

Building America Solution Center

2014 Building Technologies Office Peer Review

World-Class
Research...



...At Your
Fingertips

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

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Project Summary

Timeline:

Start date: October 2011

Planned end date: Ongoing

Key Milestones

1. Launch supporting Energy Star, January 2013
2. Zero Energy Ready Home launch, June 2014
3. Existing home launch, winter 2015

Budget:

Total DOE \$ to date: \$2,604,000

Total future DOE \$: \$4,500,000

(2 additional years development – 3 years of app and content maintenance. Life may extend further)

Target Market/Audience:

Those involved with measure installation, including labeling programs, raters, builders, installers, developers, designers, code officials, educators, and researchers.

Key Partners:

Building America Management and Communication Team
DOE National Laboratories: NREL, LBNL, ORNL, PNNL
10 Building America Teams
EPA ENERGY STAR for New Homes
EPA Indoor airPLUS
EPA WaterSense
EPA Solar Ready
Building America Solution Center User Community

Project Goal:

Make best practices accessible and accelerate their dissemination leading to better-educated stakeholders. Foster a community of users who will translate building science research into practice.

Purpose and Objectives

Problem Statement: Building America research, innovations, and best practices have been inaccessible to users and underutilized. Stakeholders do not know how to use the wealth of DOE-funded research.

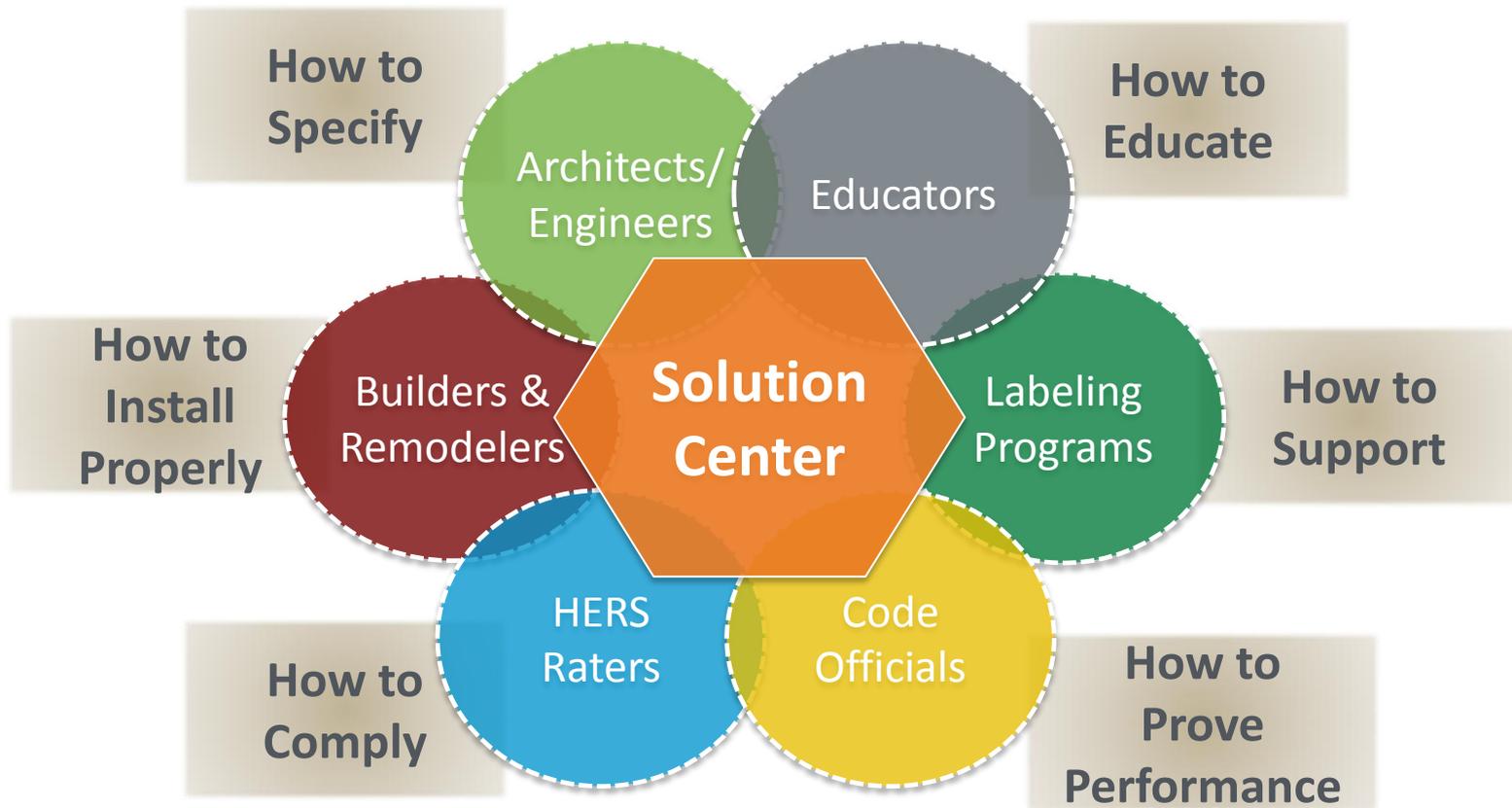
Target Market and Audience: Those involved with measure installation in new and existing homes including labeling programs, raters, builders, remodelers, installers, developers, designers, code officials, educators, and researchers.

