Webinar questions should be directed to:

basc@pnnl.gov

Building America Solution Center

October 11, 2012

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Building Science Solutions – Faster and Better

Sam Rashkin
Michael Baechler
Linda Connell

Building America Solution Center
Overview

World Class Research…

… at Your Finger Tips

What the DOE Building America Solution Center 'Is' & 'Is Not'

Is:

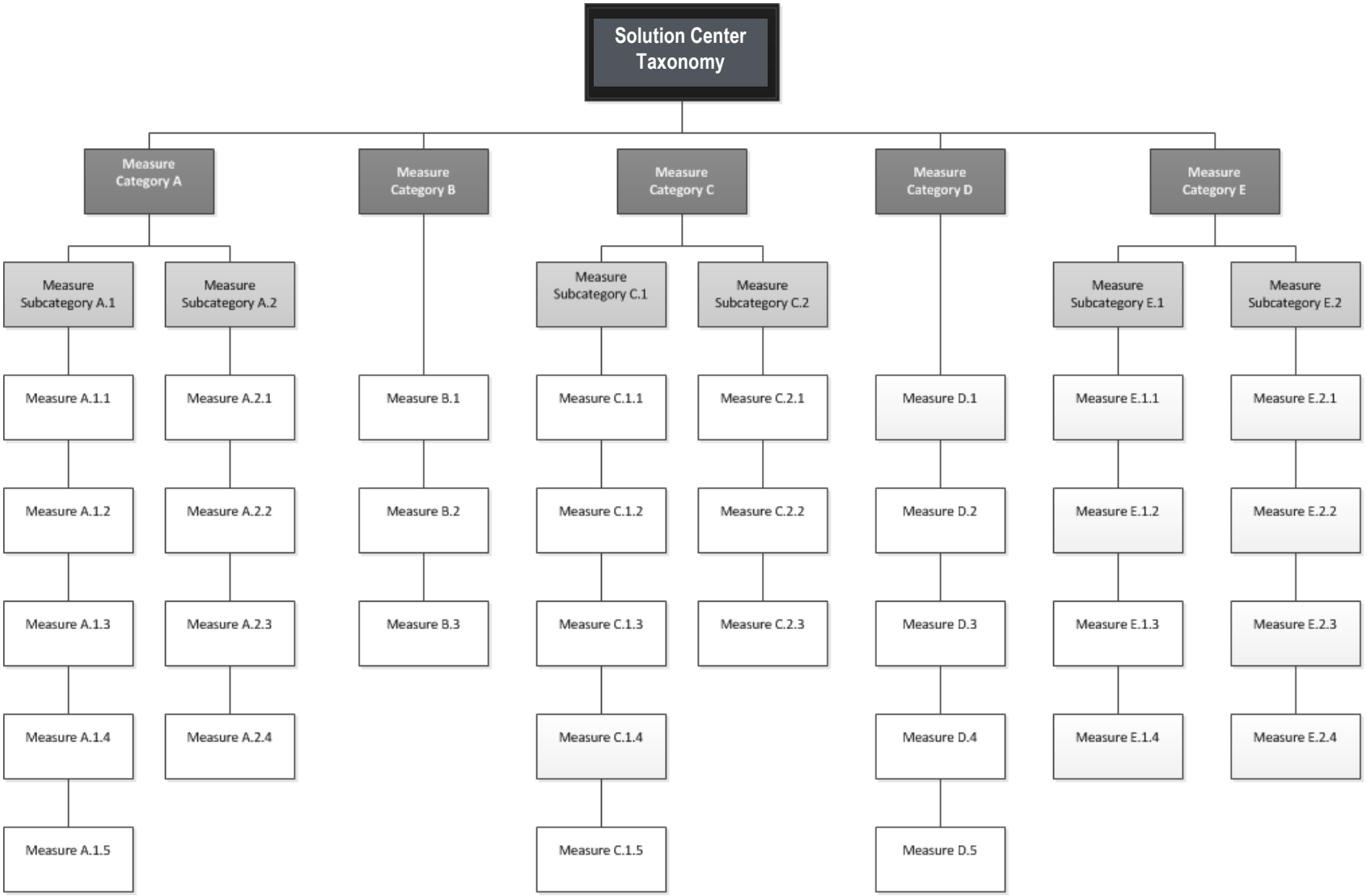
Easy Access to World-Class Research:

- Guidance for Applying Targeted Energy Measures
- Tool for Users to Prepare Customized Project Content
- Source for Proven Performance
- Link to Full References

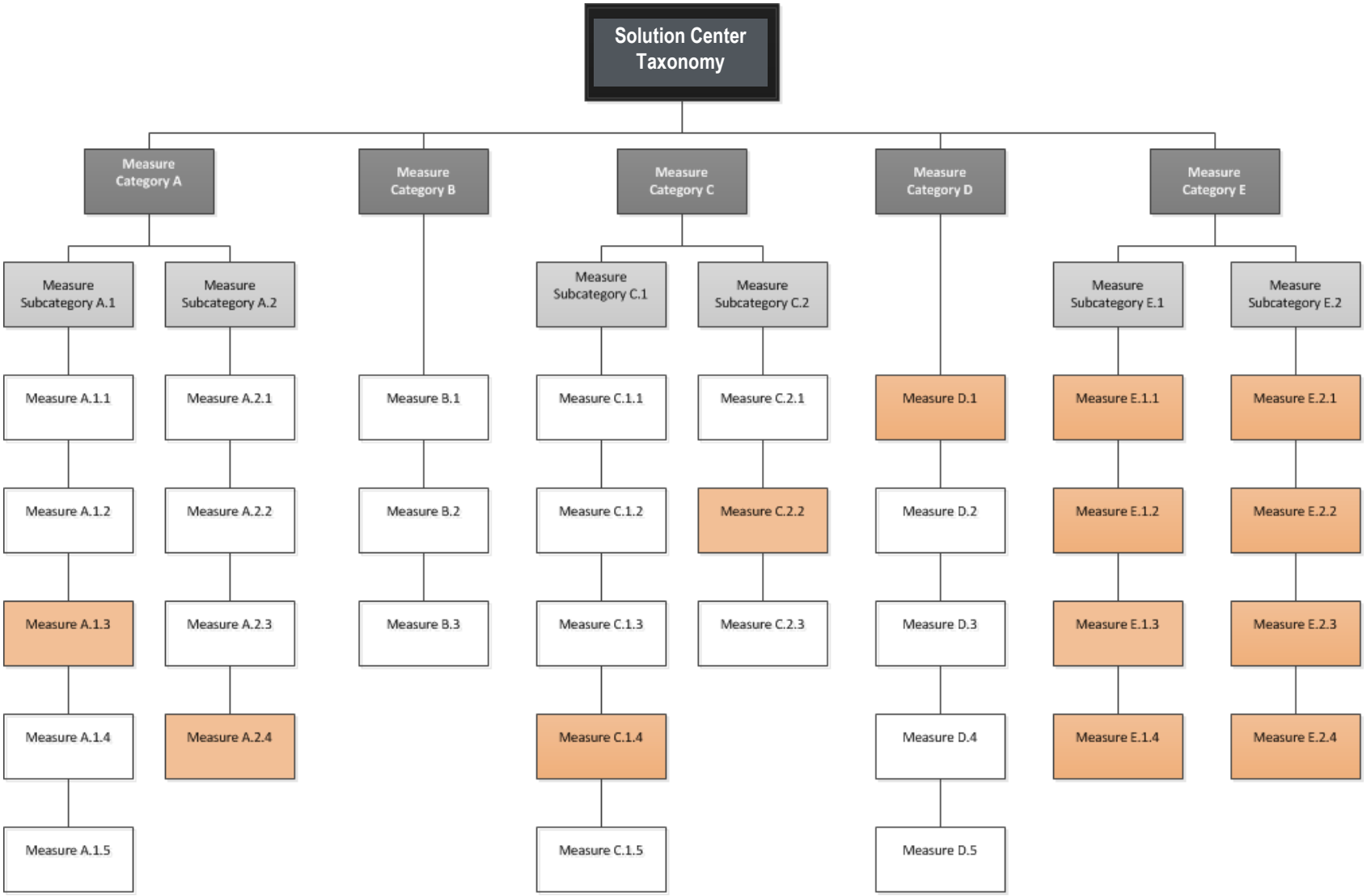
Is *Not*:

