distinguished from the strap hinge. Usually mortised into the door and jamb.



Butt Joint: Any joint made by fastening two parts together end to end without overlapping.

Bypasses: Openings between heated and unheated spaces, such as open wall cavities, around flues and pipes, etc.



CFM 50: Refers to the air leakage rate (Cubic Feet Per Minute) across a surface with a 50 pascal pressure difference acting across it. For example CFM50 House / Zone refers to the air leakage rate of the house-to-zone surface at a 50 pascal pressure difference across that surface (not 50 pa across the whole flow path from inside to outside).

Camp Ceiling: A type of ceiling often used in attic rooms, in which the two opposite side walls slope in at the top, in line with the rafters, to meet the plane surface of the upper, or middle section, which is horizontal. (The slope ceiling of a story and half house.)

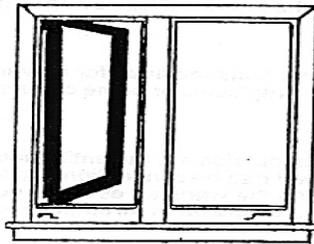
Cantilever Joist: Short joists used to support a projecting balcony or a bay window, which has no supporting foundation.

Carbon Monoxide: A colorless odorless very toxic gas that turns to carbon dioxide with a blue flame and is formed as a product of the incomplete combustion of carbon.

Carriage: The member, which supports the steps or treads of a stair from top to bottom.

Casement Frame and Sash: Frames of wood or metal enclosing part or all of the sash, which may be opened by means of hinges affixed to the vertical edges.

Casement Window: Window with sash that opens on hinges; a window sash made to open by turning on hinges attached to its vertical edge.



CASEMENT

Casing: The framework around a window or door. Also the finished lumber around a post or beam.

Caulking Compound: A filler used to fill cracks, especially around window and door framing, to prevent the leakage of water, air, or dust into the building from the outside and to prevent the escape of warm air from the inside of the building.

Cavity Wall: A hollow wall formed by firmly linked masonry walls and providing an insulating air space between.

CAZ: See combustion appliance zone.

CCA Lumber: CCA stands for Chromated Copper Arsenate, a wood preservative formulation containing copper, chromium and arsenic. The copper acts as the main fungicide and also provides some protection against termites. Arsenic provides protection against termites and copper-tolerant decay fungi. Chromium helps to bond and "fix" the chemical components to the wood.

Cellulose Insulation: A building insulation made from ground-up wood fiber (newspaper) and treated with chemicals to be fire resistant.

Center Meeting Rail: On a double hung window, the point where the top rail of the bottom sash meets the bottom rail of the top sash (also known as the meeting rail, see window terminology).

Centigrade: Thermometer whose scale at the freezing point is zero and one-hundred at the boiling point of water. To change from (degree C) to (degree F) $C + 17.78 \times 1.8 = F$. To change from F to C $F - 32 \times 5/9 = C$.

Centimeter: A measure of length in the metric system equal to the one-hundredth part of a meter or .3937 inch.

CFM: Cubic feet per minute.

Check rail: The middle horizontal member of a double-hung window, forming the lower rail of the top sash and the top rail of the lower sash. (See window terminology)

Chimney:	That part of a building which contains the flues for drawing off smoke or fumes from stoves, furnaces, fireplaces, or some other source of smoke and gas.
Chimney Effect:	When inside air is warmer than outside air, the entire house or building acts as a chimney. Warm air will rise by convection and leak out of openings in the upper levels. As the warm air escapes out of the upper levels it will cause cooler air to be drawn in through openings in the lower levels. (Also see Stack Effect)
Circuit:	In electricity, the path taken by an electrical current in flowing through a conductor (two or more wires) from one terminal of the source of supply to the other.
Circuit Breaker:	A safety device which opens (breaks) an electric circuit automatically when it becomes overloaded.
Circular Saw:	A saw with teeth spaced around the edge of a circular plate, or disc, which is rotated at high speed upon a central axis, spindle, used for cutting lumber or sawing logs.
Circumference:	The perimeter of a circle; a line that bounds a circular plane surface.
Clapboard:	Long thin boards, graduating in thicker from one end to the other, used for siding, the thick end overlapping the thin portion of the board.
Clock Thermostats:	A thermostat that can be set to turn the furnace on and off automatically at predetermined hours.
Code:	Any systematic collection or set of rules pertaining to one particular subject and devised for the purpose of securing uniformity in work or for maintaining proper standards of procedure, as a building code.
Coil:	A snakelike piece of copper tubing surrounded by rows of aluminum fins which clamps tightly to the tubing to aid in heat transfer.
Cold-Air Duct:	In heating and ventilating systems, a pipe which carries cold air back to the furnace to be reheated. (See Return Air)
Cold Junction:	That part of a thermoelectric element which is attached to a load, through which electricity generated by the thermocouple is conducted to the load. (See also Thermocouple, Hot Junction)
Collar Beam:	A beam connecting pairs of opposite roof rafters above the attic floor.
Comb Board:	The (ridge board) of a roof; the board at to ridge of a roof to which the rafters are nailed.
Combination Square:	Tool which combines in handy compact form the equivalent of several tools, including an inside try square, outside try square, miter square, plumb, level, depth gage, marking gage, straight edge, bevel protractor, and center head in addition to square head.

Combination Window: Windows having an inside removable section so the same frame serves both summer and winter. In warm weather a screen may be inserted and in winter a storm window is used.

Combustion Air: The air needed to support combustion (burning) in a furnace or similar fuel-burning device.

Combustion Appliance Zone: The room in which the combustion appliance is located.

Combustion Chamber: The portion of an appliance within which combustion normally occurs.

Combustion Products: Constituents resulting from the combustion of a fuel gas with the oxygen in air, including the products, but excluding excess air.

Common Nails: These are available from 2d to 60d in length. As their name implies, they are the most commonly used kind of nail and will usually be supplied if no other specification is made. They are used when the appearance of the work is not important.

Common Rafter: One of a series of rafters extending from the rafter plate of a roof to the ridge.

Common Wall: A wall jointly used by two parties, one or both of whom are entitled to such use under the provisions of a lease.

Compressor: A motorized pump that compresses the gaseous refrigerant and sends it to the condenser where heat is released.

Concrete: A mixture of cement, sand, and gravel with water in varying proportions according to the use which is to be made of the finished product.

Concrete Blocks: In masonry, precast, hollow, or solid blocks of concrete used in the construction of buildings.

Condensation: Condensation is the opposite of evaporation. Beads or drops of water (and frequently frost in extremely cold weather) that accumulate on the inside of the exterior covering of a building when warm, moisture-laden air from the interior reaches a point where the temperature no longer permits the air to sustain the moisture it holds. Use of louvers or attic ventilators will reduce moisture condensation in attics. A vapor barrier under the gypsum lath or dry wall on external walls will reduce condensation in them.

Condense: Gas changing into a liquid as it cools.

Condenser: The coil in an air conditioning system where the refrigerant condenses and releases heat which is carried away by air moving through the coil.