Impact of Project: The builders attempting to achieve the highest performance by building and remodeling homes that meet DOE's goals and aggressive labeling program requirements will be the most in need of Building America best practices.

- Near-term (during or up to 1yr after project): Increasing growth of web users, Collaboration with ENERGY STAR for New Homes labeling program (reaches 26% of new homes)
- Intermediate-term (1-3yr after project): Increasing growth of web users, collaboration with 3 labelling programs to reach higher performance homes.
- Long-term (3yr.+ after project) Growing web use and collaboration with an existing home labeling program

The BASC Links Research to Industry and the Market

Target audiences and the information they seek.



Approach

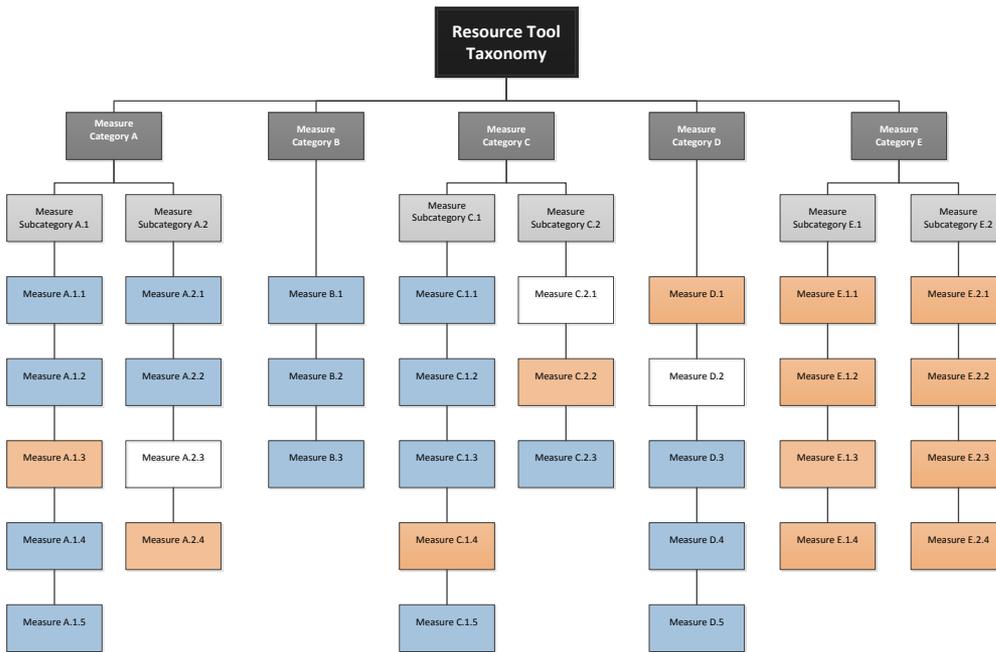
Approach:

- BA Program redesigned to streamline content development and flow
- Emphasis on peer-reviewed information
- Taxonomy encourages consistent language and vocabulary
- Database approach to information management makes consistent information available to multiple implementers
- DOE reaches out to, and customizes user interfaces for, multiple labeling programs, such as ENERGY STAR, Indoor airPlus, and Zero Energy Ready Homes
- Multiple navigation pathways give users options for accessing information
- The BASC breaks content into the size most relevant to installers
- Building Science Publications is available for researchers
- Users are encouraged to provide feedback both as testers and in everyday access.

Key Issues:

Restructuring research projects to produce market-facing content

Distinctive Characteristics: Taxonomy and Database

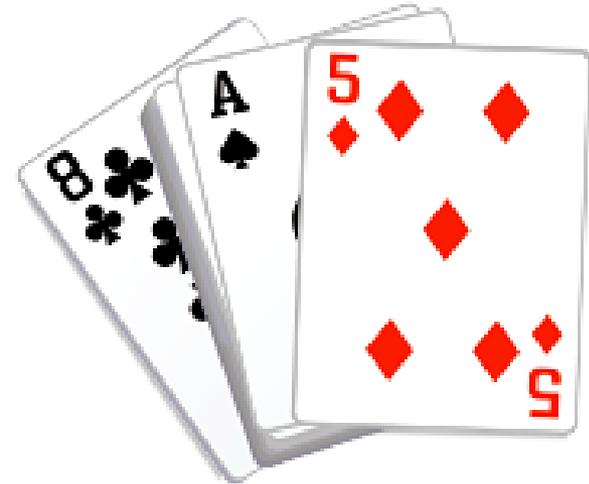


Taxonomy

- Use consistent vocabulary to describe measures
- Track progress on content
- Identify gaps in knowledge
- Feedback to program managers on research needs

Database

- Prepare content to match the taxonomy
- Maintain content in a consistent and controlled way
- Shuffle content as needed to meet multiple needs



Distinctive Characteristics – Content and Accessibility

Attic Knee Walls

Scope Description Ensuring Success Climate Training CAD Compliance More Info.

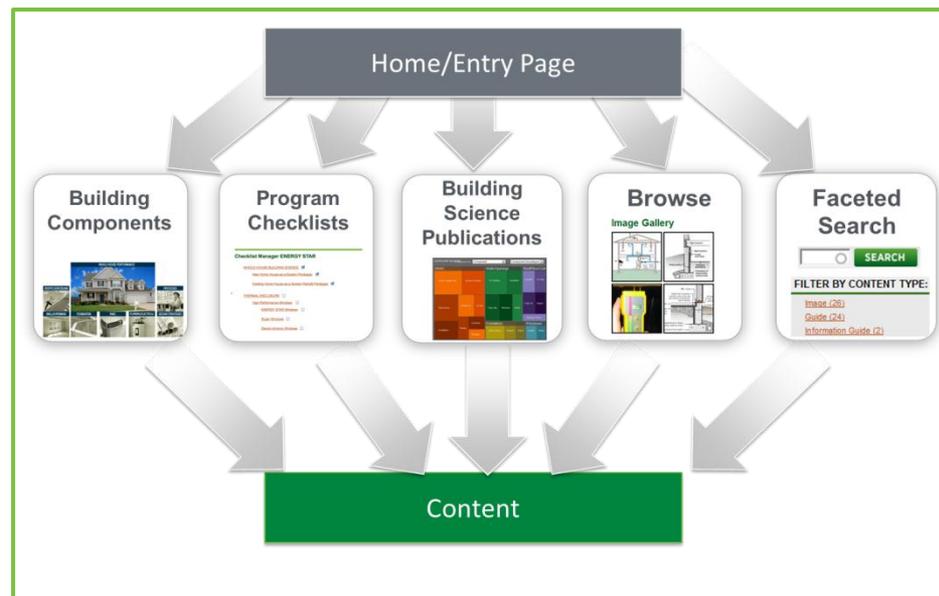
Scope

Fully Aligned Air Barrier

- Install a top and bottom plate or blocking at the top and bottom of all knee wall cavities.
- Back attic knee walls with a rigid air barrier or other supporting material to prevent insulation from sagging and create a continuous thermal barrier*
- Seal all seams, gaps, and holes of the air barrier with caulk or foam.
- Install insulation without misalignments, compressions, gaps, or voids in all knee wall cavities.