- Design Tool for Customized Energy Packages

Comprehensive Content Strategy

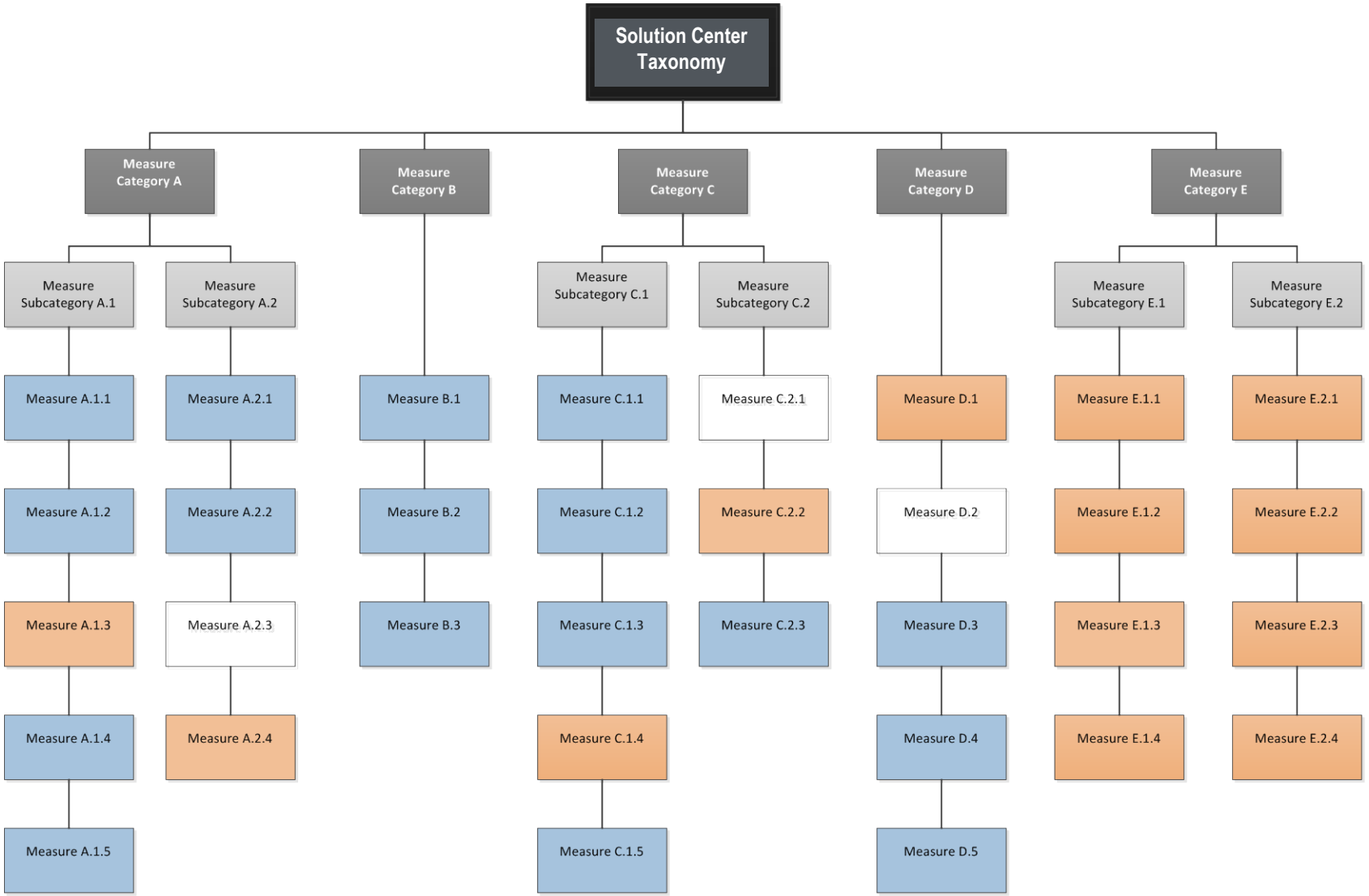


Comprehensive Content Strategy

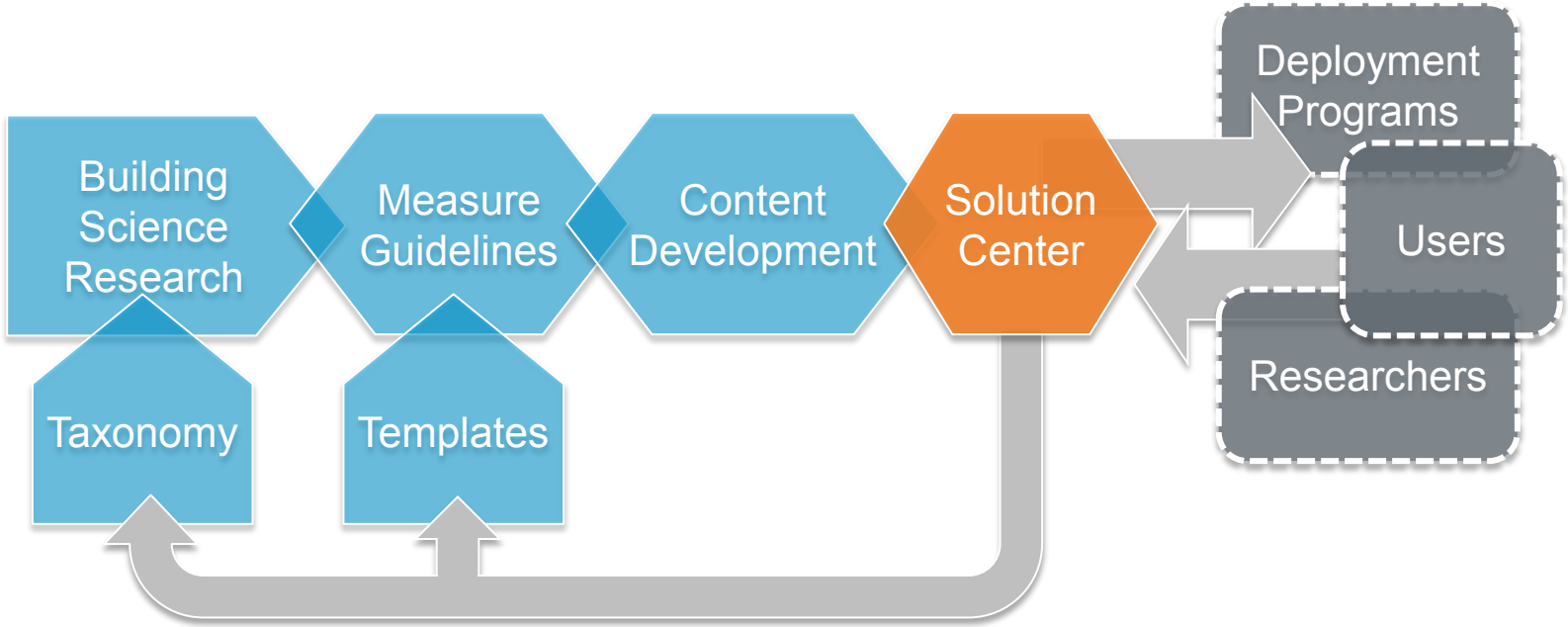


Comprehensive Content Strategy

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

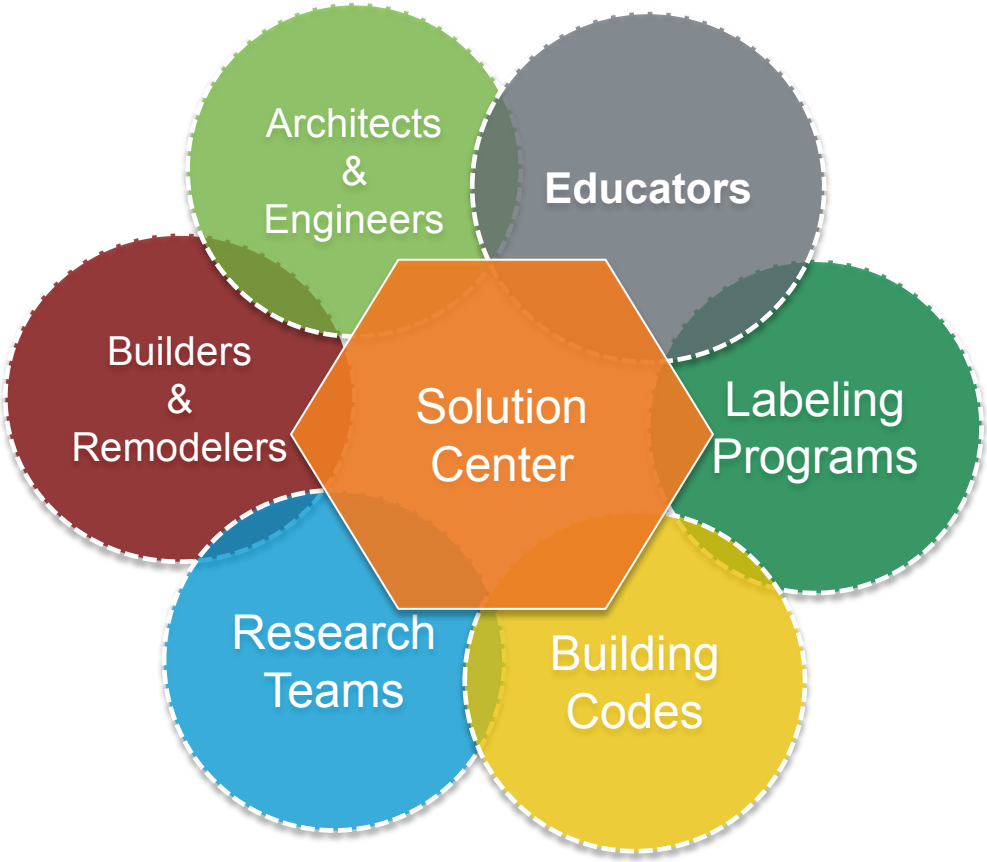


Content Development Process



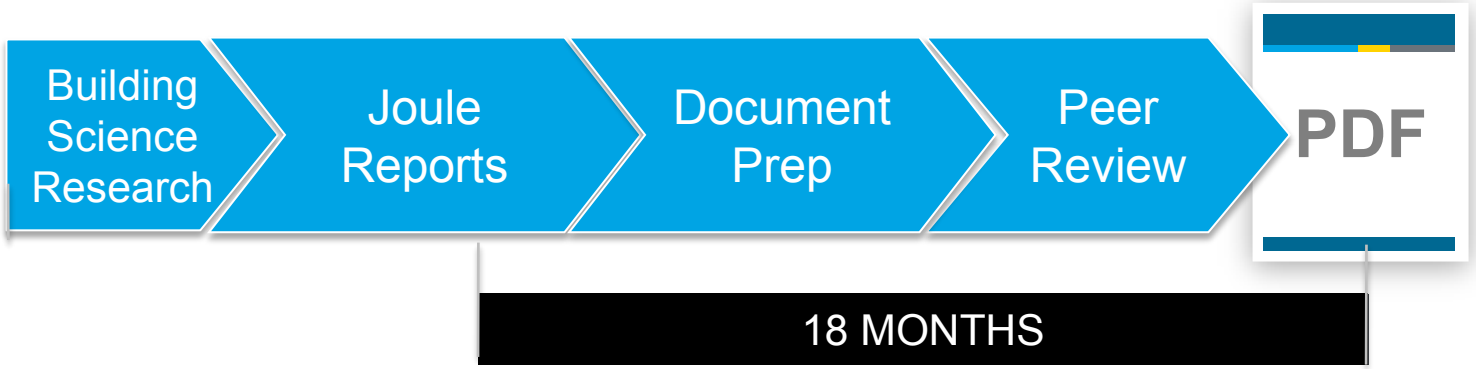
Dynamic Content

Future Audience Engagement Becomes ***Community Driven***



Faster Content

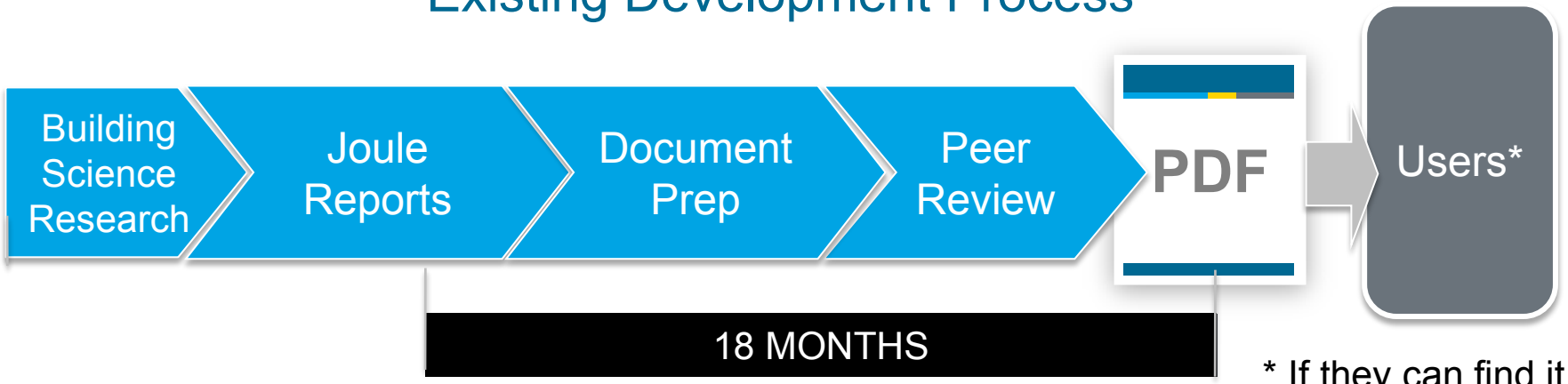
Existing Development Process



Future Development Process

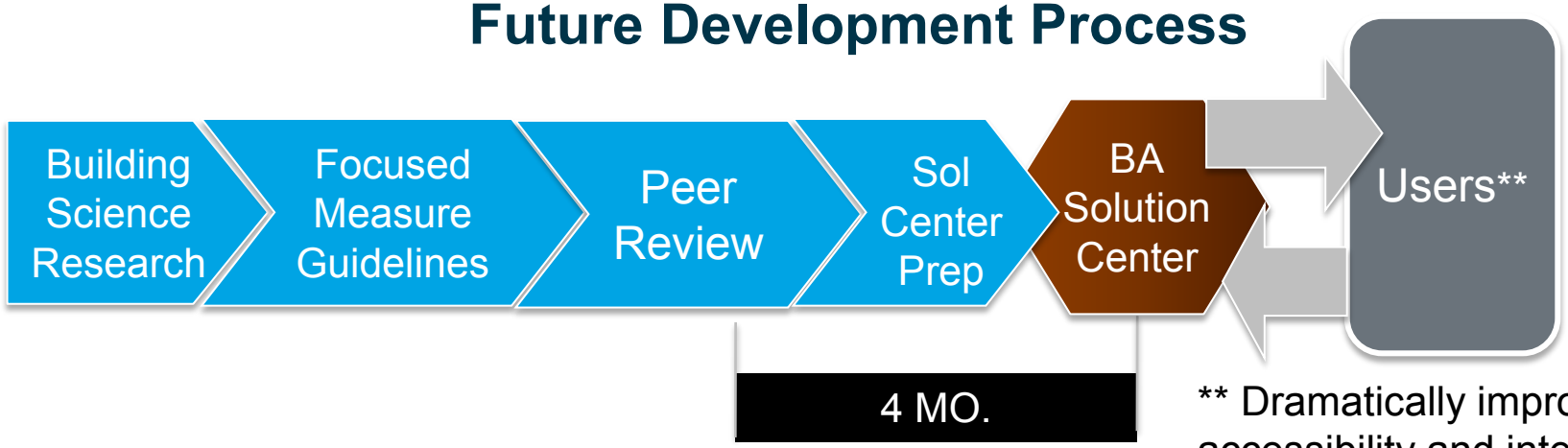
Better Content

Existing Development Process



* If they can find it

Future Development Process



** Dramatically improved accessibility and interaction

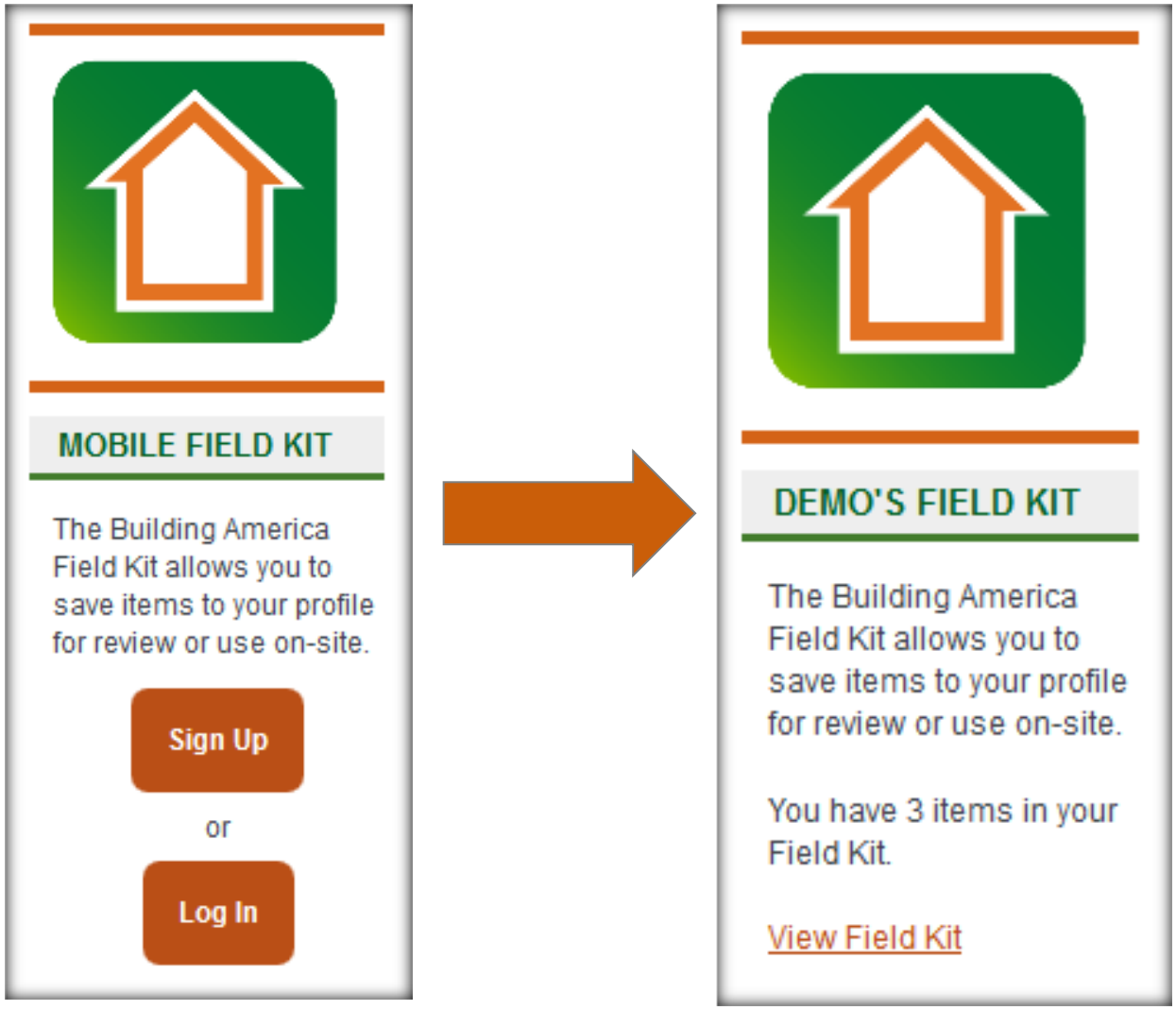
Building America Solution Center Feedback

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

"Fully Aligned Attic Barriers …In section A it says "…*include barrier at interior edge of attic eave in all climate zones using a wind baffle that extends to the full height of the insulation*". Either I'm not understanding the direction or there is a type-o. Shouldn't it say "exterior edge"?...

