

DOE: Federal Perspectives

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



**Weatherization Plus Health
New York State Conference
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Status of Recovery Act

Production

- ❖ 650,000 homes weatherized
 - Max: 32,397 homes (Dec. 2011)
 - Min: ~6 homes (April 2009)
 - Now: 23,315 homes (Jan 2012)
- ❖ 165,000 multi-family units completed
 - 25% of total production

Spending

- ❖ \$4.18 billion spent
 - Max: \$196.97 million (Dec. 2010)
 - Min: \$2.98 million (April 2009)
 - Now: \$127.26 million (Jan. 2012)

Jobs Supported

- ❖ 2nd largest job creator in entire Recovery Act portfolio
 - 13,230 jobs supported in Q4 of 2011

35 years of innovation in building
science, retrofit technology and
workforce training

25,000 people employed

Best trained workforce in the field

650,000 Homes Weatherized in less than 3 years

- Consistent funding gives the WAP the ability to take on long term projects and partnerships that support the entire industry.
 - Audit Tools
 - Lab Research
 - Building Science Case Studies
 - Training Network
 - Coordination with Federal agencies: HUD, EPA, USDA
- Leveraging
 - WAP has always been the catalyst. The consistent source of resources that allows other opportunities to grow

Guidelines for Home Energy Professionals: Putting Experience on Paper

This project leverages all of the WAP's experience and leadership to create a set of tools to benefit the entire Home Performance Industry.

- Building Science Experts
- Home Performance Training Specialists
- Industry Partners
- National Laboratories

Always start with the end in mind...

Steven Covey

Topic: Attics
Subtopic: Attic Openings

4.1006.1 Detail Name: Pull-Down Stairs

Desired Outcome
Pull-down attic stair properly sealed and insulated

Row	Title	Specification(s)	Objective(s)
4.1006.1a	Installation	<p>Hatches will be insulated with non-compressible insulation and the measure will include a protective barrier or baffle</p> <p>Pull down stair assembly will be insulated to the same R-value as the adjoining insulated assembly</p> <p>Pull down stair rough opening will be surrounded with a durable dam that is higher than the level of the attic floor insulation</p>	<p>Achieve uniform R-value</p> <p>Prevent loose insulation from entering the living area</p> <p>IECC R 402.2.4</p>

The *Objective* defines the required outcomes of the work.

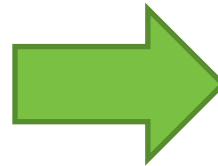
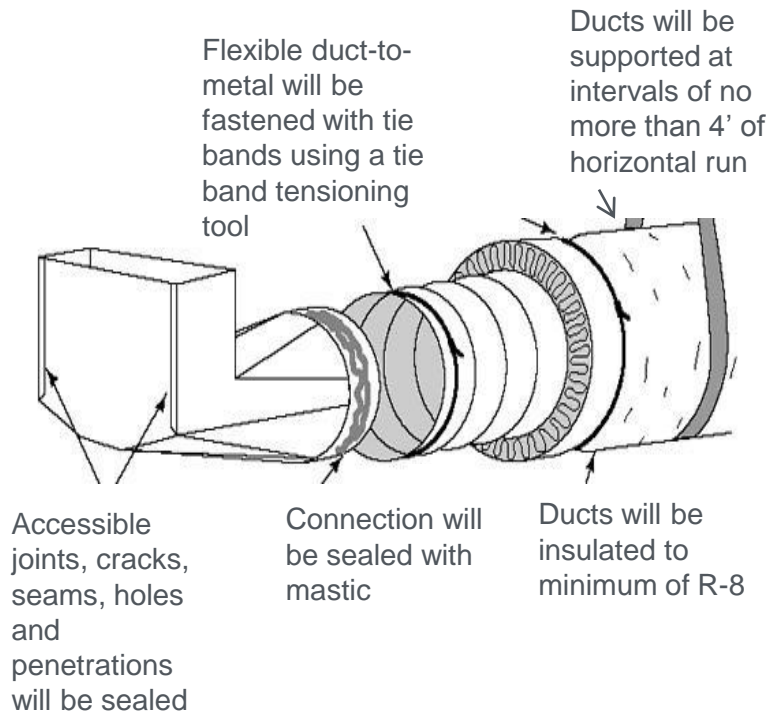
The *Specification* defines the minimum level of action required to meet the *Objective*.