* ENERGY STAR recommends using a rigid air barrier, but it is not a requirement.

TRADES
FRAMER
INSULATOR



User Guides

Make information relevant

- Keep it focused
- Keep it up to date
- Keep it brief
- Base it on the latest peer-reviewed research
- Help users meet their needs

Navigation

Make Information easy to find

- Provide multiple paths
- Support partnering programs
- Make paths appropriate to multiple levels of expertise

Distinctive Characteristics – Libraries

Image Gallery

Items per page 100

Apply



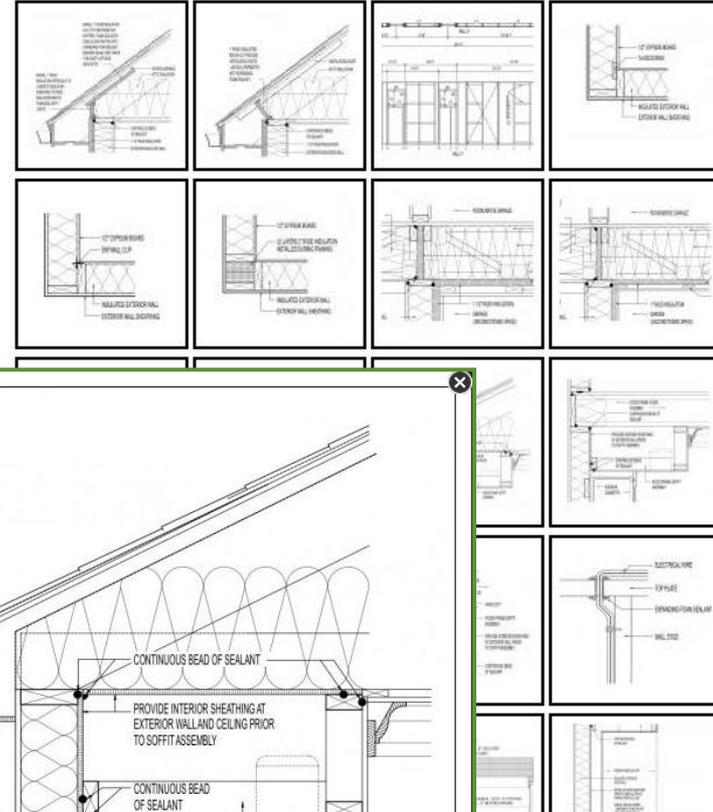
A moisture meter verifies that the moisture of the framing is below the recommended 18%

◀ 12 of 100 ▶ [Edit](#) [Belongs to 0 Field Kits](#)