…Again, I don't mean to be overly critical. I think this site is awesome. As time goes on, we will almost certainly be using this site as a training tool, particularly for people newer to the industry."

More Customizable Content



More Accessible Content

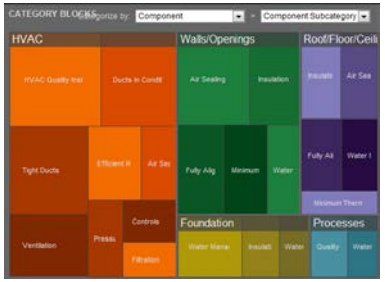
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Home/Entry Page

Component Explorer

Checklist Manager

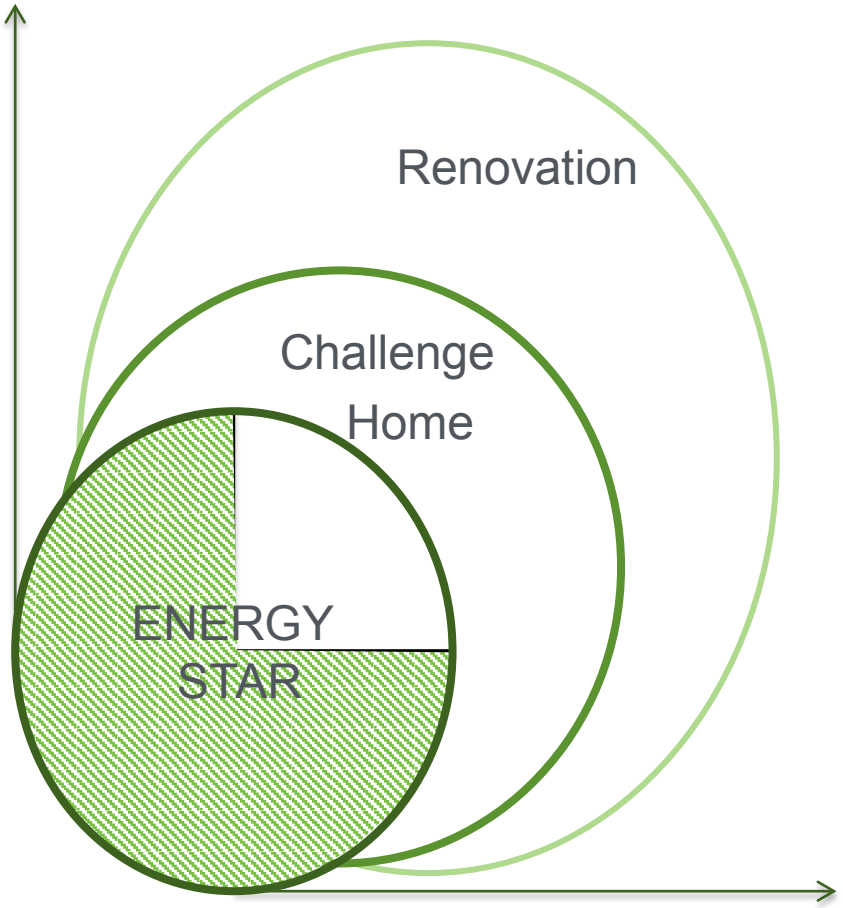
Building Science Explorer



Content

Continuous Improvement

- Support ENERGY STAR Version 3.
- Initial content based on existing Building America and ENERGY STAR resources.
- Future Development
  - DOE Challenge Home
  - Existing home renovation



Building America Solution Center Tour

Solution Center Tour

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Customization

Building America Solution Center

Search

Login | Register

SEARCH

Solution Center Search | Search Help

EERE » BTP » Building America » Solutions Center »

Bread Crumbs

- Solutions Center Home
- Component Explorer
- Checklist Manager
- Building Science Explorer
- Browser
  - Guides
  - Case Studies
  - Image Gallery
  - CAD Files
- References

Component

Checklist

Building Science

Browser

Recent Content

The U.S. Department of Energy's Building America program strives to develop integrated energy systems that dramatically reduce annual energy use and peak energy loads in existing and new homes while also improving overall building quality, comfort, safety, and durability.

RECENTLY ADDED RESOURCE GUIDES

Sealed Duct Boots - PVC Ducts
Posted: August 09, 2012
Sealed Duct Boots - Fiber Board Ducts
Posted: August 09, 2012
Sealed Duct Boots - Metal Ducts
Posted: August 09, 2012
More Resource Guides

RECENTLY ADDED REFERENCES

2012 IRC—International Residential Code for One and Two Family Dwellings
Posted: September 12, 2012
2009 IRC—International Residential Code for One and Two Family Dwellings
Posted: September 12, 2012
Energy Renovations: Volume 17: Insulation - A Guide for Contractors to Share with Homeowners
Posted: July 12, 2012
More References

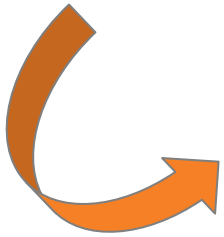
Building AMERICA U.S. Department of Energy

Log In for Customization

Log In for Customization (cont.)

DEMO'S FIELD KIT

The Building America Field Kit allows you to save items to your profile for review or use on-site.



demo's Field Kit

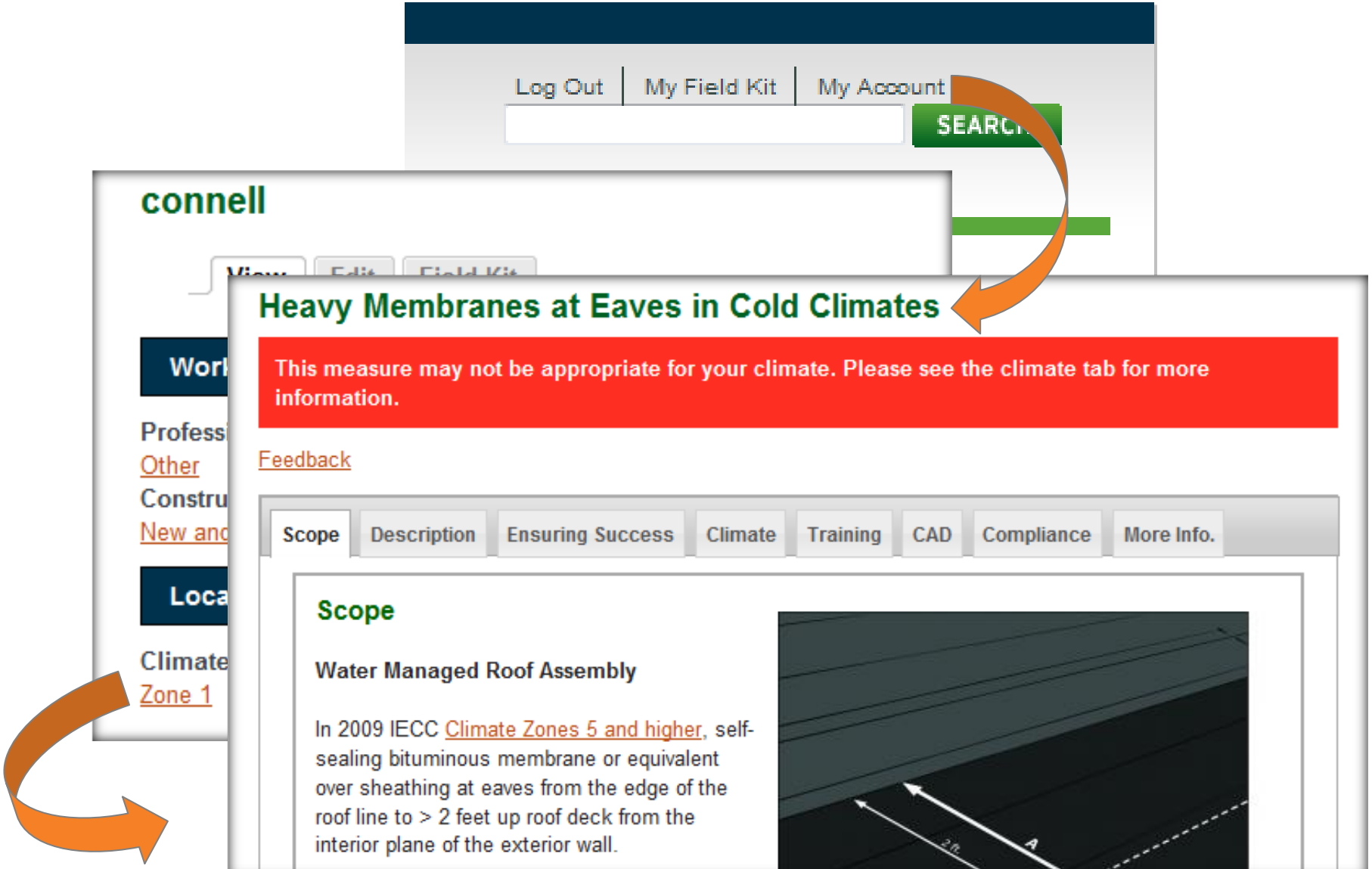
View | Edit | **Field Kit**

The Building America Field Kit allows you to save items to your profile for review or use on-site.

Type	Title
CAD File	Air barrier at garage band joist - 1 inch rigid insulation with 1x3 wood furring
CAD File	2 foot plan layout with wall elevation
CAD File	2-stud corner with 1x4 backer
Image	Air barrier is present between the dropped ceiling/soffit and the attic
Image	Neatly cut holes have been properly sealed with caulk and foam
Resource Guide	Walls Behind Fireplaces
Resource Guide	Garage Rim/Band Joist Adjoining Conditioned Space
Resource Guide	Cantilevered Floor
Resource Guide	Jump Ducts
Resource Guide	Step and Kick-Out Flashing at Roof-Wall Intersections

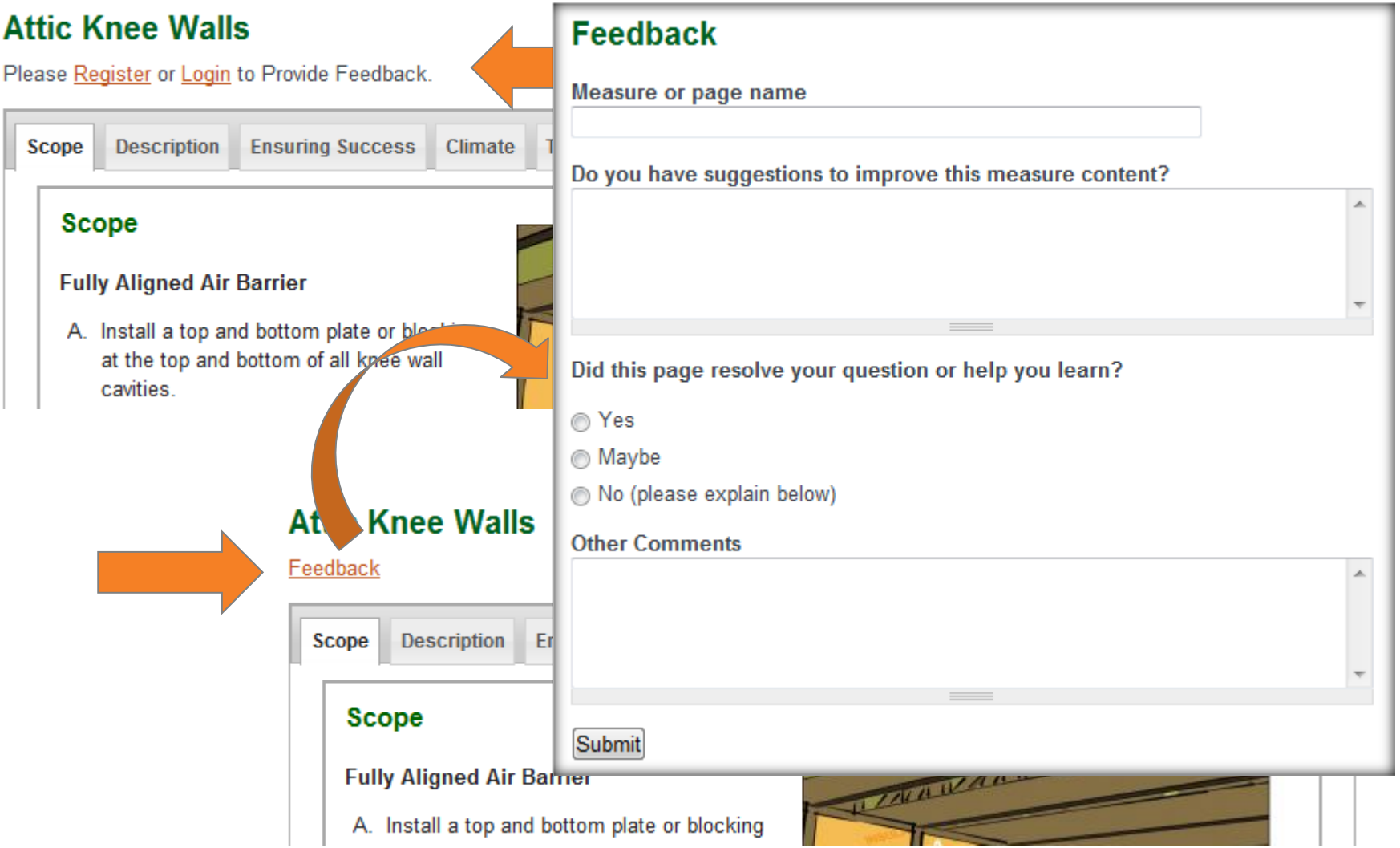
- Look for the Field Kit icon to add content
- COMING: Mobile access to your Field Kit.