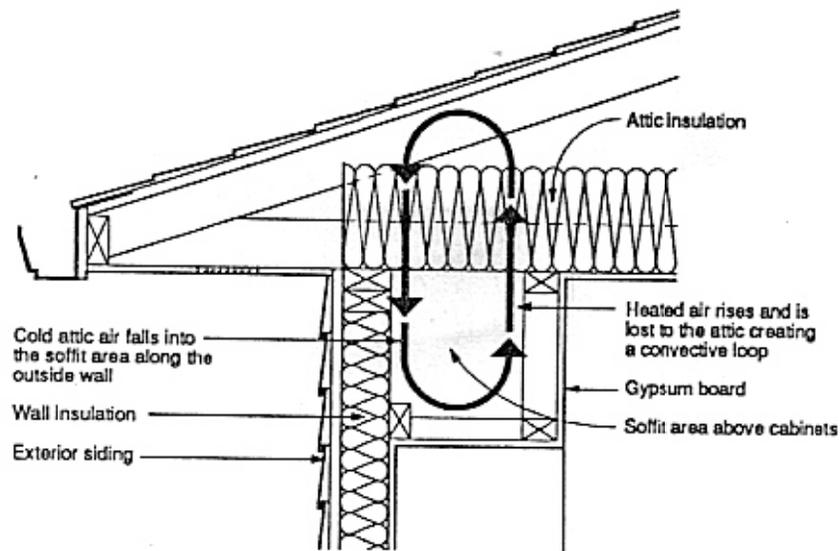
Conditioned Space: An area of a dwelling which receives conditioned (heated) air, however minimal, from some source within the structure. A conditioned space may contain a furnace or wood stove, water heater, uninsulated ductwork, or water and or sewer lines. Any area of the dwelling used as a sleeping area is considered conditioned space.

- Conduction:** The movement of heat through a material or by contact from one material to another.
- Conductor:** A substance through which electrons flow with relative ease.
- Conduit (Electrical)** A pipe usually metal, in which wire is installed.
- Continuity:** A continuous electrical path.
- Control:** The methods and means of governing the operation of an appliance.
1. Combination Control - Two or more control functions are built into the same control.
2. Fan and Limit Control - A combination control used on forced warm air furnaces which controls air fan operation and limits circulation air temperature.
- Convection:** The transfer of heat caused by the movement of a fluid-like water or air. When a fluid becomes warmer it becomes lighter and rises.

The fluid at the bottom of the kettle is heated by the hot surface of the metal. Warmer fluid is lighter than cooler fluid. The cooler fluid falls and the warmer fluid rises. The current caused by this movement is called convection.

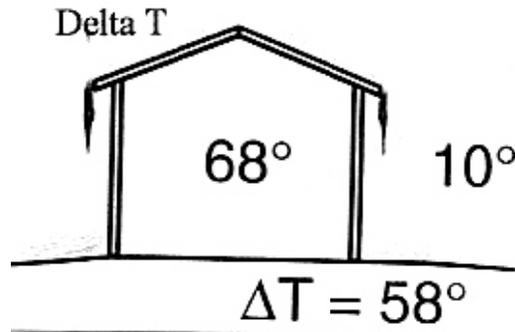


- Convective Loop:** Soffited ceilings usually lose heat through a convective loop. Warm air rises to the top of the open cavity and is cooled and then falls.



- Convector:** A type of heat dispenser used when heating is accomplished by convection.
- Convector Radiator:** A type of heating in which steam or hot water runs through a pipe core, heating metal plates or fins attached to it at short intervals. Air passed over these fins picks up heat and distributes it through vents in an enclosure to the area to be heated.
- Cooling load:** The maximum rate of heat removal required of an air conditioner when the outdoor temperature and humidity are at the highest expected level. Cooling load is calculated to determine the proper size for the air conditioning equipment based on outdoor temperature and humidity.
- Coping Joint:** A piece of wood cut to fit the profile of another.
- Corner Bead:** A strip of wood or metal for protecting the external corner of plastered walls.
- Cornice:** Overhang of a pitched roof at the eaves line, usually consisting of a fascia board, a soffit for a closed cornice, and appropriate molding.
- Course:** A horizontal row of bricks, blocks, or other masonry materials, shingles and siding.
- Cove Molding:** A quarter around or concave molding.
- Crawlspace:** A shallow space below the living quarters of a house without a basement, normally enclosed by the foundation walls.
- Cripple:** Any part of a frame which is cut less than full size, as a cripple stud over a door or under a window opening.

Cripple Jack Rafter:	A jack rafter that is cut in between a hip and valley rafter. A cripple jack touches neither the ridge nor the plate but extends from a valley rafter to a hip rafter.
Cross Ventilation:	Producing a flow of air across a room by means of windows, doors, or other openings on opposite sides of the room.
Crosscutting:	Cutting with a saw across the grain or width of a board.
Cubic foot of Gas:	(Standard Conditions) The amount of gas which will occupy 1 cubic foot when at a temperature of 60 degrees F and under a pressure equivalent to that of 30 inches of mercury.
Cubic Foot Per Minute (CFM):	A measurement of air movement past a certain point or through a certain structure.
Current:	The flow of electrons, measured in amperes. One ampere results when one volt is impressed on a circuit that has a resistance of one ohm.
Damper:	A device used for regulating the draft in the flue of a furnace.
Dead Bolt:	In a door lock, a bolt with a square head controlled directly by the key when moved in either direction.
Decking:	The wood material installed under the roofing material to support the roofing (Sheathing).
Degree:	A unit of angular measurement. One 360th part of the circumference of a circle. Also a unit of temperature measurement, such as degree Fahrenheit or degree Centigrade.
Degree-Day (heating):	A unit employed in estimating fuel consumption and specifying the nominal heating load of a building in winter. It is based upon the temperature difference and time. For any one day, when the mean temperature is less than 65 degrees F, there exists as many degree-days as there are Fahrenheit degree difference in temperature between the mean temperature for the day and 65 degrees F.
Dehumidifier:	A device used in homes to extract excess moisture from the air in summer to prevent "sweating" of cold surfaces.
Delta T:	The difference in temperature between indoors and outdoors is the driving force for heat flow and presents the need for a heating device to replace the heat which is flowing out.



Dense Pack Insulation: Cellulose insulation installed with the intention of stopping air movement through the pressure boundary. Dense pack insulation replaces conventional air sealants such as caulk and foam in areas where conventional sealants are expensive and ineffective. Dense pack insulation is installed at 3.5 lbs per cubic foot or greater density.

Density: The standard unit weight per unit volume of a material usually expressed as pounds per cubic foot.

Desiccant: An agent that removes moisture from air or materials.

Dew Point: The temperature at which a given sample of moist air will become saturated and deposit dew; the point at which dew begins to form.

Diaphragm Valve: A control valve in which the main actuating means in the gas pressure on a flexible diaphragm.

Dilution Air: Air which enters a draft hood and mixes with flue gases.

Dip Tube: A tube, usually non-metallic, fitted into a water heater to direct incoming cold water to the bottom of the tank.

Direct Current (DC): Current in a circuit in one direction only.

Direct Spark Ignition System: An ignition system in which gas is ignited directly by a continuous spark formed between two high-voltage electrodes. No intermediate pilot flame is used.

Diverter: See Draft Hood.

DOE: Department of Energy

Door Bolt: A door fastener, consisting of a sliding bar or rod which is mounted and attached to a door so as to lock it.

Door Jack: A frame used by carpenters for holding a door while it is being planed and the edges fitted to the size of a door opening.

Door Jamb: Two upright pieces fitted and held together by a head to form the lining for a door opening.

Door Saddle: An aluminum strip with a vinyl or rubber cushion mounted on it. Used to cover or replace threshold strips in doorways to prevent air infiltration under doors.

Door Sill: The bottom of an outside door frame over which the door closes.

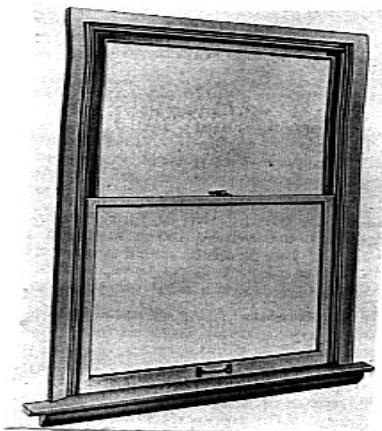
Door Sweep: An aluminum strip with a vinyl, rubber, or fiber flap attached to its bottom edge. The sweep is attached to the bottom of the door so the flap seals the crack beneath the door when the door is closed.

Dormer: An opening in a sloping roof, the framing of which projects out to form a vertical wall suitable for windows or other openings.