CAD Files

Items per page 50

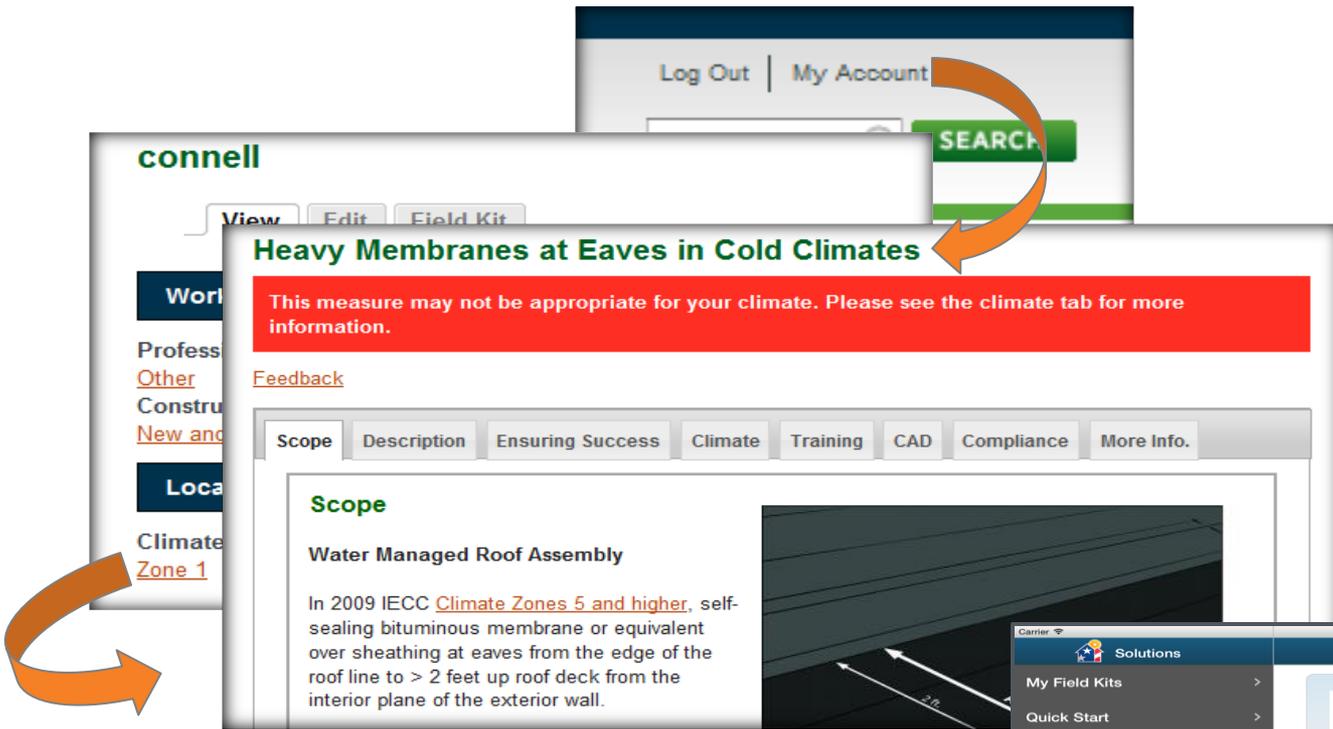
Apply



Air seal at cabinet soffit - single-story

◀ 11 of 50 ▶ [Edit](#) [Belongs to 0 Field Kits](#)

Distinct Characteristics: Registered User Customization

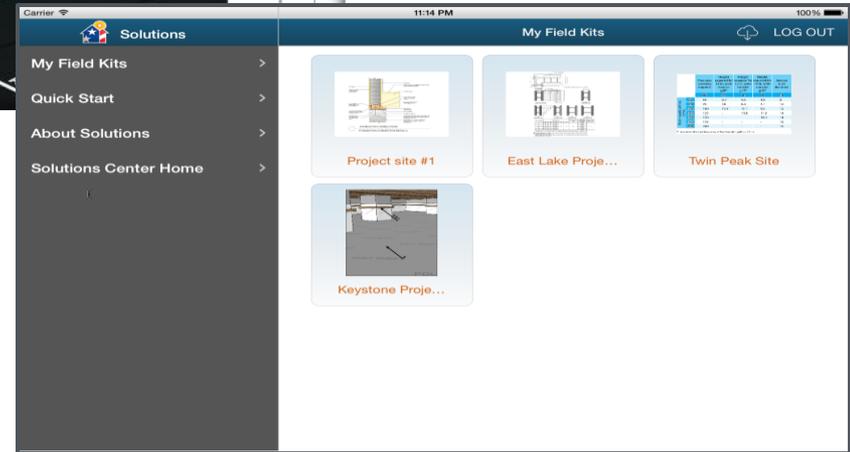


Registered Users Can:

- Provide comments and submit content
- Create Field Kits
- Retrieve Field Kits on mobile devices