Log In for Customization (cont.)



Log In for Customization (cont.)

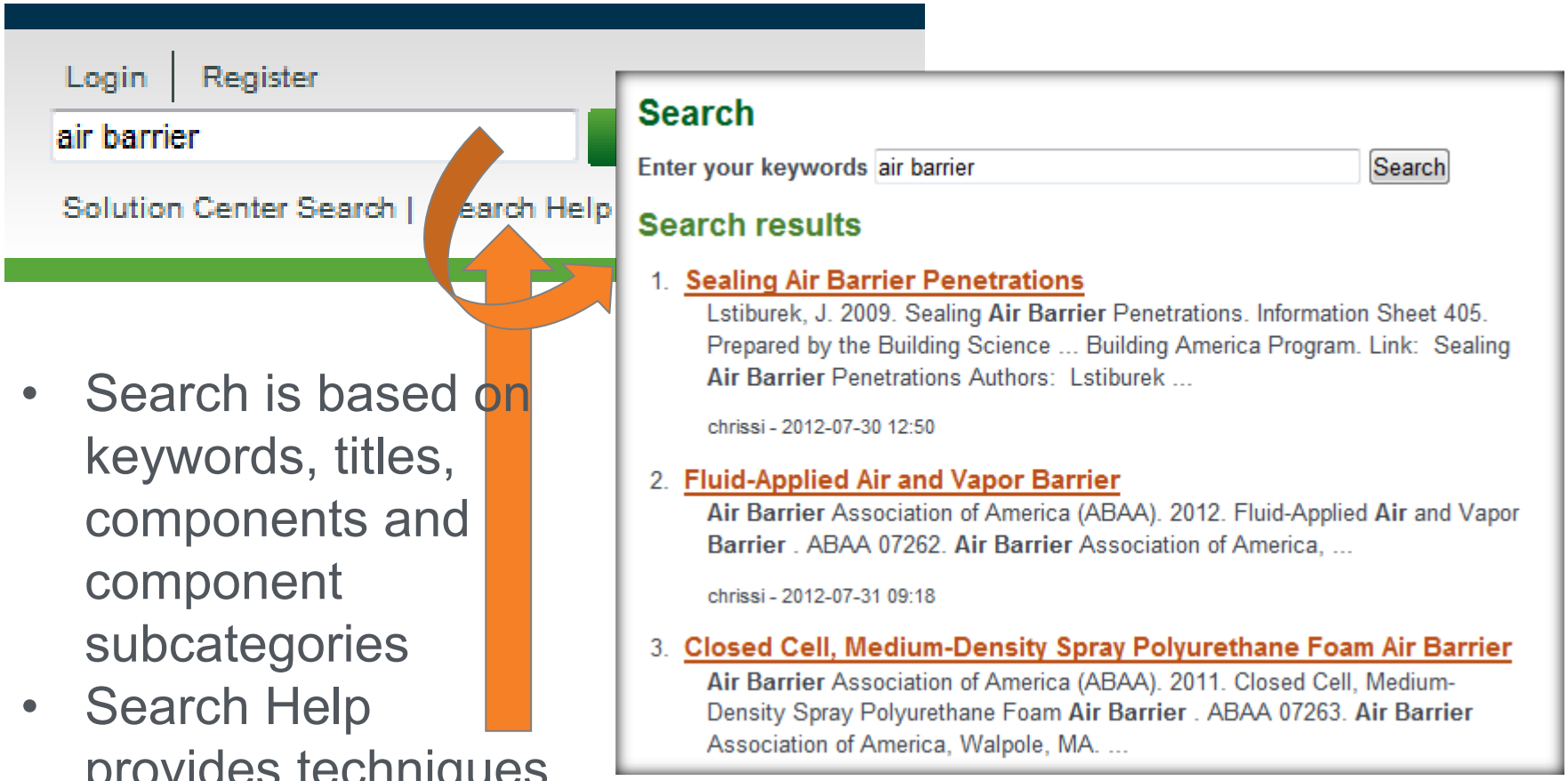
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



Register and log in to

- Build and track your Field Kit
- Customize content to your climate
- Track your searches
- Provide comments and content
- Help DOE understand how the tool is used

Search



- Search is based on keywords, titles, components and component subcategories
- Search Help provides techniques for advanced searches

Search results include Guides, Images, Case Studies, References, and anything else associated with a Guide

Navigation Terminology: Taxonomy

- The Solution Center is organized around a single, hierarchical taxonomy.
- All content is associated with at least one taxonomy term, but can be associated with many terms.
- All Guides fall into a parent (highest level) taxonomy category.
- When a Guide is loaded, an icon is used to identify this parent.

Thermal Enclosure

HVAC

Water Management

Navigation Terminology: Taxonomy

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Attic Knee Walls

Please Register or Login to Provide Feedback.

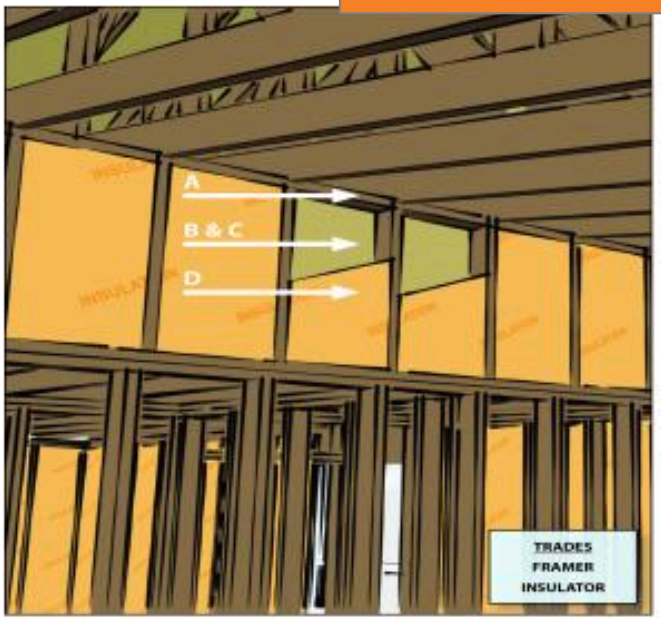
Scope | Description | Ensuring Success | Climate | Training | CAD | Com

Taxonomy: Thermal Enclosures

Scope

Fully Aligned Air Barrier

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



MOBILE FIELDKIT

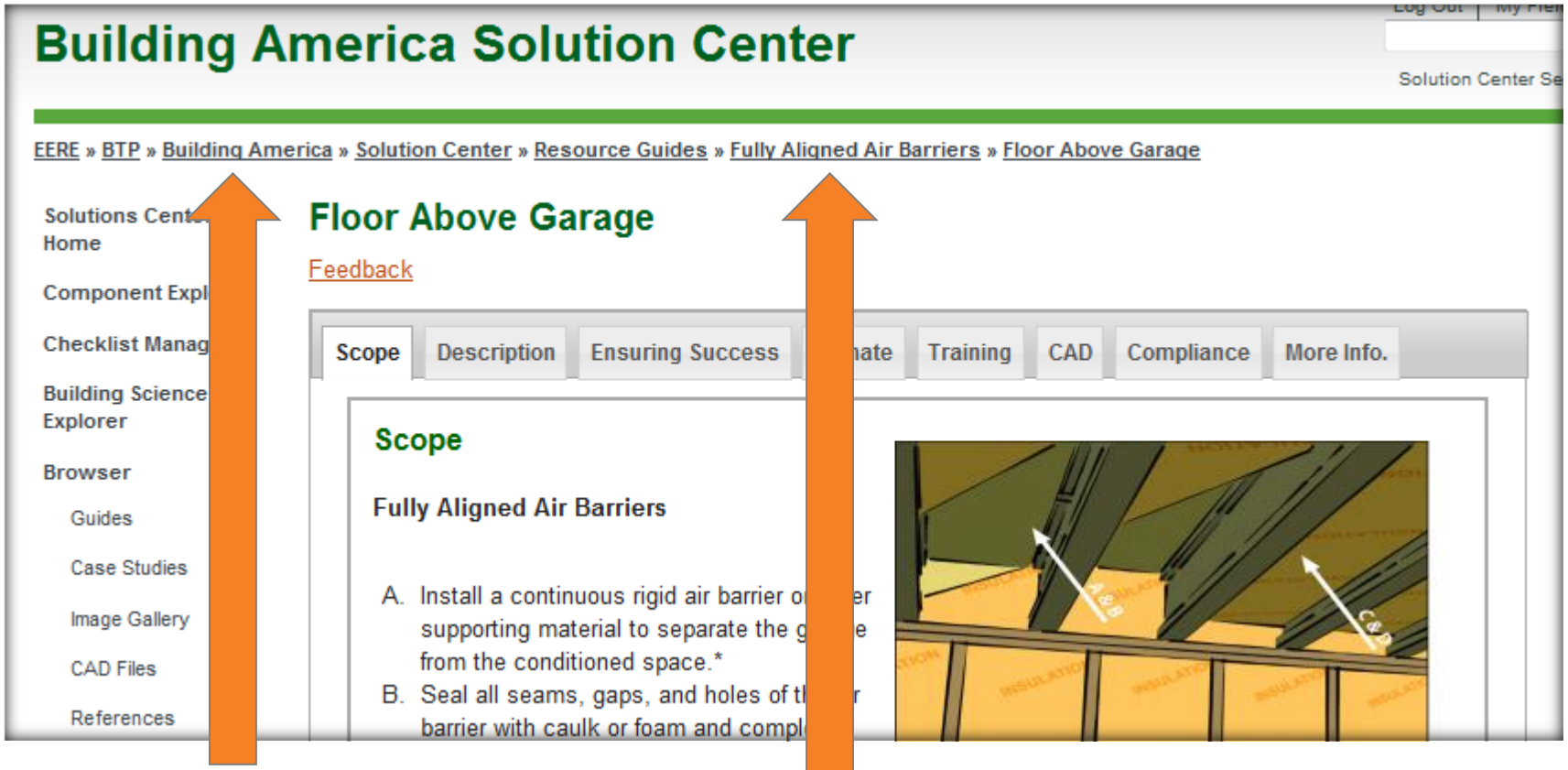
The Building America Field Kit allows you to save items to your profile for review or use on-site.

Sign Up

or

Log In

Bread Crumbs



Bread crumbs take you to EERE, BTP, Building America, and the Solution Center Home Page.

Bread crumbs also help you know how you got here….

Component Explorer

- The Component Explorer displays images representing eight building-related component areas
- Each component is further organized into Component Subcategories (e.g., air sealing, insulation, etc.)
- After selecting a subcategory, all guides associated with that subcategory are displayed.

Component Explorer (cont.)

Foundation

Water Managed Foundation
Minimum Thermal Bridging
Insulation
Air Sealing
Fully Aligned Air Barriers

Click a component to display subcategories
Click subcategories to display Guides

Component Explorer (cont.)

Component Explorer

Foundation » Insulation

IECC Code Level Insulation

Insulation Installation (RESNET Grad

Slab Edge Insulation

Slab Edge Insulation

Please Register or Login to Provide Feedback.

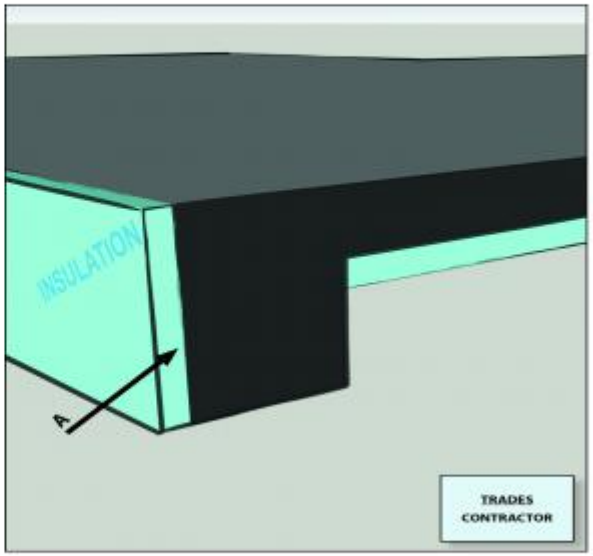
Scope | Description | Ensuring Success | Climate | Training | CAD | Compliance | More Info.