Double Glazing: An insulating window pane formed of two thicknesses of glass with a sealed air space between them. The term is also used when referring to a storm window.

Double Hung Window: Windows with an upper and lower sash, each supported by cords and weights or side channels.

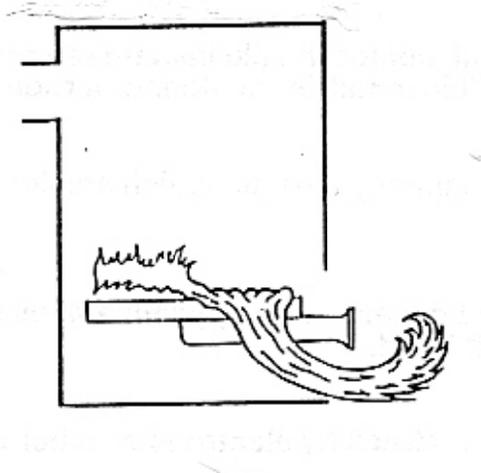


Dovetail: An interlocking joint made by angle cutting two boards to fit into each other as in boxes and drawers.

Doweling: The method of fastening two pieces of wood together by the use of dowels; butt joints are sometimes secured by the use of glue and dowel pins.

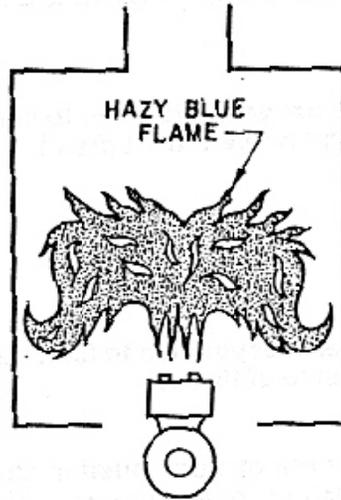
Down draft:	The flow of air downward, as a current of air down a chimney usually due to improper operation of furnace or fireplace from improper design.
Down spout:	A pipe, usually of metal, for carrying rainwater from roof gutters.
Draft:	A term used in reference to the pressure difference which causes a current of air or gases to flow through a flue or chimney.
Draft Damper:	A device to automatically regulate the draft.
Draft Hood (Draft Diverter):	A device built into an appliance, or made a part of the flue or vent connector from an appliance, which is designed to (1) provide for the ready escape of the flue gases in the event of no draft, back draft, or stoppage beyond the draft hood; (2) prevent a back draft from entering the appliance; and (3) neutralize the effect of stack action of the chimney or gas vent upon the operation of the appliance.
Draft Regulator:	A device which functions to maintain a desired draft in the appliance by automatically reducing the draft.
Ductwork:	The system of supply and return ducts that transport air to and from the air handler in a central air conditioning system.
Dust Mite:	A microscopic animal that lives on skin flakes in house dust.
Eave:	The part of a roof which projects over the side wall (Also is soffit).
Electricity:	A form of energy produced by the flow of electrons through materials and devices under the influence of an electromotive force produced electrostatically, mechanically, chemically or thermally.
Energy Cut Off (ECO):	A thermostatic element placed in the control circuit which shuts off gas supply in case of excessively high water temperature.
Energy Efficiency Rating:	A measurement of energy efficiency for room air conditioners. The EER is computed by dividing cooling capacity, measured in British Thermal Units per hour (BTU), by the watts of power. (See also Seasonal Energy Efficiency Rating SEER)
Evaporation:	The change that occurs when a liquid becomes a gas. Evaporation is the key process in the operation of air conditioners and evaporative coolers.
Evaporative Cooler:	A device for cooling homes in dry climates that cools the incoming air by humidifying.
Evaporator:	The heat transfer coil of an air conditioner or heat pump that cools the surrounding air as the refrigerant inside the coil evaporates and absorbs heat.
Excess Air:	Air which passes through the combustion chamber and the appliance flues in excess of that which is theoretically required for complete combustion.

- Fascia or Fascia Board:** A flat board, band, or face used sometimes by itself but usually in combination with moldings, often located at the outer face of the cornice.
- Fahrenheit:** A temperature scale so graduated that the freezing point of water is 32° and the boiling point is 212°.
- Fan and Limited Control:** (See Control)
- Fiberglass Insulation:** Insulation made from spun glass fibers. Fiberglass is manufactured in batts, blankets, and blowing wool.
- Fin Comb:** A comb-like tool used to straighten bent fins in air conditioning coils.
- Fire Blocks:** Short pieces of wood nailed between studding to serve as bracing and, in case of fire, to stop drafts and prevent the spread of the fire to other parts of the building.
- FHA:** Federal Housing Authority
- Flame Switch:** A thermostatic control element responsive to high temperature and thereby used to sense presence of flame.
- Flame Roll out:** A condition where flame rolls out of a combustion chamber when the burner is turned on due to the lack of air. This lack of air may be due to overrating of burners, poor draft or blockage in flue.



- Flashback:** An undesirable flame characteristic in which burner flames strike back into a burner to burn there or to create a pop after the gas supply has been turned off.
- Flashback Arrestor:** A gauze, grid or any other portion of a burner assembly used to avert flashback.
- Flashing:** Sheet metal or other material used in roof and wall construction to protect a building from water seepage.

Floating Flames: An undesirable burner operating condition, usually indicating incomplete combustion in which flames leave the burner ports to reach for combustion air. They are long, ill-defined, quiet flames, which roll around in the combustion chamber sometimes completely off the ports. Usually a strong formaldehyde odor is present.



Floor Furnace: A heating unit made for small homes in mild climate regions that have no basements. The heating unit is installed in the floor of a room.

Flue: The space or passage in a chimney through which smoke, gas, or fumes ascend.

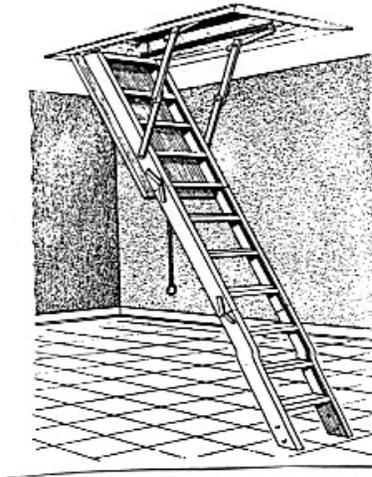
Flue Gas: Products of combustion and excess air in appliance flues or heat exchangers before the draft hood.

Fluorescent: The ability to emit light when struck by electrons or other radiation.

Flush Door: A door that is flat on both surfaces.

Flue Loss: The heat lost in flue products exiting from the flue outlet of an appliance.

Folding Stair: A stair that folds into the ceiling. Also called pull-down stairs.



Footing: A masonry section, usually concrete, in a rectangular form, wider than the bottom of the foundation wall or pier it supports.

Forced Draft Burner: A burner in which combustion air is supplied by a fan or blower.

Foundation: The supporting portion of a structure below the first floor construction, or below grade, including the footings.

Frame Construction: A type of construction in which the structural parts are wood or depend upon a wood frame for support. In codes, if masonry veneer is applied to the exterior walls, the classification of this type of construction is usually unchanged.

Framing: Lumber used in the structural skeleton of a building, such as studs, joists, rafters, etc.

Framing Square: A metal square having a blade 24" long and a tongue 8" long, on which are various tables for the use of builders in the construction of a building.

French Door: A pair of doors with glazed panels extending the full length of the door, serving as both door and window.

French Window: A long, double casement window with the sashes hinged at the sides and opening in the middle. The window extends down to the floor and serves as a door to a porch or terrace.

Fungus: Microorganism that dissolves nutrients from the materials it lives in and on, damaging these host materials.

Furnace: An apparatus in which heat is generated and maintained by the combustion of fuel; a heating plant.

Furnace Cycle: The time it takes a furnace to start up, ramp, steady state, and tail.

Furring: Strips of wood or metal applied to a wall or other surface to even it and normally to serve as a fastening base for finish material.