DOE invested nearly \$139 million in technical assistance to lay the foundation for high quality energy upgrades in America's homes.

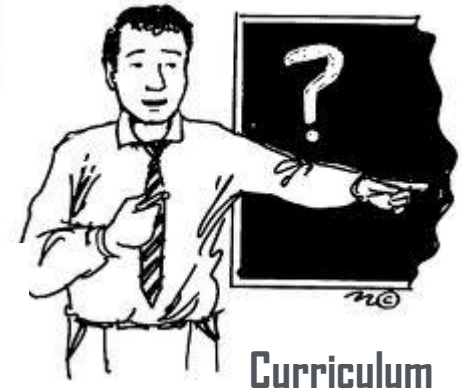
- *The Guidelines for Home Energy Professionals*: The technical experts of the Weatherization Assistance Program, together with NREL and partners from across the home performance industry are creating a suite of resources that will become the standard for success nationwide
- Standard Work Specifications (SWS)
 - Single Family
 - Mobile Home
 - Multifamily Housing
- Training Program Accreditation
 - Accreditation of Energy Efficiency Training Programs based on the JTAs is fully operational
- Worker Certifications

The SWS define the minimum standards
for a quality job

They can be used to develop
many important tools and resources



**Best Practices/
How-To Manuals**



**Inspection
Standards**

**Policies and Procedures
For Work Quality**

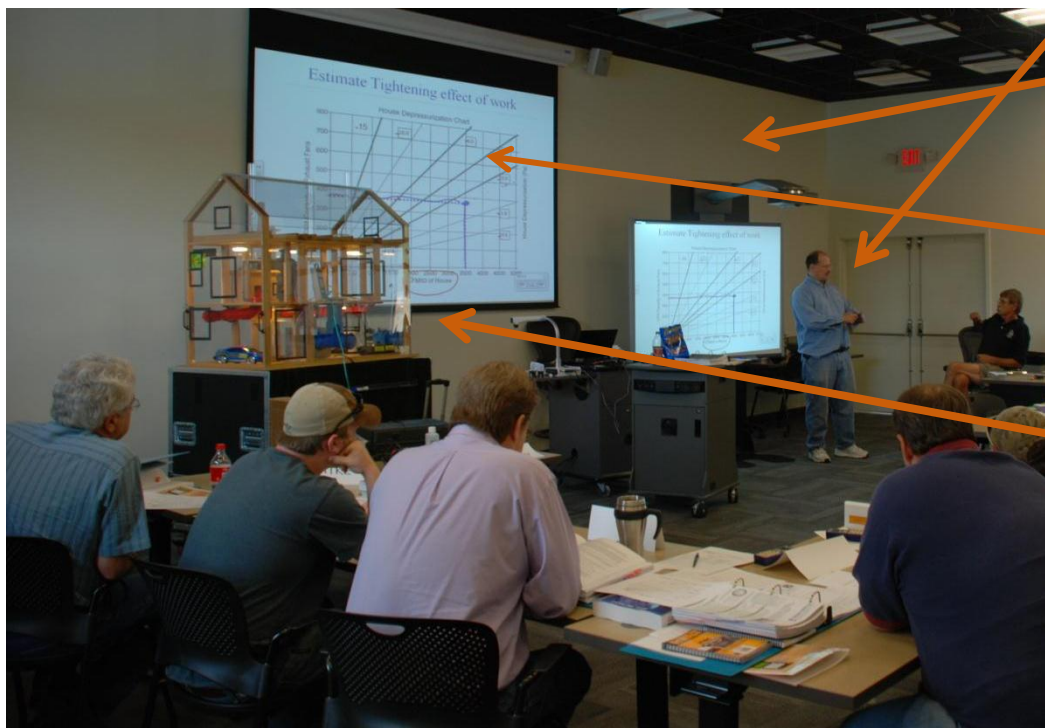
Topic: Exhaust

Subtopic: Components

2) Detail Name: Ducts

Accreditation of Training Programs

Administered by the
**Interstate Renewable
Energy Council**