Scope

Reduced Thermal Bridging

For slabs on grade in Climate Zone 4 and higher, 100% of the slab edge is insulated to ≥ R-5 at the depth specified by the 2009 IECC and aligned with thermal boundary of the walls.

A. Install slab edge insulation to extend to the top of the slab so it provides a complete thermal break.



Notes:

Consistent with the 2009 IECC, slab edge insulation is only required for slab-on-grade floors with a floor surface less than 12 inches below grade. Slab insulation shall extend to the top of the slab to provide a complete thermal break. If the top edge of the insulation is installed between the exterior wall and the edge of the interior slab, it shall be permitted to be cut at a 45-degree angle away from the exterior wall.

Checklist Manager

- The Checklist Manager currently allows exploration of content specific to ENERGY STAR Version 3 checklists.
- The Checklist Manager does not provide pathways to additional, non-related data .
- Topics are displayed in the same order as they appear on the ENERGY STAR checklists.
- Users can drill down into the checklist to display Guides associated with each requirement.
- Checklists supporting other programs will be added in the future.

Checklist Manager (cont.)

Checklist Manager

ENERGY STAR Qualified Homes, Version 3 (Rev .05)

▾ Thermal Enclosure System Rater Checklist

Prescriptive Path: Fenestration shall meet or exceed ENERGY STAR requirements

ENERGY STAR Windows

Read more

ENERGY STAR Windows

Please Register or Login to Provide Feedback.

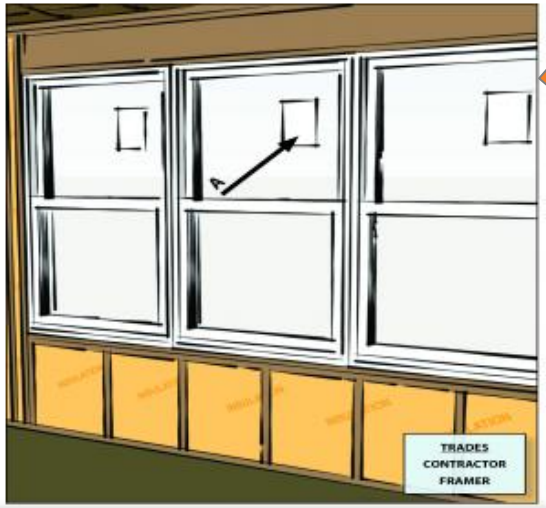
Scope | Description | Ensuring Success | Climate | Training | CAD | Compliance | More Info.

Scope

ENERGY STAR Windows

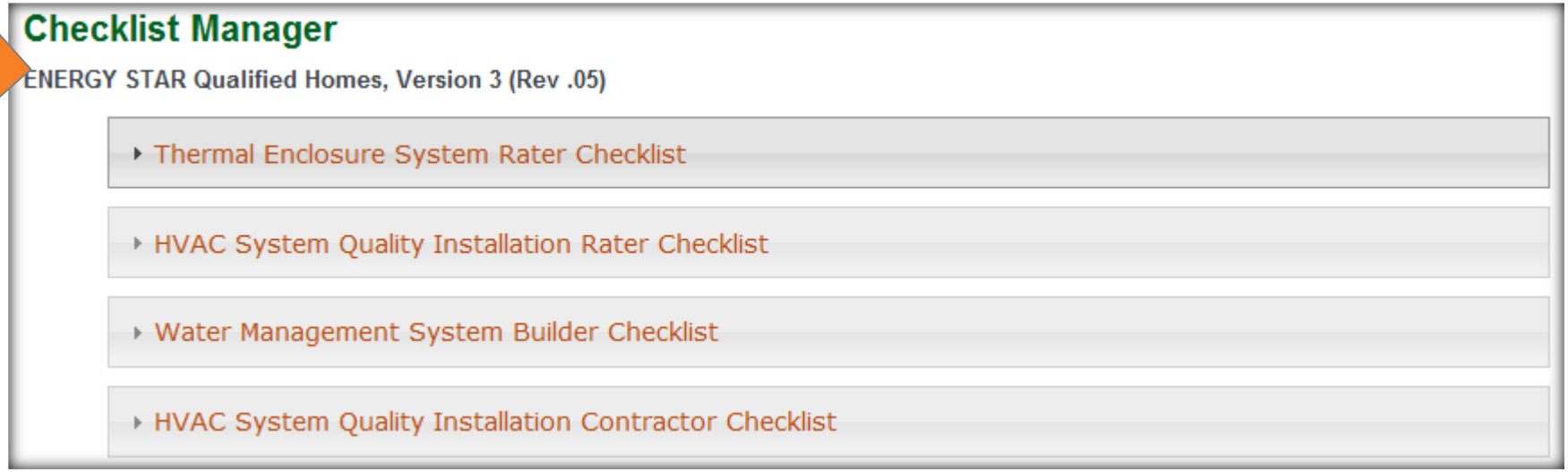
Prescriptive Path: Fenestration shall meet or exceed ENERGY STAR requirements

A. Select windows, doors, and skylights to meet ENERGY STAR program requirements for windows, doors, and skylights.
B. Note that the U-value and the Solar Heat Gain Coefficient (SHGC) for doors apply to the whole door, not just the glazing portion.



Checklist Manager (cont.)

- COMING: Additional checklists will be added
  - DOE Challenge Home Checklists
  - Existing homes



Scope | Description | Ensuring Success | Climate | Training | CAD | Compliance | More Info.

Scope

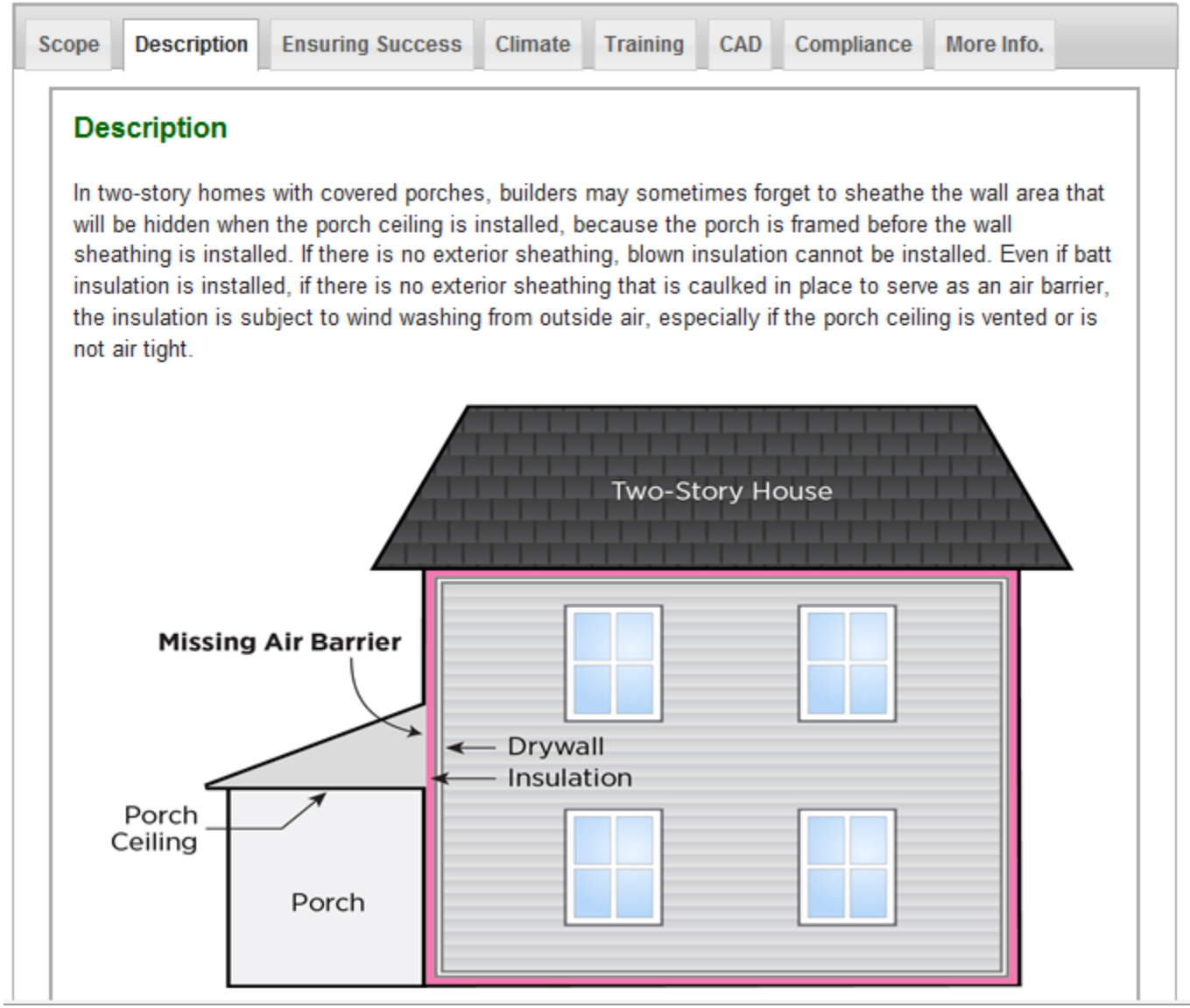
Fully Aligned Air Barrier

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

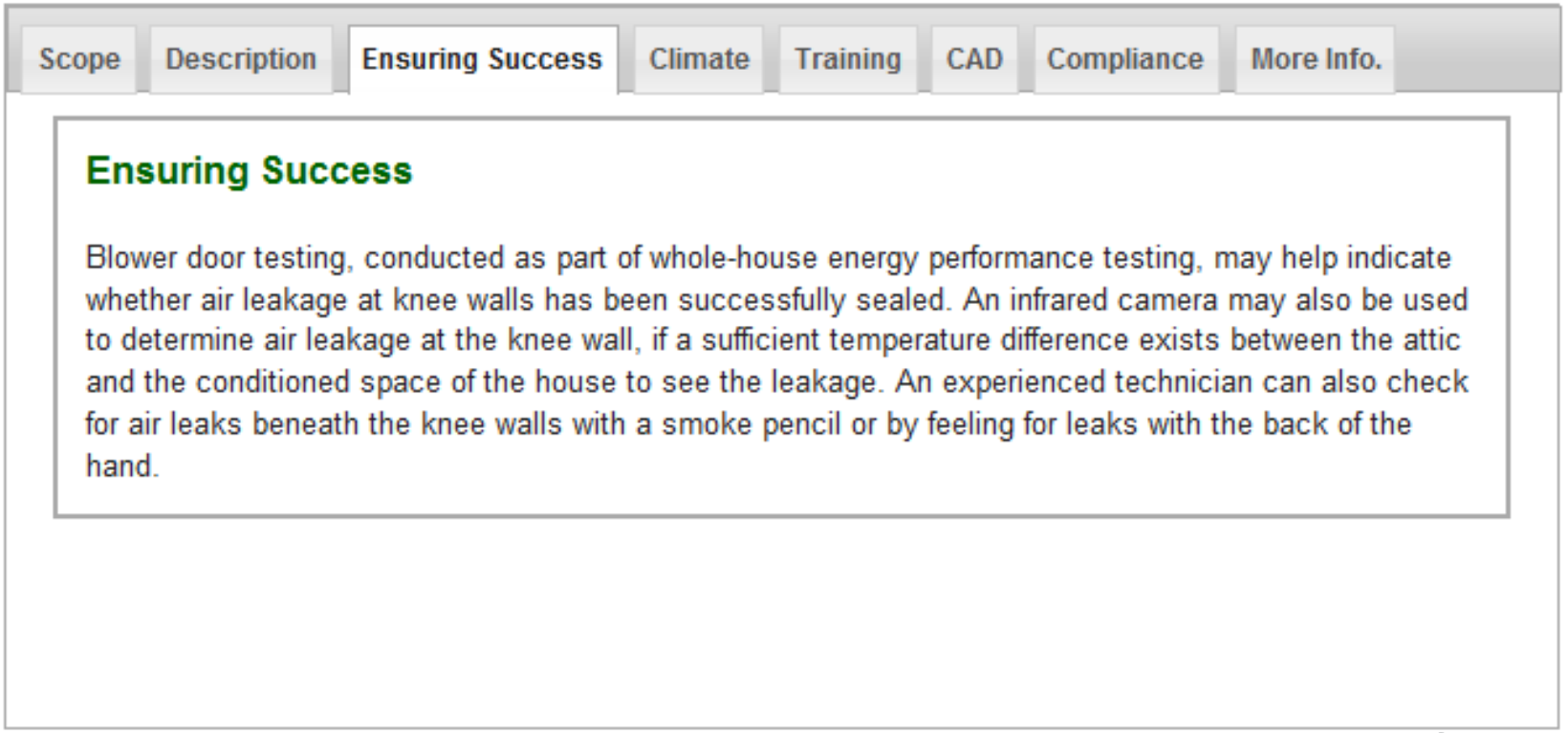
Scope: Clearly defines and bounds the building topic in a way builders and remodelers can use to contractually obligate their subcontractors.

Guides (cont.)

Description: Provides an explanation of the building topic and specific "how-to" steps for implementing.



Guides (cont.)



Ensuring Success: A big-picture discussion of health, safety, durability, performance issues, test-in/test-out requirements, and scheduling and sequencing considerations.

Guides (cont.)