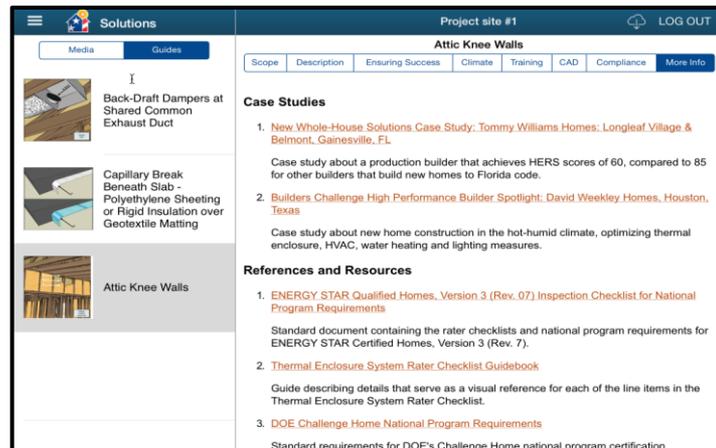
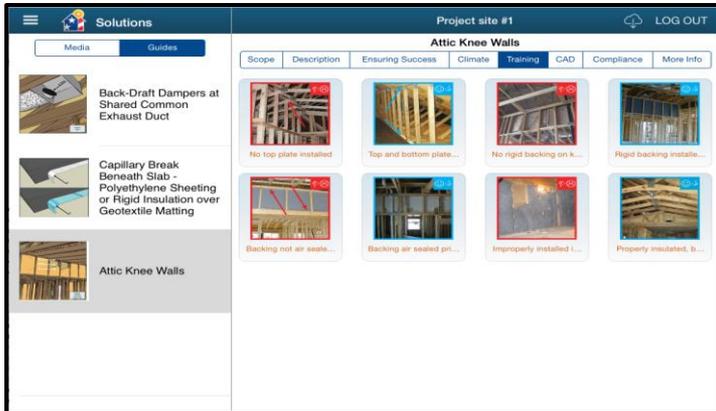
Automatically:

- Customizes content for climate zone conflicts
- Focuses content on selected building types
- Provides user information to DOE





Solutions: Mobile Access to Field Kits Anywhere



Registered Users can

- Print guides
- Convert guides to PDFs
- The BASC adjusts its size and format to match all mobile devices for all users
- Registered users can save Field Kits to their account, synch them with the BASC mobile app, and access them anywhere with or without wifi or cell coverage
- Mobile features just now being released.

Progress and Accomplishments

Lessons Learned:

The BASC makes a massive amount of information available to users and also supports multiple labeling programs.

- Labeling program requirements change.
- Best practice techniques change.
- The tool must continuously improve and evolve and there will always be room for improvement.

Content generation, flow, and consistency

- Templates, webinars, and training are not enough
- Early review of products and practice runs will hopefully smooth out the process of direct content development.
- New team contracts will specify BASC content development from the beginning
- Tracking content is a significant undertaking – need to be careful not to duplicate efforts

Progress and Accomplishments

Accomplishments:

- BASC launched, January 2013
 - Beta tests, Content fully populated soon after, EPA source of technical support, media push
- Content update version 3, revision 7, August 2013
- Field kit and mobile device enhancements (August 2013 – March 2014)
 - Multiple field kits
 - Auto PDF and print feature
 - Adaptive screens
 - Android app
 - iOS app (Apple)
- Building Science Publications feature fully populated December 2013
- ZERH navigation structure completed, January 2014

2011
Concept

- Sam's vision and structure
- Building America review

2012
Design

- Web tool platform built using Drupal
- Taxonomy created
- Navigation tools
- Demonstrations and beta tests

2013
Launch

- ENERGY STAR V3 Rev 6 and Rev 7
- Preliminary structure for Challenge Home and existing homes
- Upgrades: Mobile access, multiple field kits, revisions
- Better Buildings Clone

2014
Enhance

- Android (Nov) & iOS (spring) Apps
- Populate Challenge Home (top priority)
- Begin to populate Existing Home
- Incorporate 30% proven performance

Progress and Accomplishments

Market Impact:

Statistic	FY13 Avg	FY13 Total	Oct.	Nov	Dec	Jan	FY 14 Avg to date	FY 14 Total to date
Page Views	18,941	161,016	20,213	20,699	21,629	27,536	22,519	90,077
Average Time on Page (min:sec)	1:53		1:46	1:57	2:02	1:52	1.90	
Unique Visitors	6,390	53,157	9,145	8,875	9,394	12,401	9,954	39,815
Downloads	1,402	11,599	1,823	2,356	2,168	2,841	2,267	9,188
New User Registrations	59	507	20	17	22	17	19	76

- Labeling program partners include ENERGY STAR for New Homes, Zero Energy Ready Homes, Indoor airPLUS, WaterSense, EPA Solar Ready, Northwest ENERGY STAR
- Site replicated for Residential Programs (program designers and administrators)

Actions to Increase Impact:

- Mobile app launch and promotion
- New Checklist for Zero Energy Ready Homes and other programs
- New content for Codes Officials
- New Content for Existing Homes

Awards/Recognition: Housing Innovation Award

Project Integration and Collaboration

Project Integration:



Partners, Subcontractors, and Collaborators:

- BA Communication Team weekly calls to plan and coordinate media contacts, conference presentations, webinars, and program media
- NREL to coordinate team assignments to prepare content and to streamline content flow from formal BA submissions.
- Other labs and teams to access expert knowledge, develop existing building checklists, and coordinate content
- EPA ENERGY STAR, Indoor airPlus, and other programs to coordinate program requirements, branding, and checklist structure
- Users to respond to comments, answer questions, and solicit content – quality assurance inspectors, Green Building Advisor

Project Integration and Collaboration

Communications:

Communication strategy in conjunction with Building America – prelaunch, beta testing, and launch

- Multiple trade publications around launch: Examples include *Energy Design Update*, *Home Energy*, *Green Home Builder*, *Green Builder*.
Shorter mentions in over 12 trade publications
- Demonstrations: ACI and EEBA in 2012 - EEBA, IBS, RESNET, ACI in 2013 – RESNET in 2014, EEBA planned in 2014
- Webinars: 5 in 2012 - 8 in 2013 - 2 planned for 2014
- Beta test with 200 users
- Building America Outreach: Update, ZERH Newsletter

Internal PNNL Organization:

Three capability areas serve the project.

- Content development, review, and tracking
- Content uploading and user Interface
- Application development

Next Steps and Future Plans

Next Steps and Future Plans:

- Populate content for Zero Energy Ready Home and launch new navigation checklist
- Make mobile device apps available in app stores
- Create structure for home renovation content and checklist
- Reach out to coordinate with and support Weatherization and Home Performance programs
- Please visit

<https://basc.energy.gov>



REFERENCE SLIDES

Project Budget

Project Budget: Total DOE \$ to date: \$2,604,000

Variances:

- FY12 Budget: \$900K; spent \$658K
- FY13 Budget: \$1,000K; spent \$929K
- FY14 Budget: \$1,017K

Cost to Date: 60% of FY 14 funding is expended

Additional Funding: None

Budget History

Insert Start Date – FY2013 (past)		FY2014 (current)		FY2015 – Insert End Date (planned)	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
929,000	0	1,017,000	0	1,250,000	0

Project Plan and Schedule

- Explanation for slipped milestones and slips in schedule: Most significant delays due reallignment of research projects to produce market facing content

Project Schedule												
Project Start: October 2011	Completed Work											
Projected End: Ongoing	Active Task (in progress work)											
	◆ Milestone/Deliverable (Originally Planned) use for missed											
	◆ Milestone/Deliverable (Actual) use when met on time											
	FY2013				FY2014				FY2015			
Task	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)	Q1 (Oct-Dec)	Q2 (Jan-Mar)	Q3 (Apr-Jun)	Q4 (Jul-Sep)
Past Work												
Q4 2013 -Maintenance and Enhancement				◆								
Q4 Milestone: Home Renovation Mock up				◆								
Q4 Milestone: Challenge Home Mock up				◆								
Q4 Milestone: Mobile App Capabilities				◆								
Q1 Milestone: Building Science Publications					◆							
Current/Future Work												
Q2 Milestone: Zero Energy Ready Home Launch						◆						
Q2 Milestone: Mobile App for Apple						◆						