Qualified Instructors

High Quality Facilities

Complete Curriculum
Based on the JTA

Props/Tools

Policies and Procedures

***Voluntary, third-party assessment of training provider quality

- Third-Party, Independent
- Certification Framework
 - NREL Facilitated
 - Industry Developed
 - Based on the SWS/JTA
- RFP for a qualified certifying body
 - Awarded to BPI
 - Tasked to Jumpstart the process



Knowledge,
Skills, Abilities

Job Task
Analysis

- International Standard that defines criteria for certifying bodies
 - Defining what it is you examine (the competencies)
 - Formal development of JTA/KSA
 - Independent 3rd Party Examination
 - Examinations must be formally developed and a valid test of competence (Certification Scheme)
- ISO 17024 is a way to determine if an organization is qualified to certify individuals
- Selected as the criteria for any certifying body seeking to have their certifications recognized by DOE

SWS for Multifamily Buildings

U.S. DEPARTMENT OF
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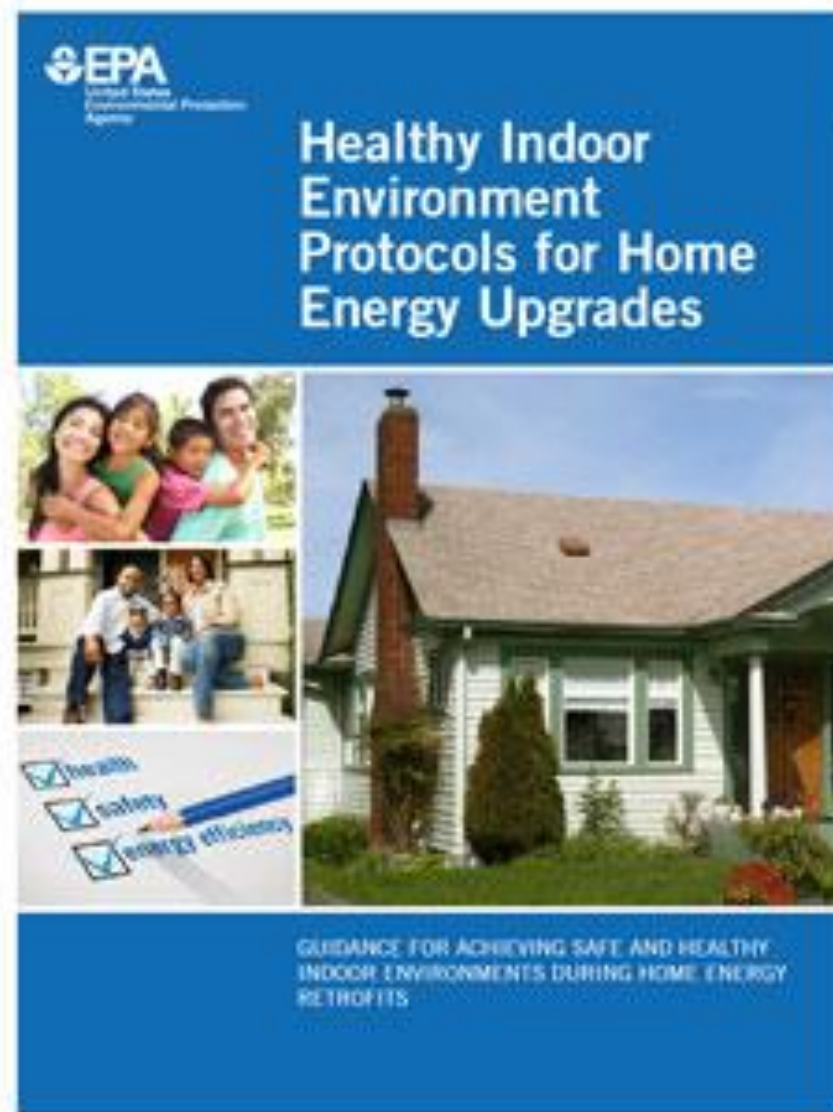
Energy Efficiency &
Renewable Energy