Scope | Description | Ensuring Success | **Climate** | Training | CAD | Compliance | More Info.

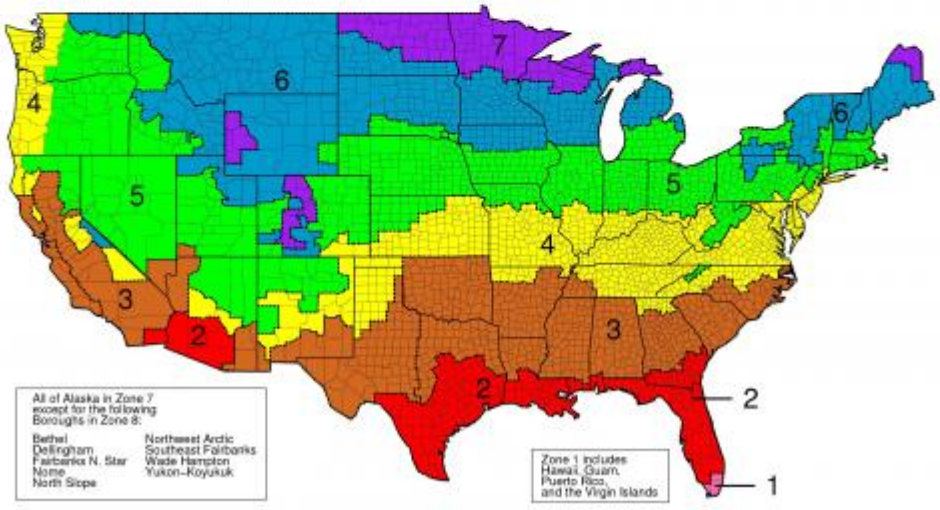
Climate

ENERGY STAR Version 3, (Rev. 5)

Thermal Enclosure Checklist, Fully-Aligned Air Barriers. A complete air barrier shall be provided that is fully aligned with the insulation at exterior surface of walls in all climate zones; and also at interior surface of walls for Climate Zones 4-8.

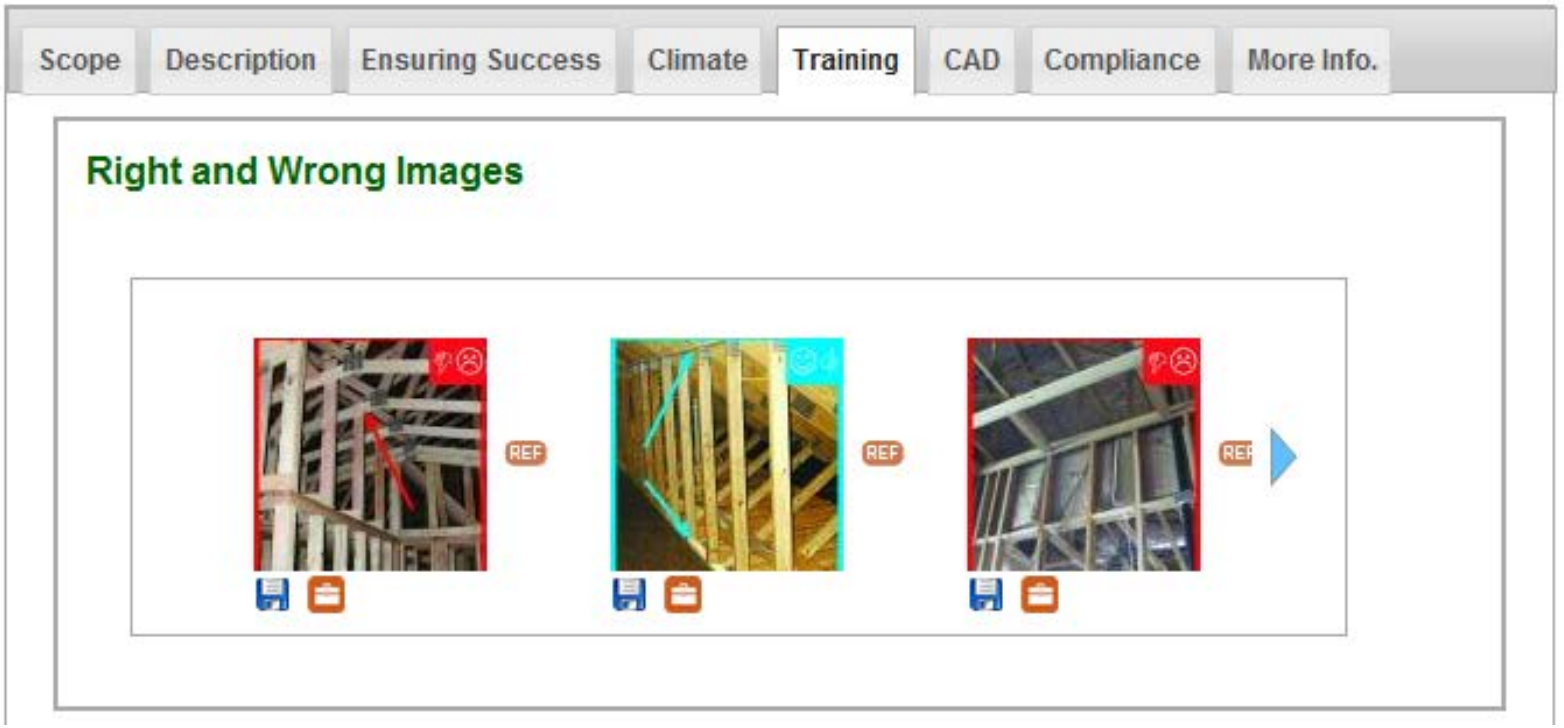
DOE Challenge Home

Exhibit 2: DOE Challenge Home Target Home. Infiltration (ACH50): Zones 1-2: 3; Zones 3-4: 2.5; Zones 5-7: 2; Zone 8: 1.5. Envelope leakage shall be determined by an approved verifier using a RESNET-approved testing protocol.



Climate: Cites climate-specific codes, standards, ENERGY STAR, and Challenge Home guidance.

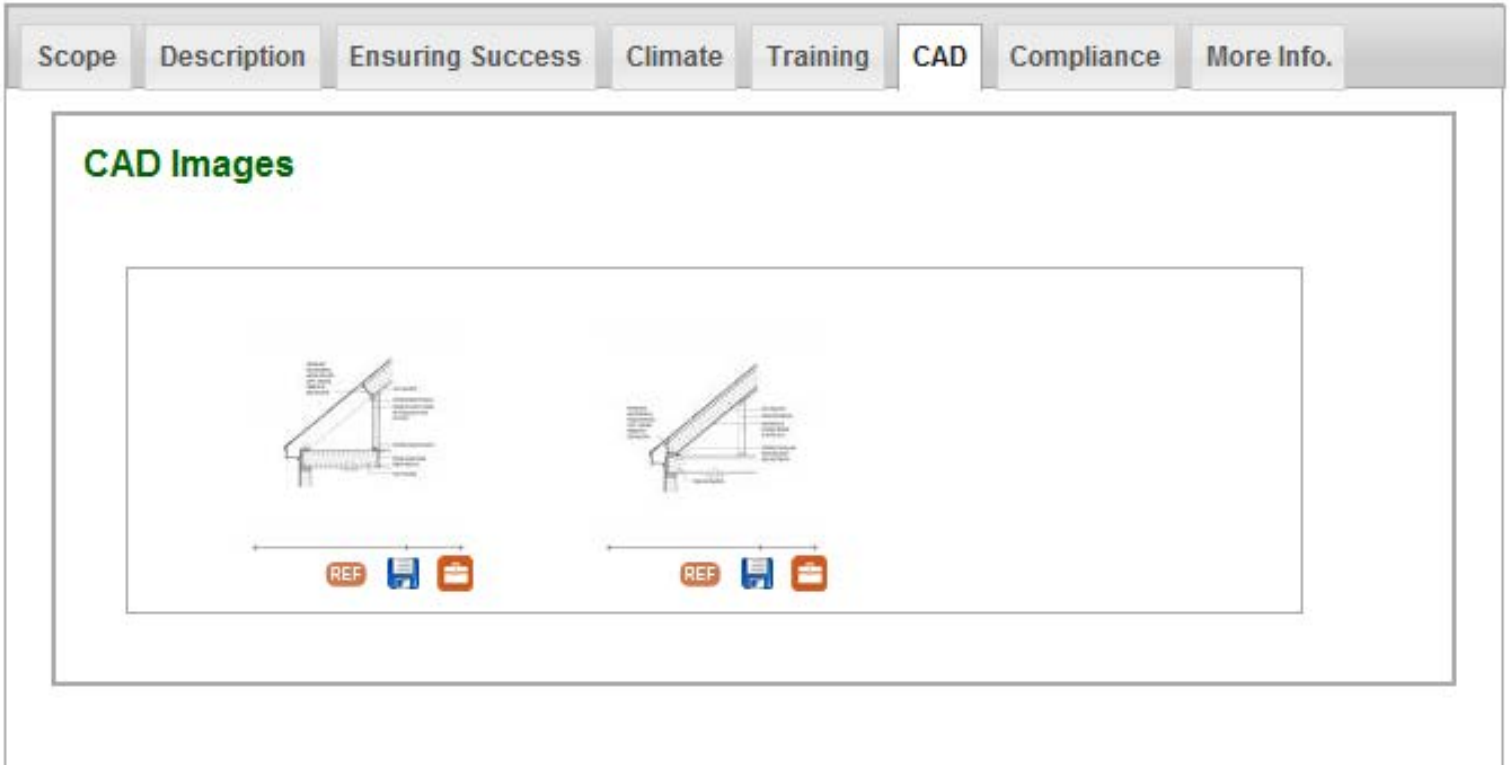
Guides (cont.)



Training: Includes educational resources such as Right/Wrong photographs of proper and improper installation.

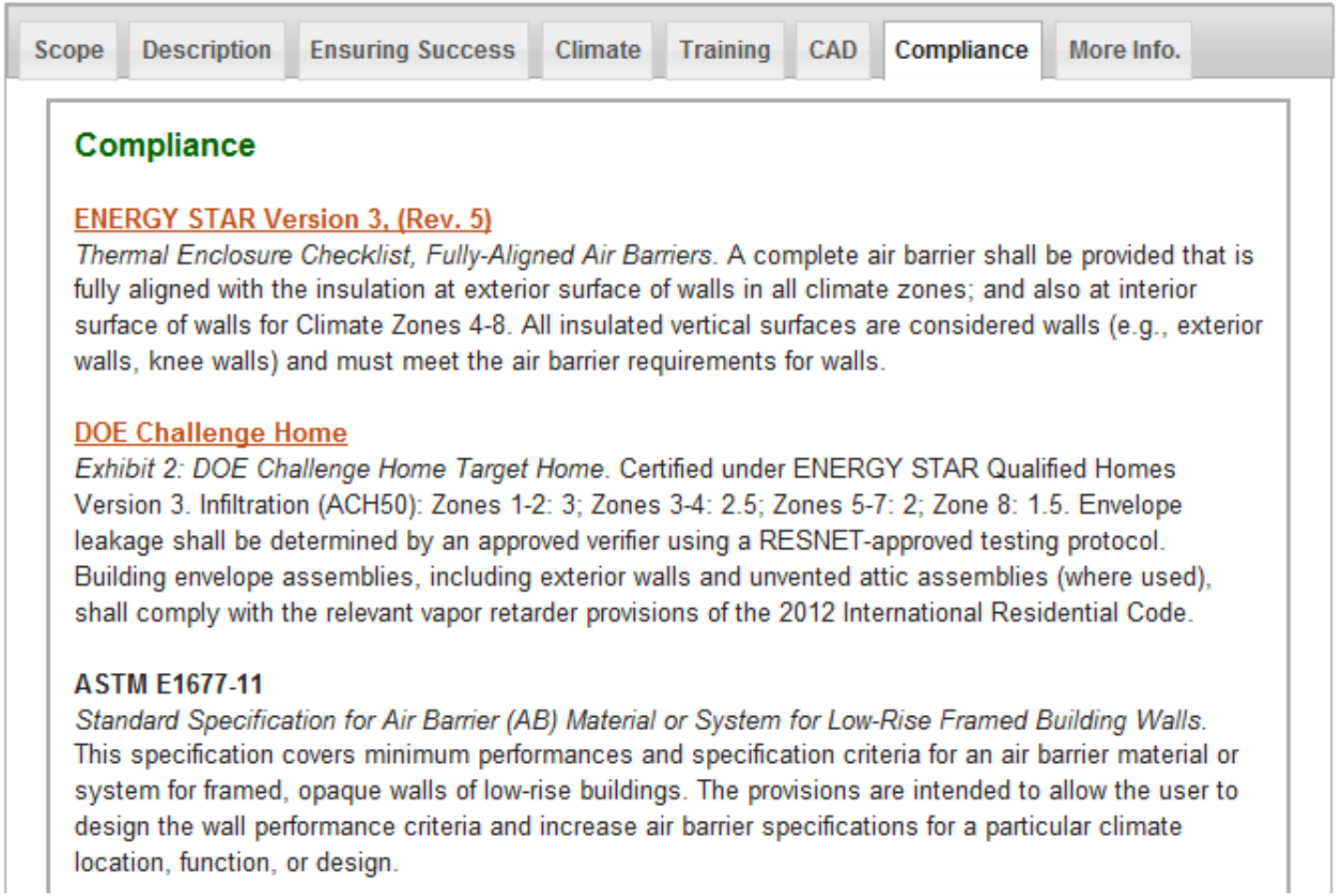
COMING: Videos and presentations

Guides (cont.)