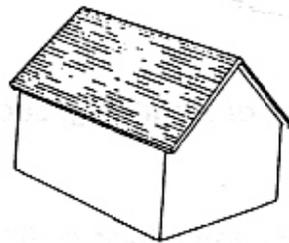
Fuse: A short plug in an electric panel box which opens (breaks) an electrical circuit when it becomes overloaded.

Fusible Link: An electrical circuit component made of low melting-point material, which upon exposure to heat, melts and breaks an electric circuit.

Fusible Plug: A tank plug made of low melting-point material so it will melt and relieve tank pressure when excessive temperature occurs within the tank.

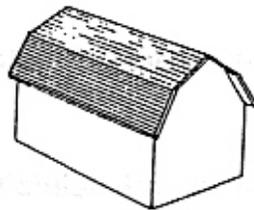
Gable: In house construction, the portion of the roof above the eave line of a double-sloped roof.

Gable Roof: Two roof surfaces rising from opposite sides of a house and meeting at the ridge line, forming gables at the other two sides.



Gable roof.

Gambrel: A type of roof which has its slope broken by an obtuse angle, so the lower slope is steeper than the upper slope; a roof with two pitches.



Gambrel roof.

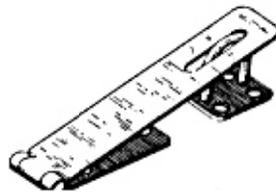
Girder: A main member in a framed floor supporting the joists which carry the flooring boards. It carries the weight of a floor or partition.

Glazing: Fitting glass into windows or doors.

Glazing Compound: A putty-like substance used to seal glass to the window sash to prevent air leakage.

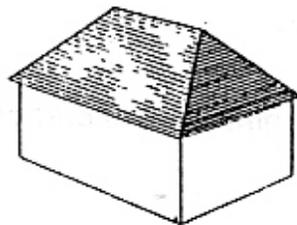
Glazing Points: Small, triangular pieces of metal driven into the rabbet of a sash to hold the glass in place before glazing compound is installed.

- Glow Coil:** A coil of fine wire heated by electric current and used to light a pilot flame.
- Glow Bar:** A bar of high-temperature material, usually spirally machined to provide a long electrical path, heated with an electrical current to incandescence to ignite gas burner flames.
- Grade Line:** The point at which the ground rests against the foundation wall.
- Gravity Furnace:** Usually a centrally located furnace that has no fan or blower. Warm air is distributed through ducts by the buoyancy of the warm air. When it cools, gravity brings the cooled air back to the floor where it is brought back to the furnace through cold air ducts.
- Ground (or Grounded):** 1. The common return path for electric current in electronic equipment (Called electrical ground). 2. A reference point connected to, or assumed to be at zero potential with respect, to the earth.
- Gutter:** A channel at the eaves for conveying rain water.
- Hard Flame:** A flame with a hot, tight, well-defined inner cone.
- Hasp:** A hinged-metal strap designed to pass over a staple and secured by a peg or padlock.



- Hatch:** A small door for closing an opening such as a trap door; also, the cover for an opening leading to the roof or to an attic of a building.
- Head Jamb:** The top member of a door or window frame. It is also called a yoke.
- Header:** One or more pieces of lumber used to support the ends of floor joist, studs, or rafters and transfer their load to other parallel joists, studs, or rafters. A framing member over a window or door opening.
- Heat:** Heat is a measurable quantity of energy.
- Heat Anticipator:** A small resistance heater in a wall thermostat which, by heating the thermostat enclosure, causes the thermostat to cycle to off before the set room temperature is reached.
- Heat Exchanger:** Any device for transferring heat from one fluid to another. A heat exchanger captures the heat produced during combustion then transfers or exchanges the heat produced on the combustion side to the distribution side of the furnace.

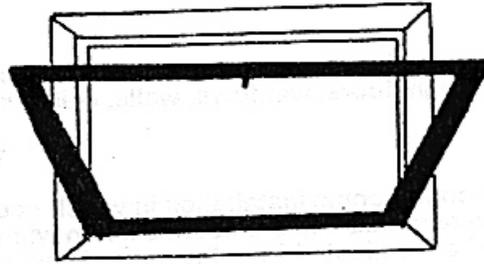
- Heating Degree-Days:** The number of degrees the daily average temperature is below 65°F. Normally heating is not required in a building when the outdoor average daily temperature is 65°F. Heating degree-days are determined by subtracting the average daily temperatures below 65° from the base 65°F. A day with an average temperature of 50° has 15 degree-days (65-50=15), while one with an average temperature of 65° or higher has none.
- Heat Gain:** An increase in temperature within a structure due to the transmission of heat from the outside through doors, windows, walls, ceilings, floors, and infiltration.
- Heat Pump:** A type of heating and air conditioning installation in which house heat in summer is drawn out and released into the outside air. In winter, the same refrigerant concentrates heat collected from the natural heat of the outside air or from earth or water. It may be used with either a hot water or forced warm air system.
- Heating Plant:** Any system for heating a building, including a furnace, boiler, pipes, and fixtures.
- Heat Radiation:** Heat energy that flies through space from one solid object to another.
- HEPA:** A high efficiency particulate arresting filter that removes many of the smaller particles from the air.
- High Density Insulation:** Insulation that is installed at a density of one pound per square foot in a three and a half inch wall cavity.
- High-limit Switch:** A temperature operated switch used for warm air, hot water, or steam systems which prevents the system from overheating.
- Hip:** The external angle formed by the juncture of two slopes of a roof.
- Hip Roof:** A roof that rises by inclined planes from all four sides of a building.
- Hollow core door:** A faced door with a space between the facings which is occupied by a



Hip roof.

structure consisting of air or open cells between wood, plastic, or other suitable material.

Hopper Window: A window in which the sash opens at the top and is hinged at the bottom.



HOPPER

Horse Power: A unit of power performed by 746 watts in one hour.

Hot Junction: That part of a thermocouple where the two wires, rods, etc., making up the thermocouple are joined together and heated to produce electricity by the thermoelectric effect. (See also Thermocouple, Cold Junction)

House Pressure: Refers to the pressure difference between the house and the outside.

House Zone: (See Zone)

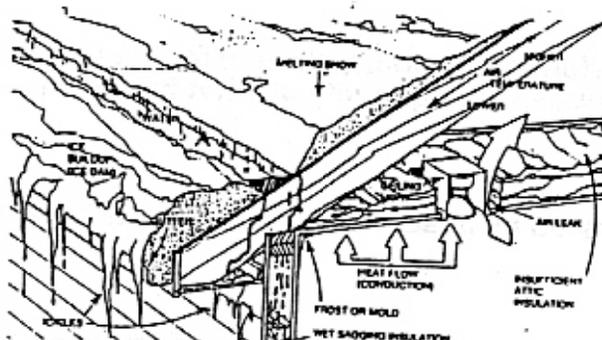
Humidifier: A device designed to increase the humidity within a room or a house by means of the discharge of water vapor.

Humidistat: A device to sense and control the amount of moisture (relative humidity) in circulating air.

Humidity: The amount of moisture in the air.

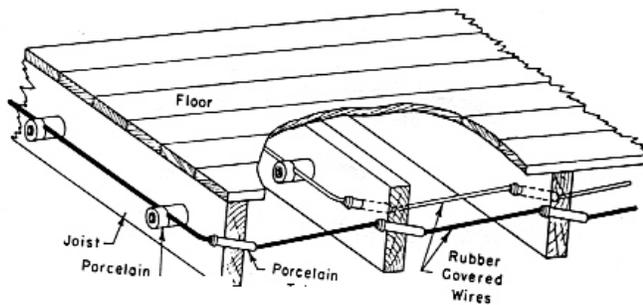
Hydronic Heating System: A central heating system, which utilizes heated water carried through pipes to supply heat throughout the structure.