- DOE/NREL/Advanced Energy/AEA collaboration
- Multifamily Market Lead and Market Committee
 - Building on results from Single Family SWS, especially for low-rise MF
 - Defining multifamily buildings:
 - low-rise, mid-rise, high rise
 - Confirming six categorizes of work:
 - Hydronic, Forced Air, Water Heating and Conservation, Ventilation, Envelope, Baseload and Lighting
- Collaboration between industry, labor and the building trades, and the DOE, HUD, USDA, and EPA
- <http://nrel.pnnl.gov/forum.php>

WAP Training and Technical Assistance Team working with the EPA Indoor Environments Division on the Creation of:

EPA Healthy Indoor Environment Protocols for *Multifamily* Energy Upgrades



- The WAP is the standard bearer for Home Performance Upgrades
- The Guidelines for Home Energy Professionals takes that experience and knowledge and creates a roadmap for quality based on a consistent and rigorous approach.
- The WAP, as a well established and long standing organization, will maintain these resources and provide a consistent source of support and innovation into the future

Consistent, Quality Work



JTA/KSA

Market Expansion

• Multifamily

Energy Audit Tool

Standard Work Specifications

Weatherization Innovation Pilot Program

• Private Market Integration

Better Buildings Neighborhood Program

Building America

Utilities

HPwES

• Healthy Homes

Wx Plus Health

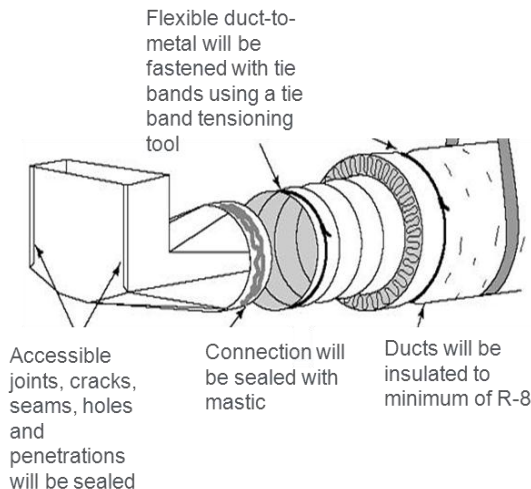
• Federal Partners

HUD, EPA, CDC, HHS, CEQ, DOL, NIH, USDA

• National Evaluation

Non Energy Benefits Study

Indoor Environmental Quality Study





- National Weatherization Training Portal (NWTP): “virtual campus” enhances and supplement traditional classroom, lab, and in-field weatherization training, covers basic and advanced building science.
- National Training & Education Resource (NTER) was designed to help the Weatherization program train workers fast and efficiently but for sustainability purposes was engineered to support a wide variety of training needs.