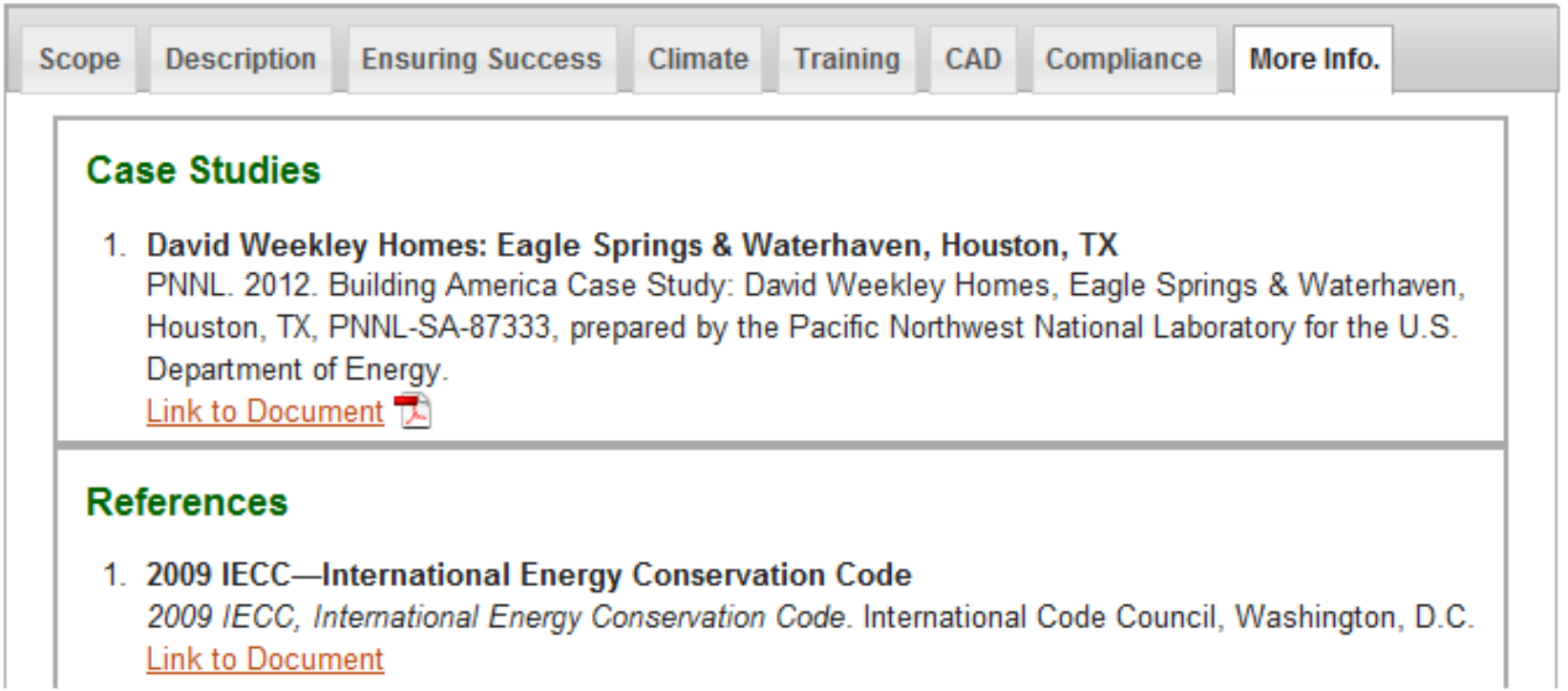
CAD: Includes Architectural CAD files of the building topic in DWG and PDF forms.

Guides (cont.)



Compliance: Provides specific compliance references from applicable codes and standards.

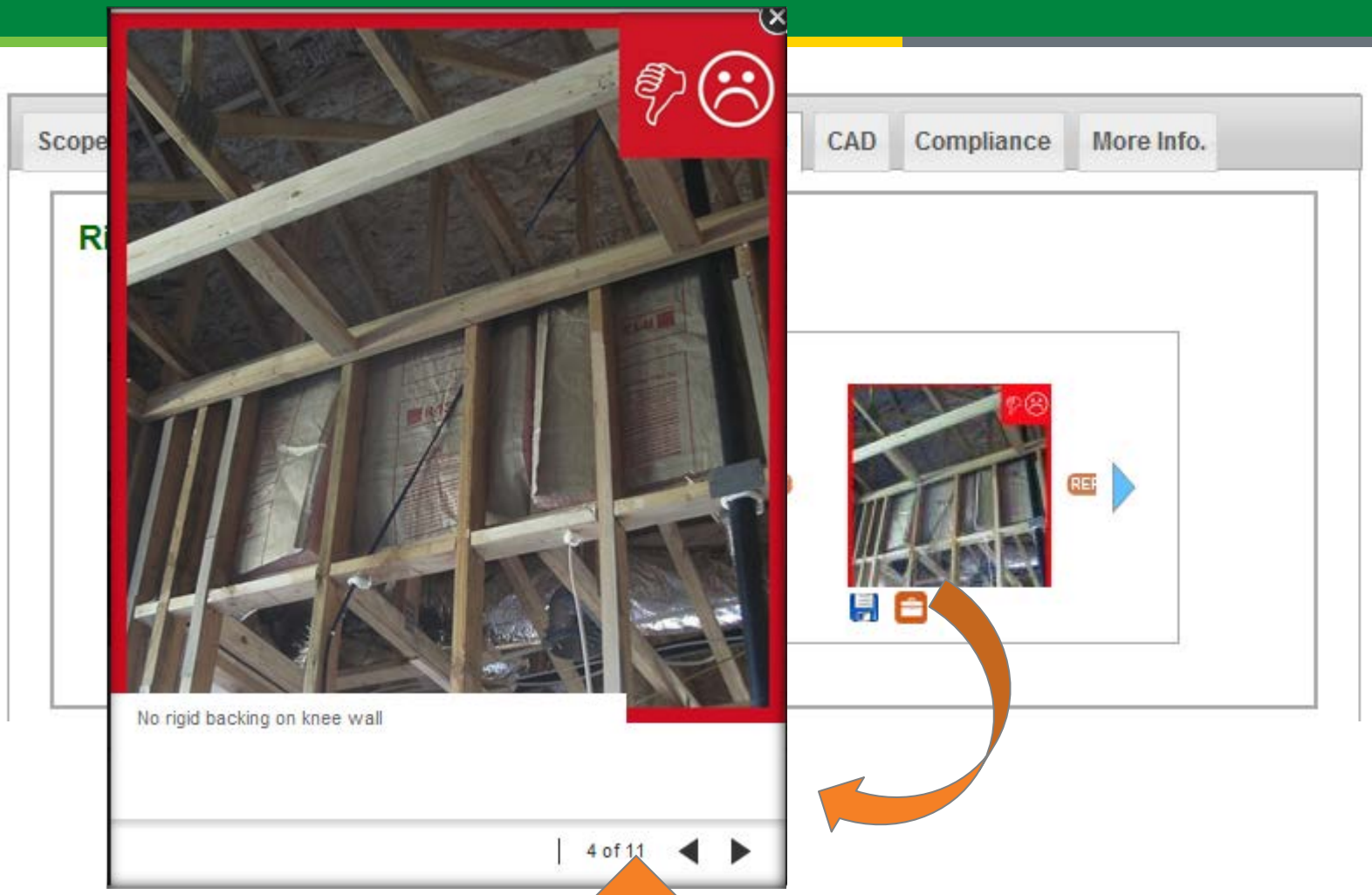
Guides (cont.)



More Info:

- References - Full citations with links for content.
- Case Studies - Summaries of Building America teams and builders who have applied best practices.
- Resources - Relevant information not previously cited as references.
- COMING: Innovations

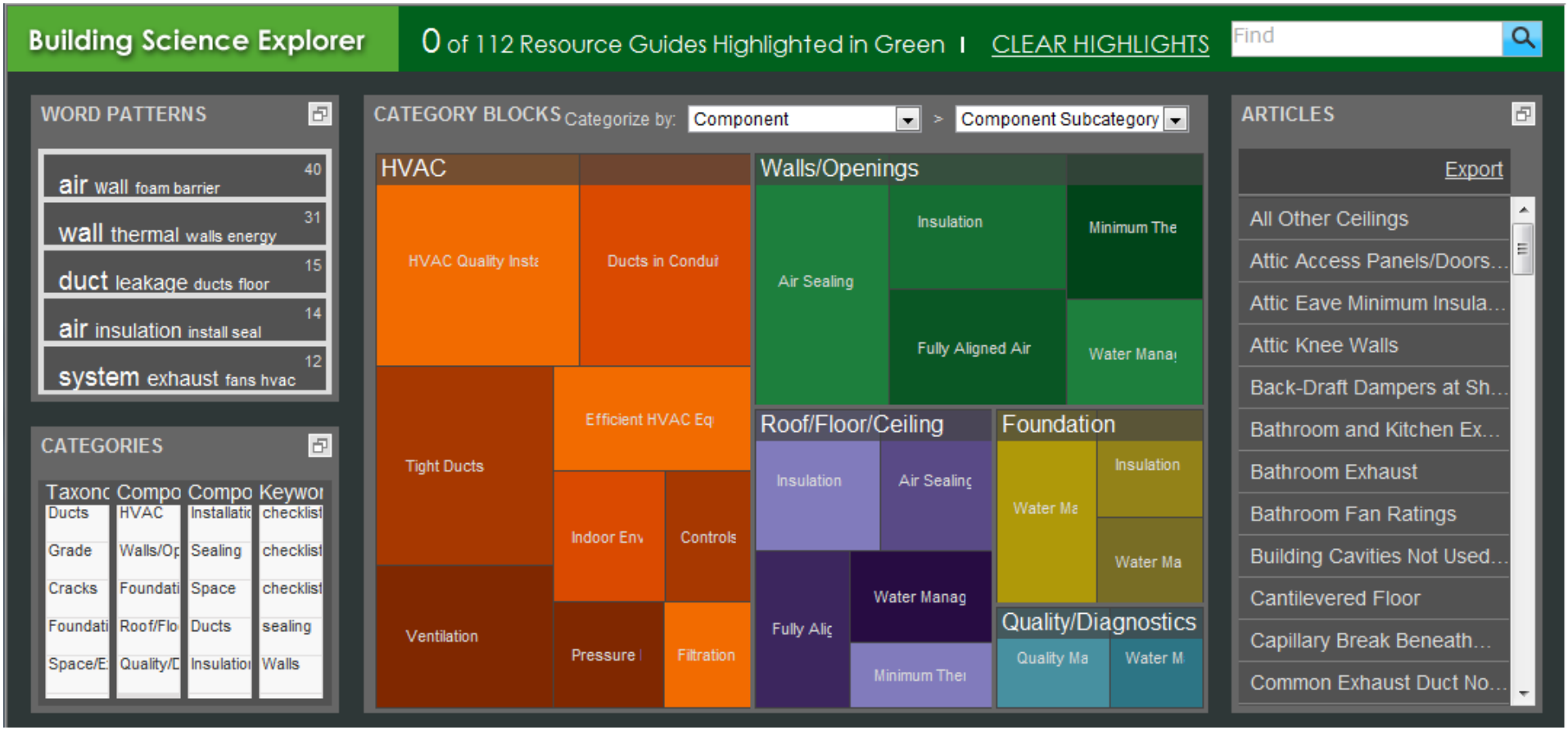
Guides (cont.)



Click on any image within the Guide to enlarge it in a sliding window.

Scroll through all images in the Guide.