Ice Dam: As snow is melted on the roof of a house by warm air in the attic, the melted snow runs down the roof till it reaches the overhang where it then re-freezes forming icicles and a build up of ice at the edge of the overhanging portion of the roof.



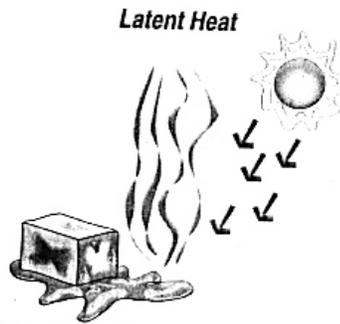
Ignition:	The act of starting combustion.
Incandescent Lamp:	The common light bulb found in residential lamps and light fixtures and sold in stores everywhere.
Inches of Mercury Column:	A unit on measuring pressures. One inch of mercury column equals a pressure of 0.491 pounds per square inch.
Inches of Water Column:	A unit used in measuring pressures. One inch of water column equals a pressure of 0.578 ounces per square inch. One inch mercury column equals about 13.6 inches water column.
Induced Draft Burner:	A burner which depends on draft induced by a fan or blower at the flue outlet to draw in combustion air and vent flue gases.
Infiltration:	The uncontrolled flow of air through cracks and openings in the building envelope.
Infrared (IR Scanner):	A viewer that scans infrared (heat) emissions from an object to indicate temperature.
Input Rate:	The quantity of heat or fuel supplied to an appliance, expressed in volume or heat units per time, such as cubic feet per hour or Btu per hour.
Input Rating:	The gas-burning capacity of an appliance in Btu per hour as specified by the manufacturer. Appliance input ratings are based on sea level operation and need not be changed for operation up to 2,000 feet elevation. For operation at elevations above 2,000 feet, input ratings should be at the rate of 4 percent for each 1,000 feet above sea level.
Insulating Glass:	Two panes of glass separated by gases or an air space and sealed around the edges.
Insulation, thermal:	Any material high in resistance to heat transmission that, when placed in the walls, ceiling, or floors of a structure, will reduce the rate of heat flow. (See Cellulose, Fiberglass, Rock Wool)
Internal Gains:	The heat generated by bathing, cooking, and operating appliances that must be removed during the summer to promote comfort.
Jalousies:	(1) Windows with movable, horizontal glass slats angled to admit ventilation and keep out rain. (2) Outside shutters of wood constructed in the same way.
Jamb:	The side and head lining of a doorway, window, or other opening.
Joist:	A heavy piece of horizontal timber that are laid edgewise to form the supports to which the boards of a floor or the ceiling are nailed.
Joist Hangers:	A metal stirrup used to support the ends of joists which are to be flush with the girder.

- Junction Box:** A square metal or plastic box which protects the connection of electrical wires.
- Keeper:** The (strike plate) of a door lock; the socket which is fitted to a door jamb to house the bolt of the lock when the door is in a closed position.
- Kerf:** A cut made with a saw.
- Kick Plate:** A metal plate, installed along the bottom edge of a door to prevent the marring of the finish by shoe marks.
- Kiln-dried:** Artificially dried lumber: superior to most lumber that is air dried.
- Kilo:** A prefix placed before a word to indicate a number one thousand times that indicated by the word.
- Kilowatt:** One thousand watts of electricity.
- Kilowatt-hour:** A measurement of electricity which equals 1000 watts an hour.
- Knee Wall:** Attic wall formed by framing vertically between the joists and the rafters. Used when making an attic into a living area to wall off floor area under the lowest portion of roof slope.
- Knob and Tube Wiring:** A system of wiring where the positive and negative wires are kept separated by porcelain knobs for going over the tops of joist and tubes for going through the joist.



- Kraft Paper:** A type of strong brown paper used as a building paper.
- Lap siding:** Siding in which the top piece of siding overlaps the bottom piece.
- Latch:** A device for fastening a door. It usually consists of a movable bar which is secured to the door and falls into a hook or catch on the frame of the door.
- Latch Bolt:** A lock bolt that has a beveled head, moved by a spring when it is retracted in contact with the strike plate.

Latent Heat: The unexpectedly high amount of heat absorbed or released when a material changes phase: from a solid to a liquid or from a liquid to a gas and vice versa.



Lath: One of a number of thin narrow strips of wood nailed to ceiling joists or wall studs to provide a base for plaster.

Lifting Flames: An unstable burner flame condition in which flames lift or blow off the burner port(s).

Lights: The openings or pieces of glass in an opening.

Lineal Foot: A line measuring 12" in length.

Lintel: A horizontal structural member that supports the load over an opening such as a door or window.

Load: Any component, circuit, subsystem or system than consumes power delivered to it by a source of power.

Load-bearing Wall: A strong wall capable of supporting weight.

Lockout: A condition in which a control system prevents further operation of an appliance until a malfunction is corrected and the system reset manually.

Lookout: A short piece of lumber used to support the overhanging portion of a roof.

Loose Butt Hinge: A butt hinge in which one leaf may be lifted from the other. A hinge having a single knuckle on each half, one of them with the pin and the other with a corresponding hole, permitting separation of the two parts.

Loose Fill Insulation: An insulation which may be fibrous, granular, or powdered.

Louver: An opening with a series of horizontal slats so arranged as to permit ventilation but to exclude rain, sunlight, or vision.

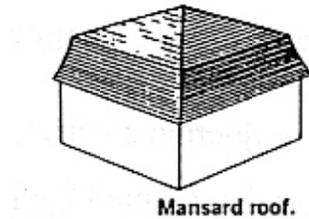
Low E: Short for "low emission" which means the characteristic of a metallic glass coating to resist the flow of radiant heat.

Low-flow Showerhead: A showerhead with a maximum flow of three gallons per minute.

Make-up Air: Air supplied to a space to replace air exhausted or otherwise removed from the space.

Manifold: The conduit of an appliance which supplies gas to the individual burners.

Mansard Roof: A roof with a double pitch on all sides, the lower slope being almost vertical, the upper slope similar to a hip roof pitch.



Masonry: Stone, brick, concrete, hollow-tile, concrete block, gypsum block, or other similar building units or materials or a combination of the same, bonded together with mortar to form a wall, pier, buttress, or similar mass.

Mastic: A pasty material used as a cement (as for setting tile) or a protective coating (as for thermal insulation or water-proofing).

Meeting Rail: The strip of wood or metal forming the horizontal bar which separates the upper and lower sash of a window (same as check rail).

Metal Lath: Sheets of metal that are slit and drawn out to form openings. Used as a plaster base for walls and ceilings and as reinforcing over other forms of plaster base.

Methane: A hydrocarbon gas with the formula CH_4 , the principal component of natural gas.

Mildew: A mold or discoloration on wood caused by parasitic fungi.

Milliampere: One thousandth of an ampere.

Milli - Volt: One thousandth of a volt.

Mineral Wool: A type of insulation produced by sending a blast of steam through molten slag or rock. (See Rock Wool)

Miter: The joining of two pieces at an evenly divided angle, as the joint in the corner of a picture frame.

Mod Kit: (Moderization Kit) Converts outdated mortise lockset doorways without filling holes left by removal of the old locks. The kit will contain a latch plate, strike plate, and front and back trim. Two sizes are usually available.



Module: A unit of measurement commonly established at 4". A complete part of a building assembled in a shop, such as a bathroom.

Mold: A fungus that grows on or in damp and decaying vegetable matter.

Molding: (1) A wood strip having a carved or projecting surface, used for decorative purposes. (2) The joint of two pieces at an angle that bisects the joining angle. For example, the miter joint at the side and head casing at a door opening is made at a 45° angle.

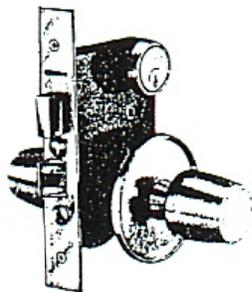
Monoxor: An instrument used to measure (CO) carbon monoxide.