- 39 Weatherization Training Centers operating in 29 states
- The WAP Standardized Training Curriculum
- Weatherization Plus Health
 - H&S Specific Training Priority Areas

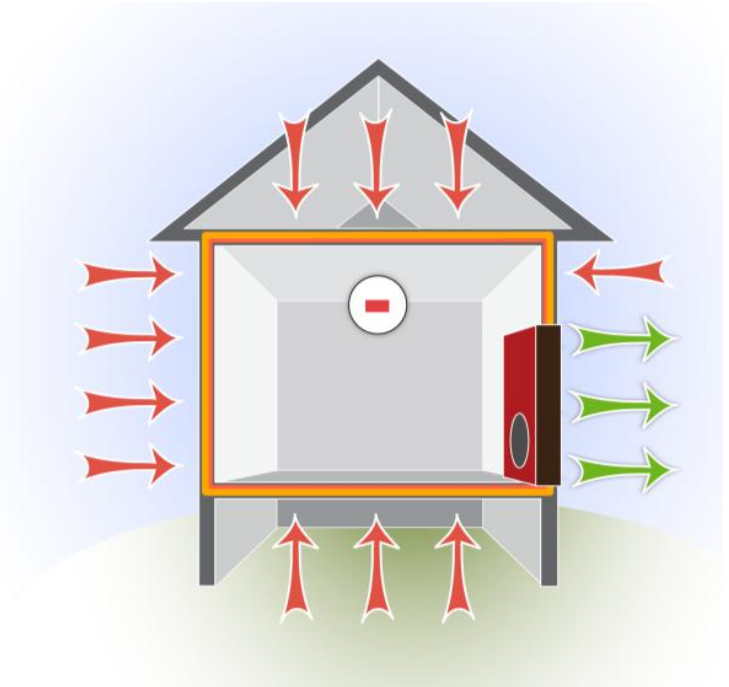


10 Modules Completed:

- Weatherization Installer/Technician Fundamentals
- Weatherization Installer/Technician Intermediate
- Weatherization Installer /Manufactured Housing
- Crew Chief
- Energy Auditor – Single Family
- Energy Auditor – Multifamily
- Technical Monitor/ Inspector
- Heating Systems for Energy Auditors
- Multifamily – HVAC
- Train the Trainer

In Development:

- Weatherization Program Manager



Retrofit Installer Curriculum & Assessment Matrix

Use this matrix to align your Installer/Technician curriculum with the domains outlined in the Job Task Analysis (JTA). Sections of the existing DOE WAP Standardized Curricula have been inserted here for reference, but they can be substituted with individually-developed curriculum as appropriate.

The assessment/exam procedures should be populated to indicate how you will verify students have learned the materials presented for each domain task. The percentages listed indicate the relative importance of each domain based on the final JTA for this job description, and are included here to help guide your efforts based on relative importance. The column is pre-populated with assessment ideas, but is intended for reference only. Make entries based on your particular course.

JTA	Curriculum/Lesson Match	Assessment/Exam Procedure
Domain I: Maintain Safety		15%
Task 1. Follow work rules of jurisdiction having authority	Crew Chief - Technical Expertise: Building and Safety Codes	Oral quiz during session
Task 2. Handle materials/equipment according to manufacturer specifications	Installer Fundamentals - Worker Safety	Observation during hands-on portion, see Domain V
Task 3. Handle tools according to manufacturer specifications	Crew Chief - Technical Expertise: Safe Work Practices	Observation during hands-on portion, see Domain V