Mop Board: Also called baseboard, a finishing board installed at the base of a wall next to the floor.

Mortar Mix: A mixture of cement, lime, and sand from which mortar can be made merely by adding water.

Mortise: A cavity cut in a piece of wood such as for a strike plate or hinge butt.

Mortise Lock: A lock made to fit into a mortise in the edge of a door.



Mortise lock.

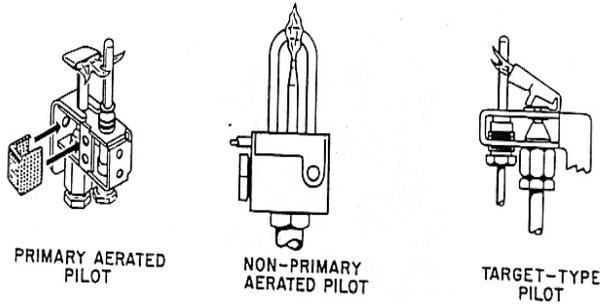
Mud: Joint compound, used to fill nail holes and to tape drywall joints, also used when referring to mortar in brick or block laying.

Mud-sill: The lowest sill of a structure placed on the ground or foundation.

Mullion: The division between multiple windows. (See Window Terminology)

Muntin:	The small members that divide glass in a window frame. (See Window Terminology)
Natural Draft:	The motion of flue products through an appliance generated by hot flue gases rising in a vent connected to the furnace flue outlet.
Natural Gas:	Any gas found in the earth, as opposed to gases which are manufactured.
Natural Ventilation:	Ventilation using only natural air movement, without air vents, fans, or other mechanical devices. Exchange of air between a home and the outside through cracks and holes in the envelope of the house.
NEC:	National Electrical Code
Negative Pressure:	When an area or room has less pressure than an area or room next to it. The area is sucking in air from its surrounding areas.
Oakum:	Oakum is made from Hemp and is used for caulking joints.
Ohm:	The unit of electrical resistance. A circuit component has a resistance of one ohm when one volt applied to the component produces a current of one ampere.
Orifice:	A small opening such as an opening at the end of a vent pipe. Limits the flow of gas into the burner before the burners.
Orifice Spud:	A removable plug or cap containing an orifice which permits adjustment of the gas flow either by substitution of a spud having a different size orifice or by motion of an adjustable needle into or out of the orifice.
OSHA:	Occupational Safety and Health Act
Particulate:	The small particles of suspended matter in air. Of most concern are those small enough to be breathed deep into the lung.
Parting Stop:	A small wooden piece used in the side and head jambs of a double hung window to separate upper and lower sash.
Pascal:	(1) Pressure equal to that of two inches of water column. (2) The same amount of pressure exerted by 15 full grown gnats farting at the same time.
Perm:	The water vapor permeance of a material. One perm is equal to one grain of water vapor per square foot hour per inch of mercury vapor pressure difference.

Pilot: A small flame which is used to ignite the gas at the main burner.



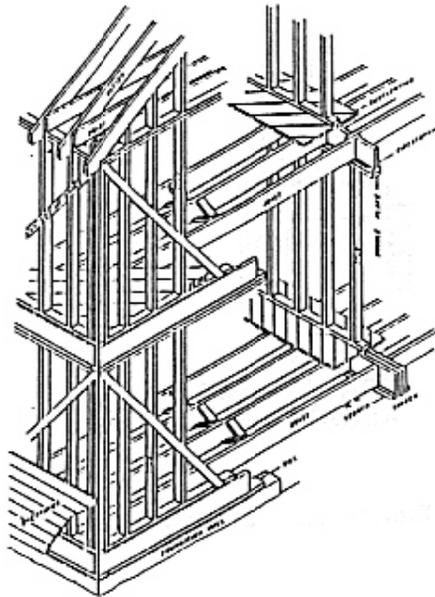
Typical automatic pilot burners.

Pitch of a roof: Slope of a roof; to figure the pitch of a roof, divide the total rise by the span. An example, if the total rise is 4 feet and the span is 12 feet then the pitch would be 4/12 or 1/3 pitch and the angle would be 25°.

Plasterboard: (See Drywall)

Plate: A horizontal structural member placed on top and bottom of the studs of a wall for the purpose of supporting joists, girders, rafters, etc. Also called wall plate, top and bottom plate, or rafter plate.

Platform Framing: In platform framing, the floors of a house are framed independently and are supported by studs of only one story in height.



Pocket Door: A door which slides into a pocket in the wall when it is in the open position.

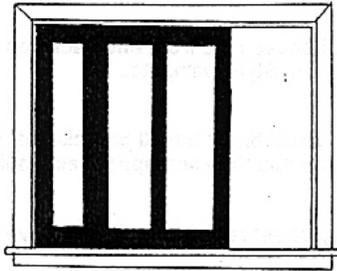
Pointing:	Treatment of joints in masonry by filling with mortar to improve appearance or protect against weather.
Polyethylene Film:	Large plastic sheets used for a vapor barrier.
Port:	Any opening in a burner head through which gas or an air-gas mixture is discharged for ignition.
Positive Pressure:	When an area or room has a greater pressure than an area or room next to it. The area is ballooning or air is being forced out of it.
Post-and-Beam:	Wall construction in which beams are supported by heavy posts rather than many smaller studs.
Power Pile:	This system runs on millivolts. It is characterized by a ribbed wire running to the pilot light, a thermostat without an anticipator, and a millivolt gas valve. The system needs all the above in order to operate properly.
Prefabrication:	Construction of components such as walls, trusses, or doors before delivery to the building site.
Pressure Boundary:	The surface between inside and outside is sealed to reduce convective heat loss. Pressure boundaries and thermal boundaries must align in order for insulation to work right.
Pan:	Any device or material that creates a temporary pressure boundary across the inside of the pressure boundary and a duct termination (grill or register). This can be an actual pan or it can be made with masking tape, card board, or plastic.
Pressure Regulator:	A device for controlling and maintaining a uniform outlet gas pressure.
Primary Air:	The air introduced into a burner which mixes with the gas before it reaches the port or ports.
Primer:	(1) The first coat of paint in a paint job that consists of two or more coats. (2) The paint used for such a first coat.
Propane:	A hydrocarbon gas heavier than methane but lighter than butane. It is used as a fuel gas alone, mixed with air or as a major constituent of liquefied petroleum gases.
P/T Value:	A safety device for water heaters design to relieve the pressure or temperature before they can reach dangerous levels.
Rabbet:	A groove cut in the edge of a board, such as on the edge of a cabinet door.
Radiant Heating:	A method of heating, usually consisting of a forced hot water system with pipes placed in the floor, wall, or ceiling, or with electrically heated panels.
Radiation:	Heat transfer between a hot object and a cooler one without heating of the atmosphere between.

Rafter:	One of a series of structural member of a roof designed to support roof loads. The rafters of a flat roof are sometimes called roof joists.
Rail:	A horizontal strip of wood on a door, cabinet, or window, such as a meeting rail. (See Window Terminology)
Rake:	The overhang of the gable end of the roof.
Reflective Insulation:	Insulation that has a foil surface. The insulating value is determined by the number of its reflective surfaces and must be used with air spaces.
Reglazing:	Removing old window glazing and replacing it with new glazing compound to stop air leakage around window glass.
Regulator:	A devise that controls and maintains gas pressure. (See Pressure Regulator)
Relative Humidity:	The amount of moisture in the air and is expressed as a percentage.
Relay:	Used to control a load by opening or closing contacts through the action of a solenoid coil. Loads of 20 amps or more are usually called contacts.
Relief Opening:	The opening in a draft hood to permit ready escape to the atmosphere of flue products from the draft hood in event of no draft, back draft or stoppage beyond the draft hood, and to permit inspiration of air into the draft hood in the event of a strong chimney updraft.
Resistance Heater:	A heater that uses the heat produced by electrical resistance.
Resistor:	A device which acts to limit flow of electrical current.
Return Air:	Air returning through ductwork to be reheated by a forced-air furnace after circulation through the heated space (also know as cold air return).
Return Register:	A vent that returns cold air to the furnace to be warmed.
Ridge Board:	The board placed on edge at the ridge of the roof into which the upper ends of the rafters are fastened.
Rigid Foam Board:	A Styrofoam type insulation board made in rigid sheets of various widths, lengths, and thicknesses.
Right Hand Door:	If the door swings from you and the hinges are at your right hand, when you face the door from the outside, it is called a right-hand door. If the door swings toward you, then it is known as a reverse right-hand.
Rim Joist:	A board resting on the sill-plate running horizontally along the outside surface of the foundation (also called a "band joist").
Riser:	The upright piece of a stair step, from tread to tread.
Rock Wool:	A form of mineral fiber insulation made from super-heated limestone.
Roll Out:	(See Flame Roll Out)

Roof Cement:	Asphalt based compound used to repair roofs and stop leaks. Also called roofing tar.
Roof Sheathing:	The boards or sheet material fastened to the roof rafters.
Rough Opening:	The unfinished opening of a window or door.
Rot:	The decomposition of wood by certain types of fungi.
R-Value:	The measure of the ability of materials to stop heat loss.
Safe Lighting Valve:	A manual gas valve which permits gas flow to the pilot burner but not the main burner for safety when lighting the pilot.
Sash:	A frame containing one or more panes of glass. (See Window Terminology)
Sash Lock:	A device for holding two window sash together at the check rails. (See Window Terminology)
Scoring:	To mark across the grain of a piece of wood. For the purpose of making the surface rough enough to make it a firmer joint when glued.
Scuttle Hole:	A small opening to the attic, the crawlspace, or the plumbing pipes.
Secondary Air:	Combustion air externally supplied to a burner flame at the point of combustion.
Shake:	A thick hand split shingle, usually edge-grained.
Sheathing:	Usually wood boards or plywood used over studs or rafters of a structure.
Shim:	Thin tapered piece of wood used for leveling or tightening a stair or other building element.
Shingles:	Roof covering of asphalt, asbestos, wood, tile, slate, or other materials cut to stock lengths, widths, and thickness'. (See Asphalt Shingles, Asbestos Shingles, and Shakes.)
Shiplap:	Boards with rabbet edges so that when placed next to another shiplap board the edges will be overlapped.
Siding:	The finish covering of the outside wall of a frame building, whether made of horizontal weather boards, vertical boards with battens, shingles, or other materials.
Sill:	The member forming the lower side of an opening, as a door sill, window sill, etc. (See Window Terminology)
Sill Plate:	The lowest member of the frame of a structure, resting on the foundation and supporting the floor joists or the uprights of the wall.
Skirting:	Material used to enclose the crawlspace under a house or mobile home.
Skylight:	A window installed in a roof or ceiling for admitting sunlight.

Slab: Concrete floor placed directly on earth or a gravel base and usually about four inches thick.

Sliding or Slider Window: A window in which the sash fit into a track at the top and bottom and is opened by sliding it from one side to another.



SLIDING

Sling Psychrometer: An instrument used to measure the % of relative humidity.

Slope: The incline of the roof expressed as a ratio between a unit run (12") and a unit rise. An example of this would be the roof rises 4" per 12" of run expressed as 4/12 slope.

Soffit: Usually the underside of an overhang cornice. Also the box area over kitchen cabinets.

Soffit Chute: An insulation damning material made of cardboard or Styrofoam and installed between two rafters at the wall plate to allow air circulation to and from the soffit vents.

Soffit Vent: A vent installed in the underside of a roof overhang (soffit) to allow ventilation of the attic.

Soft Flame: A flame partially deprived of primary air such that the combustion zone is extended and inner core is ill-defined.

Soil Vent: The portion of a soil stack that is above the highest fixture waste connection to it.

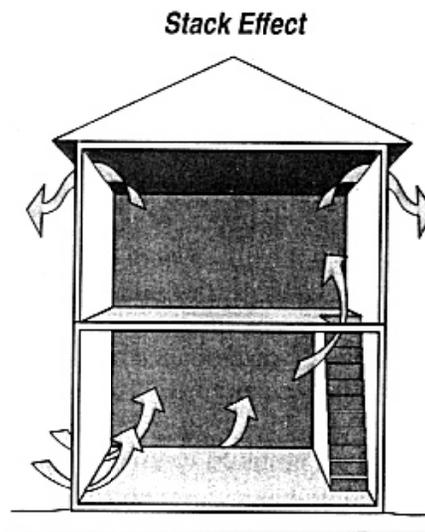
Solenoid: A coil of wire which creates a magnetic field when electricity flows through it, and hence tends to pull a movable iron core placed within the coil.

Soleplate: The lowest portion of a wall which rests on the rough floor that the studs are nailed to.

Solid Core Door: A door which has no voids between the front and back veneers. Can be filled with wood, particle board, Styrofoam, etc..

Soot: A black substance, mostly consisting of small particles of carbon, which can result from incomplete combustion and appear as smoke.

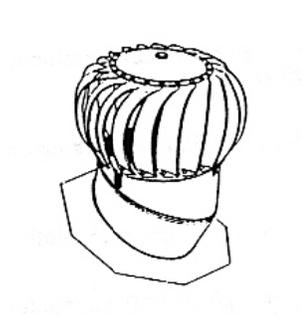
- Spackle:** A patching plaster for taping sheet rock joints. Also known as joint compound.
- Span:** The distance between one rafter tail and the other rafter tail. The distance between one exterior wall and the opposing wall which will be span by one pair of rafters.
- Spark Ignition:** The flame for the pilot burner is established through a high voltage spark when heat is called for.
- Spillage:** Combustion products flowing from the appliance air openings or draft hood relief openings due to a malfunction of the venting system.
- Split Level:** A house which in one part is one story and in another adjacent part a two story.
- Stack Effect:** In a leaky home, as warm air rises and escapes through bypasses into the attic and out the attic through roof vents, it pulls replacement air into the house through holes and cracks from the lowest portion of the home. Also known as the chimney effect.



- Static Pressure:** The pressure exerted by a motionless gas.
- Steady State:** The condition that exists when temperatures have stabilized throughout the heater and distribution system.
- Steady State Efficiency:** (SSE) is the difference between the total amount of heat released by the fuel and the % lost up the chimney with the vent gases. $SSE = 100\% - \% \text{ on cycle stack loss}$. The determining factors are net stack temp (flue gas temp - ambient temp.) and the O₂ or CO₂ content of the fuel gases.
- Stile:** A vertical piece of wood in the edge of a door or window, also vertical members of cabinet facings.

Storm Windows:	Windows, usually contained in an aluminum frame, which are attached to the exterior casing or blind stops of primary windows to reduce heat loss and air infiltration.
Strap Hinge:	A metal hinge where the leaves narrows from the pin out toward the end of the hinge.
Strike Plate:	A piece of metal fastened to the door jamb that the bolt of the lock strikes against.
Stucco:	An exterior wall finish made of Portland cement, sand, and a small amount of lime (concrete).
Subcontractor:	A contractor who has contracted to do work for another contractor.
Subfloor:	Usually plywood sheets that are nailed directly to the floor joists and receive the finish flooring.
Stud:	One of a series of slender wood or metal vertical structural members placed as supporting elements in walls and partitions.
Sump:	A pit in the basement in which water collects to be pumped out with a sump pump.
Suspended Ceiling:	A ceiling that is hung below the structural ceiling. Also known as a drop ceiling.
Sweating:	Moisture from condensation on a cool surface.
Sweep:	A strip of metal and vinyl or rubber installed at the bottom of a door to stop infiltration of cold air from entering under the door.
T Hinge:	A type of hinge that is shaped like a T and is mainly used on the outside of such things as barn doors and gates.
Therm:	A unit of heat energy equal to 100,000 Btu.
Thermal Boundary:	The surface between inside and outside that we insulate to reduce conductive heat loss.
Thermal Unit:	A unit of measurement used as a standard of comparison of other quantities of heat such as Btu. (British thermal unit)
Thermocouple:	A device consisting of two wires or strips of dissimilar materials which are joined together at one end (hot junction). When this hot junction is heated, the thermocouple produces a DC voltage across the other two ends (cold junction).
Thermostat:	An electrically operated instrument which automatically controls the operation of a heating or cooling system responding to the changes in temperature.
Transformer:	A set of coils wound on an iron core in which a magnetic field couples energy between two or more coils or windings.