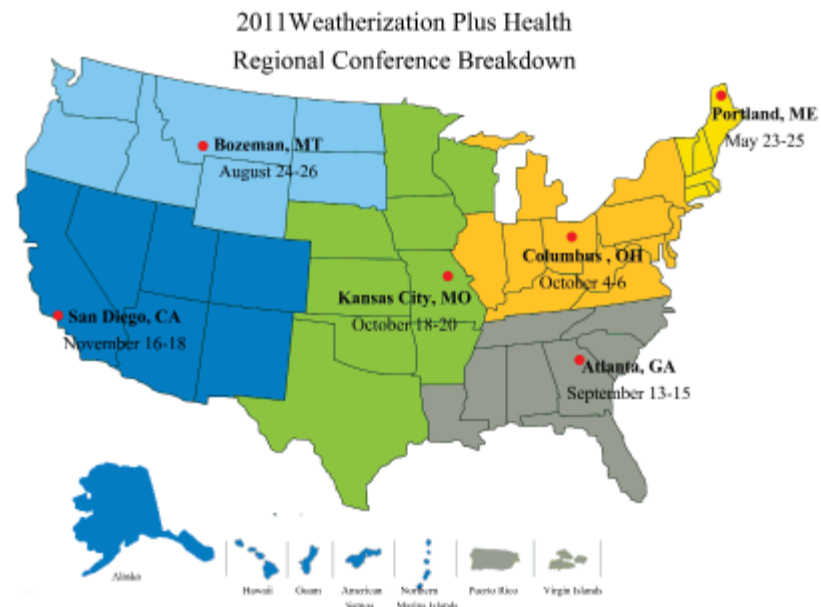
The U.S. Department of Energy's (DOE) Weatherization Plus Health initiative is a national effort to comprehensively and strategically coordinate resources to improve the energy efficiency, health, and safety of low-income homes.

Weatherization Plus Health ensure energy efficient and healthy indoor environments by facilitating the establishment of strong, effective partnerships between DOE's Weatherization Assistance Program (WAP) and healthy homes providers.

The National Association for State Community Services Programs (NASCSPP) is implementing the project on behalf of DOE.

KEY DELIVERABLES:

- Regional Conferences
- WeatherizationPlusHealth.org
- Wx & HH Reports for each Grantee
- Grantee Implementation of Wx Plus Health
- Best Practices for Referral Systems
- Training and Technical Assistance



Priority Areas:

- ASHRAE
- OSHA
- Mold & Moisture
- Asbestos
- Radon
- Lead Based Paint
- Replacements
- Codes & Structures
- Combustion Safety & Heating Systems
- Occupant Wellness

H&S Two Part Webinar:

- WPN 11-6 Health & Safety Guidance

- Designed by ORNL in collaboration with HUD & DOE
- Performs whole-house health and safety audits including:
 - Site built single family
 - Manufactured housing
 - Individual multifamily units
- Comprehensive checklist to identify potential H&S issues and recommend preventative and corrective measures
- Attempts to ensure health and safety of occupant and workers during and after weatherization
- Includes all the WAP health and safety and more
- Stand-alone module with potential for future efficiency audit integration
- Demo at <http://hyperion.ornl.gov/hud>

Multi-Family Audit Tool: ORNL and LBL Collaboration



Develop Small Multi-Family and Large Multi-Family Audit Tool and Programmatic Elements for the WAP