- Threshold:** A piece of wood or metal, usually with a rubber or vinyl bulb installed on the sill in such a way that allows the door to just touch the bulb when it is closed causing it to stop infiltration.
- Toe Nailing:** Driving a nail at a slant with the initial surface in order to achieve better bond with the second member.
- Tongue-and Groove:** A method of joining stock (especially flooring), with one piece having a rib or tongue which fits into a groove in the other piece.
- Transformer:** An electrical device which, by electromagnetic induction, transforms AC power in one circuit to another circuit(s), usually at different current and voltage values.
- Tread:** The horizontal board in a stairway on which the foot is placed.
- Trim:** The finish materials in a building, such as molding, applied around openings (window trim, door trim) or at the floor and ceiling of some rooms (baseboards, cornice, and other moldings).
- Truss:** A frame or jointed structure designed to act as a beam of long span, while each member is usually subjected to longitudinal stress only, either tension or compression.
- Turbine Vent:** A roof vent that is turned by outside air and draws the heat from the attic.



- Two Stage Pilot:** A pilot ignition system whereby a small standing pilot is used to light a larger pilot which is cycled by the thermostat so gas flow control to the main burner is exercised by the automatic pilot valve.
- Unconditioned Space:** Any space not served by a heating or cooling system, e.g., crawlspaces, attics, and basements.
- U-Value:** The U-Value of a building section is a measure of how well it transmits heat. The lower the U-Value, the less heat is conducted.
- Valley:** The internal angle formed by the junction of two sloping sides of a roof.
- Vapor Barrier:** A material used to retard the flow of vapor or moisture into walls and thus to prevent condensation within them. The vapor barrier must be installed on the warm side of the wall.

Veneer: A thin sheet of hard wood used to cover doors, lesser grade of wood, or particle board to make it look like a thick piece of hard wood.

Vent Connector: The vent pipe that runs from the furnace to the chimney.

Vent Damper: A device intended for installation in the venting system, in the outlet of or downstream of the appliance draft hood, of an individual automatically operated fuel-gas burning appliance and which is designed to automatically open the venting system when the appliance is in operation and to automatically close of the venting system when the appliance is in a standby or shutdown condition.

Vent Pipe: A pipe which allows gas to escape from plumbing systems.

Ventilation: The free circulation of air in a room or building. The process of changing the air in a room by either natural or artificial means.

Venturi: A section in a pipe or a burner body that narrows down and then flares out again.

Vermiculite: Mica which is expanded by heat and used for insulation.

Vertical Siding: A type of siding which comes in 4'x8' or 4'x9' sheets and have grooves or can have battens installed on it to make it look like 1"x12' boards.

Vestibule: A small entrance room at the outer door of a building.

Voltage (or Volt): The unit of electromotive force that causes current when included in a closed circuit. One volt causes a current of one ampere through a resistance of one ohm.

Voltage Drop: The difference in potential between two points caused by a current through an impedance or resistance.

V Seal: A V shaped weather stripping made of plastic (sometimes metal) for weatherstripping doors and windows.

Wainscot: A wall covering for the lower part of an interior wall such as wood paneling.

Water Column: Abbreviated as W.C. A unit used for expressing pressure. One inch water column equals a pressure of 0.578 ounces per square inch.

Watt (W): The unit of electrical power in joules per second, equal to the voltage drop (in volts) times the current (in amperes) in a resistive circuit.

Weatherization

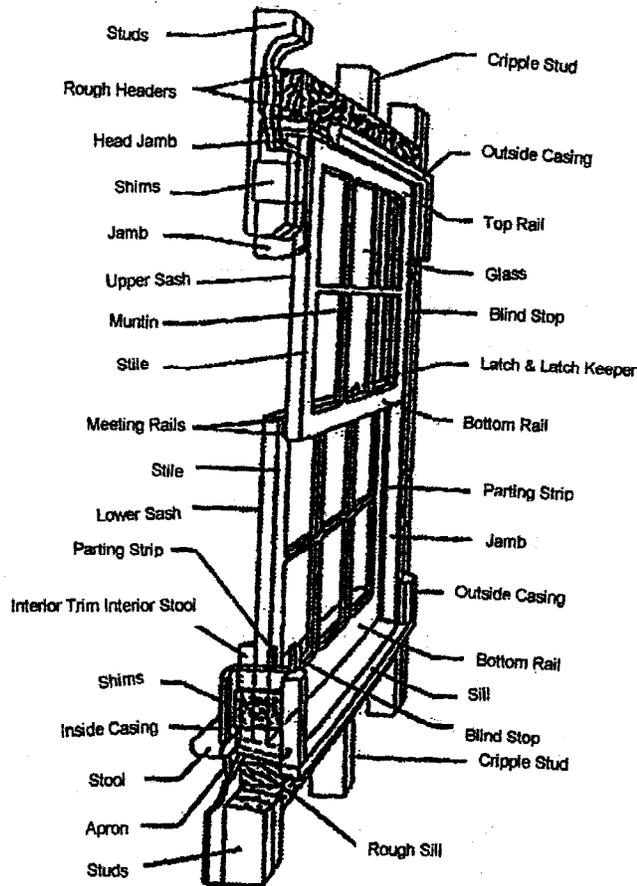
Materials: Items intended primarily to improve the heating or cooling efficiency of a dwelling unit. Weatherization materials include, but are not limited to: ceiling, wall, floor, and duct insulation; vapor barrier; storm windows and doors; items to improve attic ventilation; skirting; and caulking and weather-stripping.

Weatherstrip: A narrow or jamb-width sections of thin metal, wood, plastic, foam, felt, or other material that prevents infiltration of air and moisture around windows and doors. Compression weatherstripping prevents air infiltration, provides tension, and acts as a counter balance.

Weep Hole: Small holes at the bottom of storm windows which allow moisture to escape, thus preventing the sill from rotting.

Whole-House Fan:	A fan, usually mounted in the ceiling, that ventilates the entire house and exhausts air out into the attic.
Window Apron:	A piece of trim installed under the window stool to conceal the rough edge of plaster and subsill. (See Window Terminology)
Window Pull:	A “U” shaped handle mounted on a window sash to help open and close the lower sash. (See Window Terminology)
Window Sash:	The window frame in which the glass is mounted with push points and glazing. (See Window Terminology)
Window Sill:	The bottom portion of the window frame. (See Window Terminology)
Window Stool:	The horizontal trim at the bottom of the window next to the sash. (See Window Terminology)
Window Stop:	On the interior side of a window, a wooden strip which holds the sash in position in the frame. (See Window Terminology)

Window Terminology:



Worst Case Scenario: Setting up the house to make drafting of the furnace, water heater and other appliances the most difficult. This is done by running exhaust equipment and having doors closed.

Zone: Refers to the building cavity or section which is between the inside and outside surfaces of the series leak. Examples include attics, basements, garages, etc. A) House Zone refers to the surface or interface between the house and zone (or a pressure measurement across this surface). Examples include the top floor ceiling, the basement ceiling and the house/garage wall. B) Zone Outside refers to the surface or interface between the zone and the outside (or a pressure measurement across this surface). Examples include the roof, basement perimeter and garage outside walls.