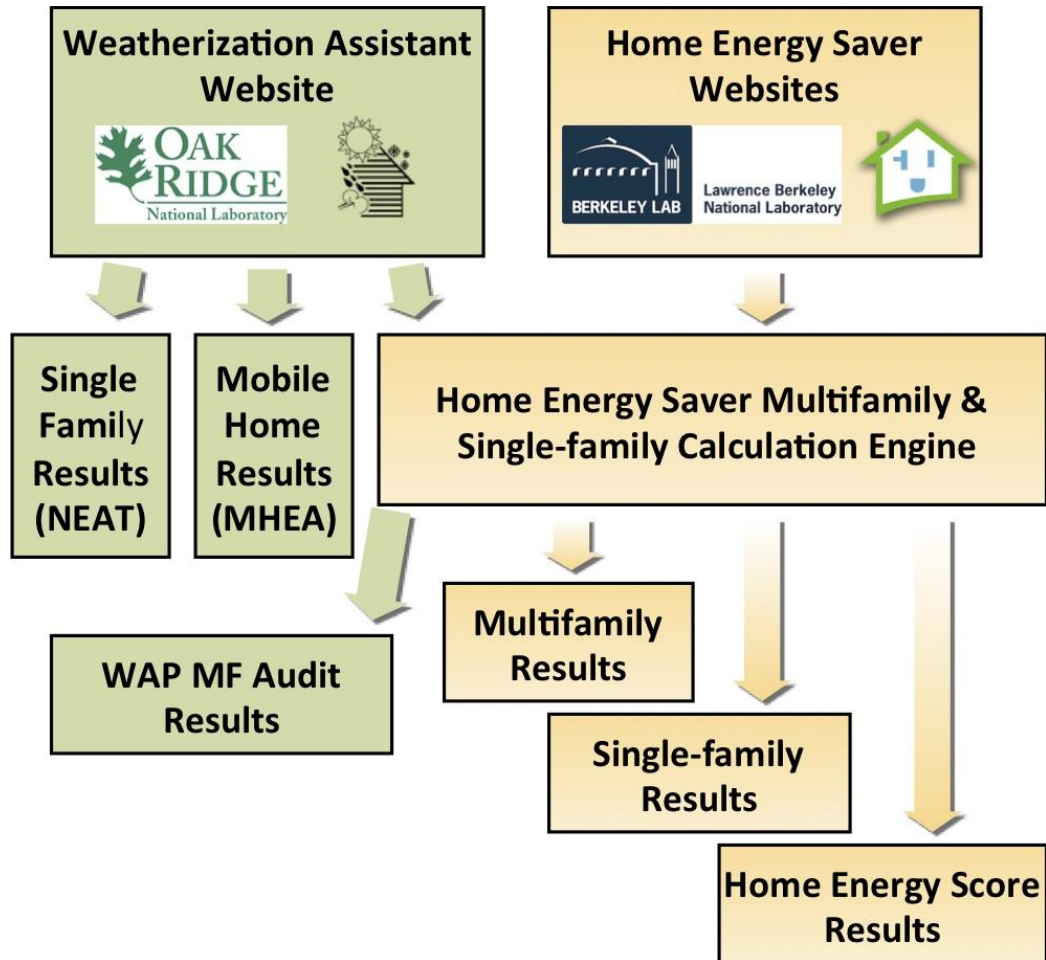


Add Multifamily HES Consumer (Home Owners) & HES Pro

Assess market needs for next-generation multifamily energy analysis within and beyond the WAP “ecosystem” and create the next generation of software tools to serve that need.

- Enhance energy modeling capabilities
- Provide flexible multi-zone, multi-system modeling environment
- Improve retrofit measure identification
- Enhance auditor capabilities
- Allow improved workforce skills & mobility
- Build confidence among consumers, building owners, financing community

Multifamily Audit Tool: ORNL and LBNL Collaboration



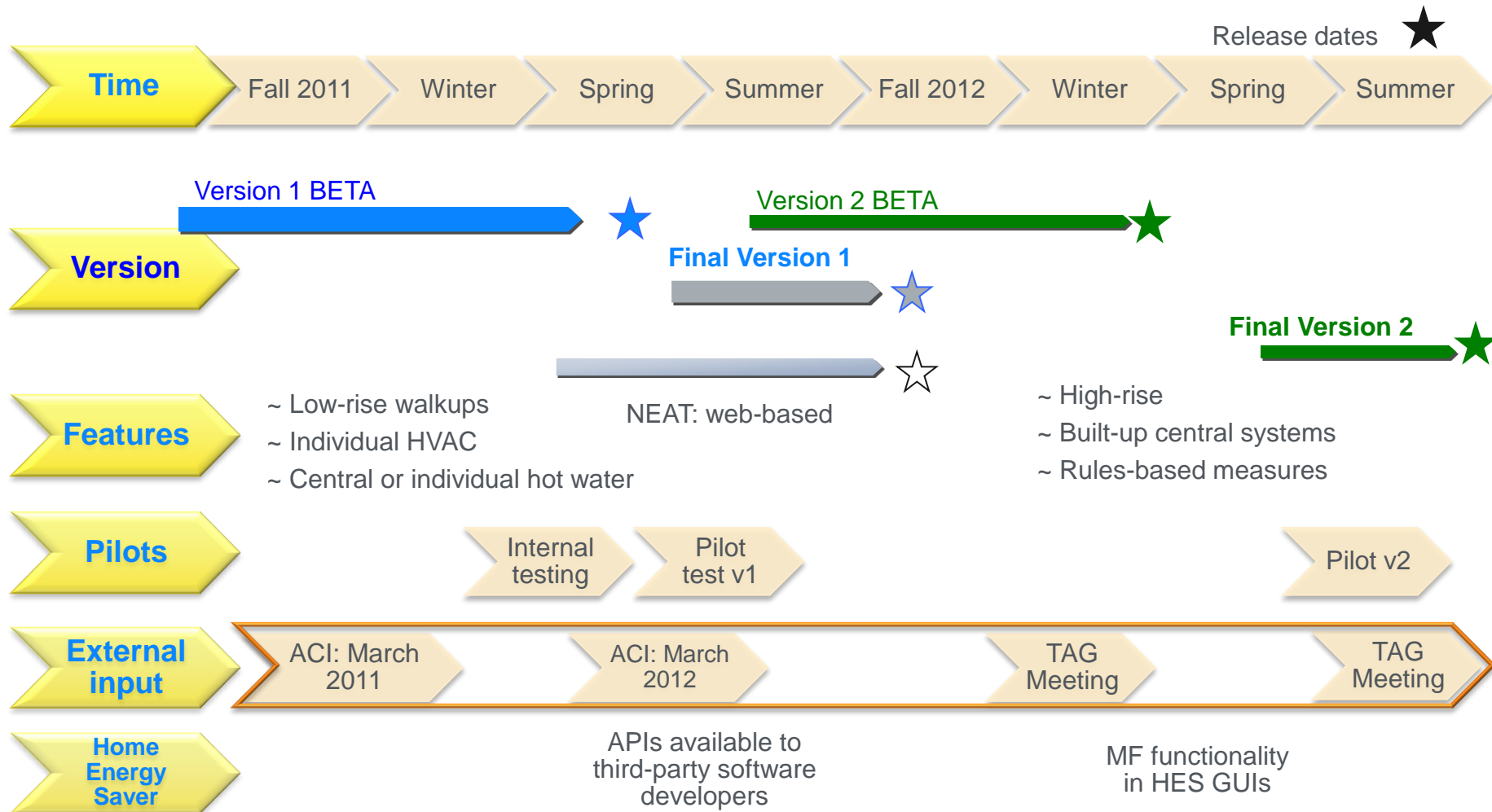
Major Energy Audit Tool Feature	Responsible Lab
DOE-2 macro BDL coding	ORNL, LBNL
HES API for multifamily	LBNL
Weatherization Assistant web interaction with API's	ORNL
HES back-end components	LBNL
Weatherization back end components	ORNL
Multifamily user interface	ORNL

Multifamily Energy Audit Tool

- Version 1 - simpler buildings & systems, few extras
 - Low-rise, up to four floors, separate treatment of corner and interior units, first and top floors
 - Individual dwelling unit space conditioning systems
 - Both dwelling unit and central-plant domestic hot water systems
- Version 2 - more complex buildings & systems, additional capabilities
 - High-rise with service core (elevators, etc.)
 - Central plant with built-up space conditioning systems
 - More complex measures, rules-based savings



Proposed Timeline



Quality Work = Sustainability

- Current Effort
 - Brainstorming Webinars
 - Communications and Messaging January 25th
 - Leveraging February 8th
 - Consistent Delivery of Quality Services February 22nd
 - New Markets and Existing Potential March 7th
 - Face to Face Meeting March 20-21st
 - Strategic Situation Analysis
 - Establish Subcommittees and Plan Priorities
 - Develop Subcommittee Work Schedule and Assignments
 - Strategic Plan Finalized June, 2012

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