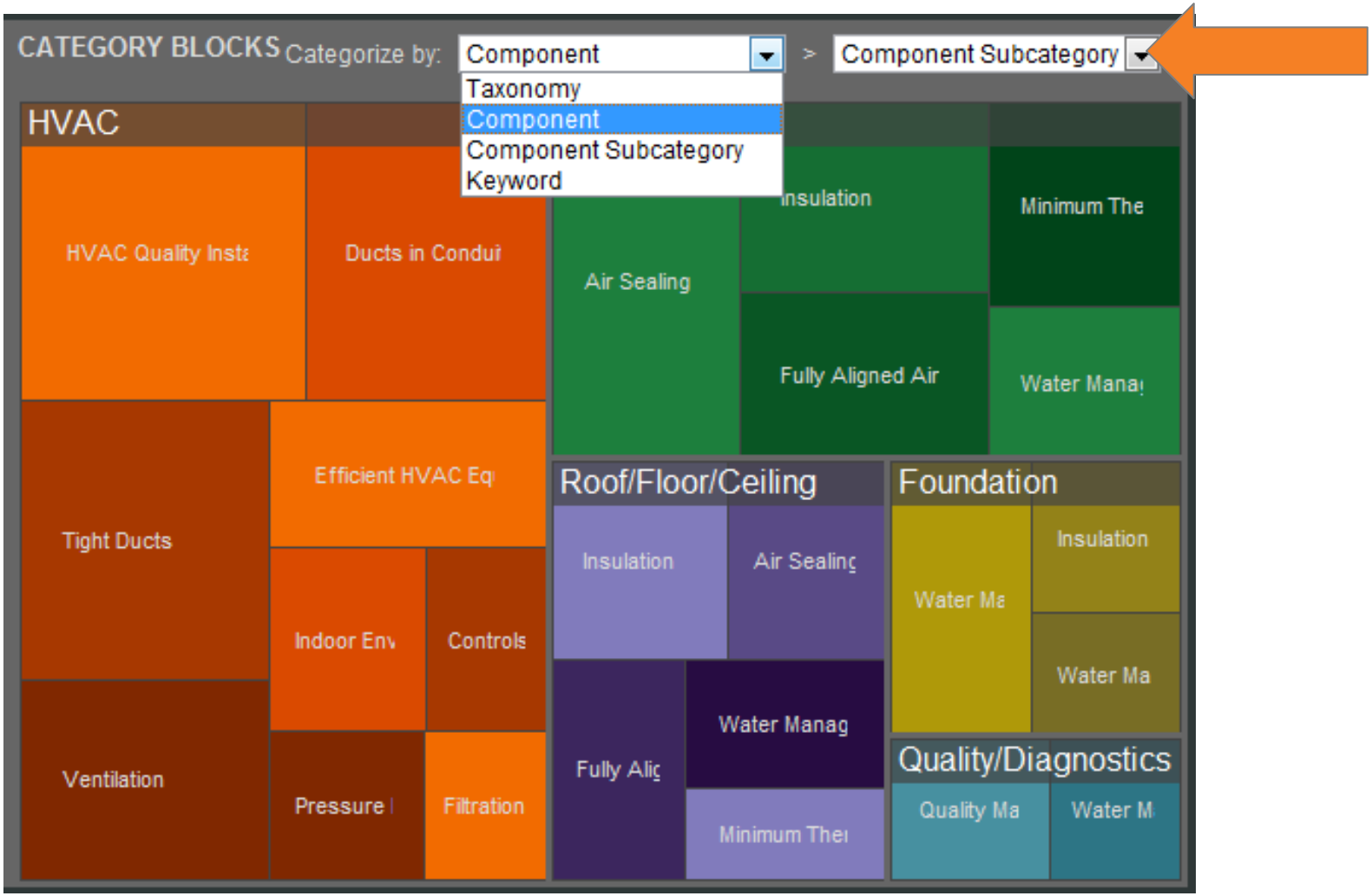
Building Science Explorer



Building Science Explorer visualizes the content and its semantic mark-up. It allows a user to explore the classification of content, and to drill down to specific Guides.

Building Science Explorer: CATEGORY BLOCKS

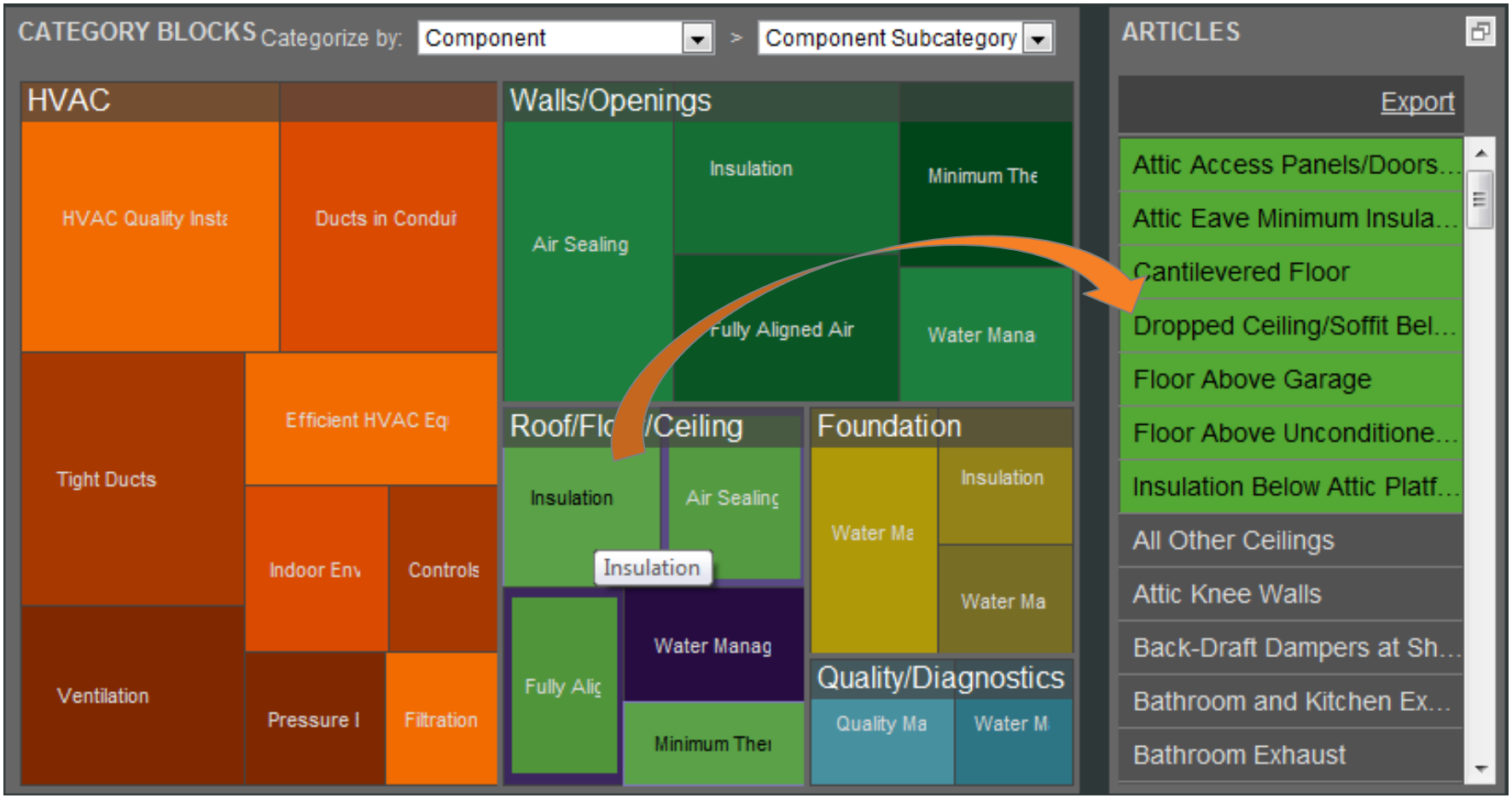
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



Change content categorizations

Building Science Explorer: CATEGORY BLOCKS

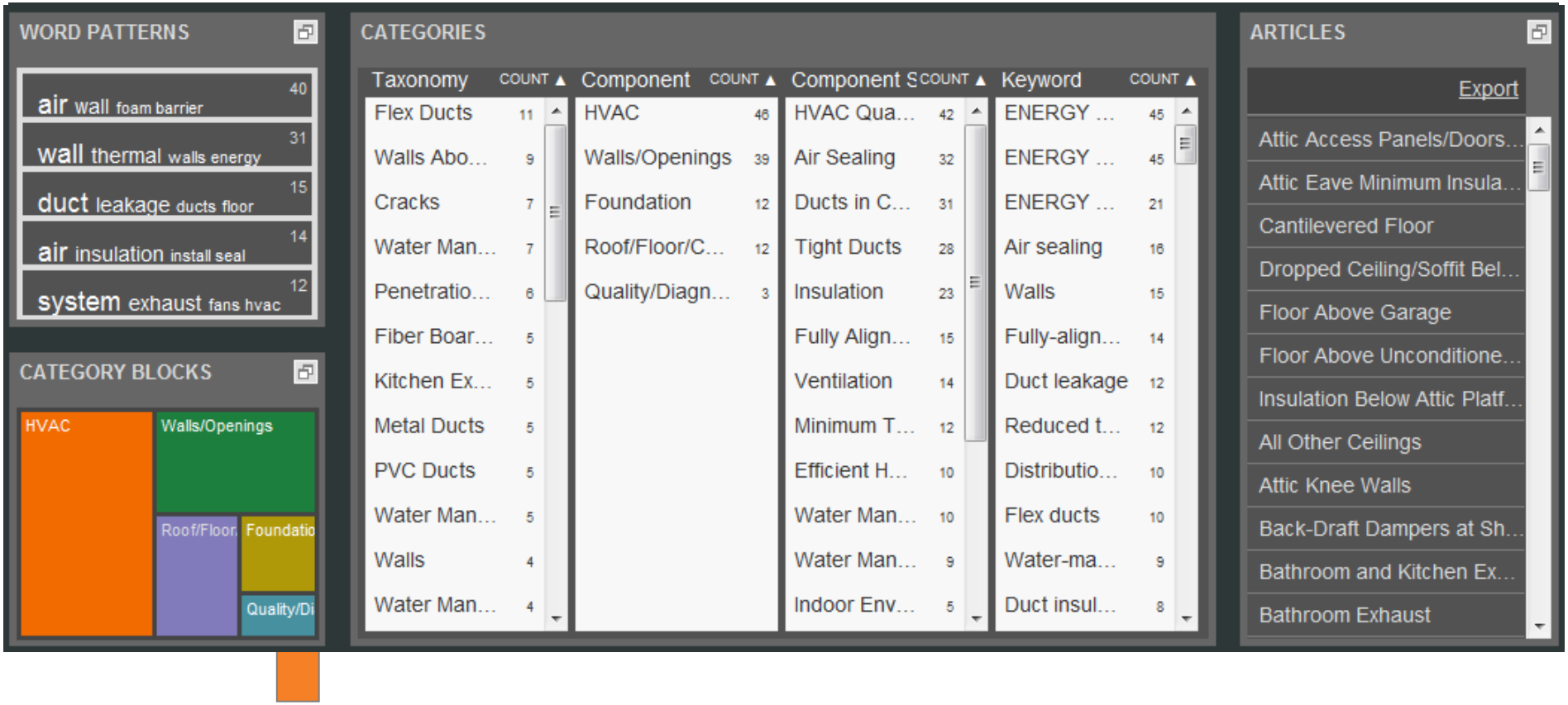
U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



Select categories to highlight articles linked to that category

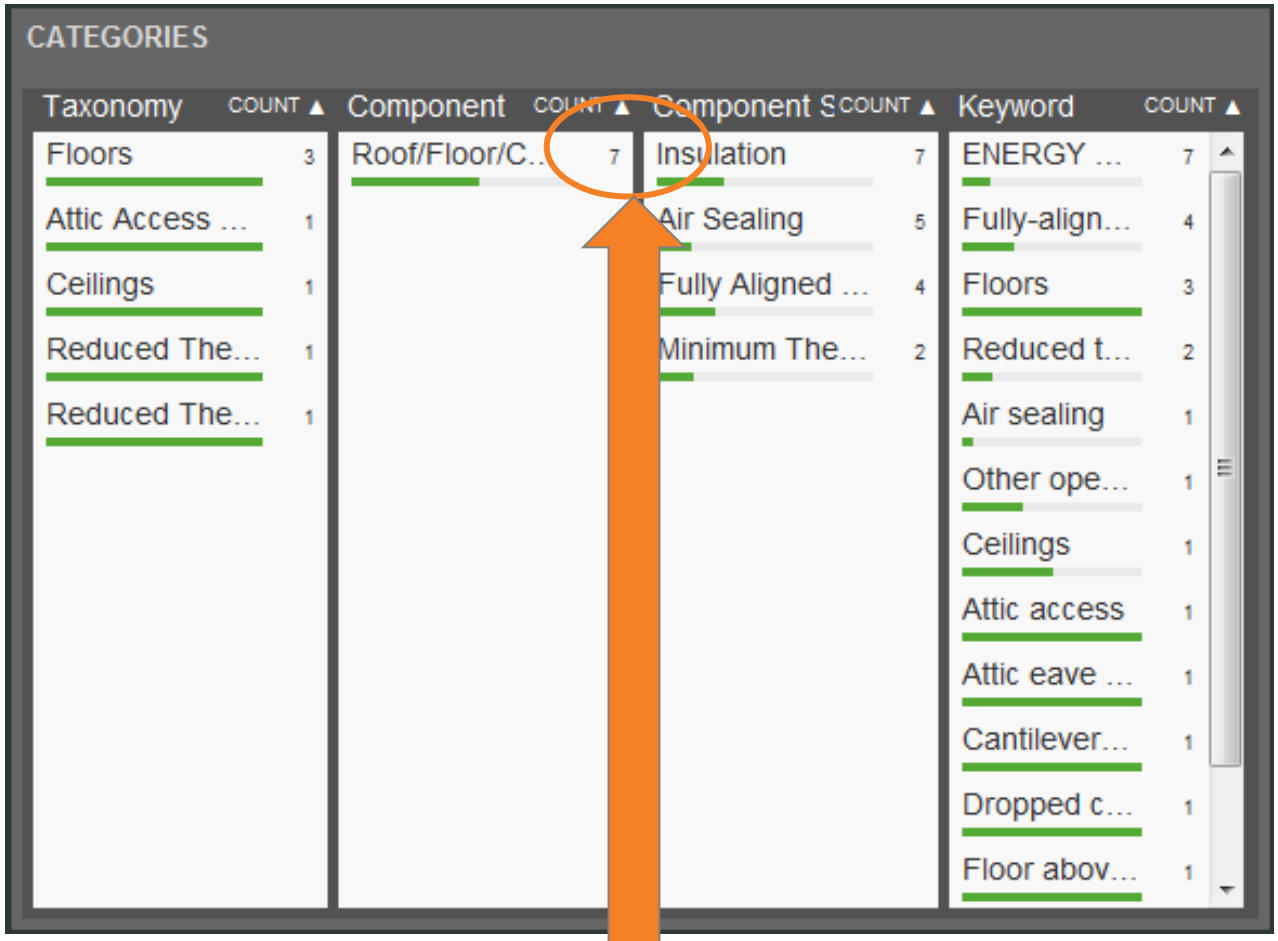
Building Science Explorer

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



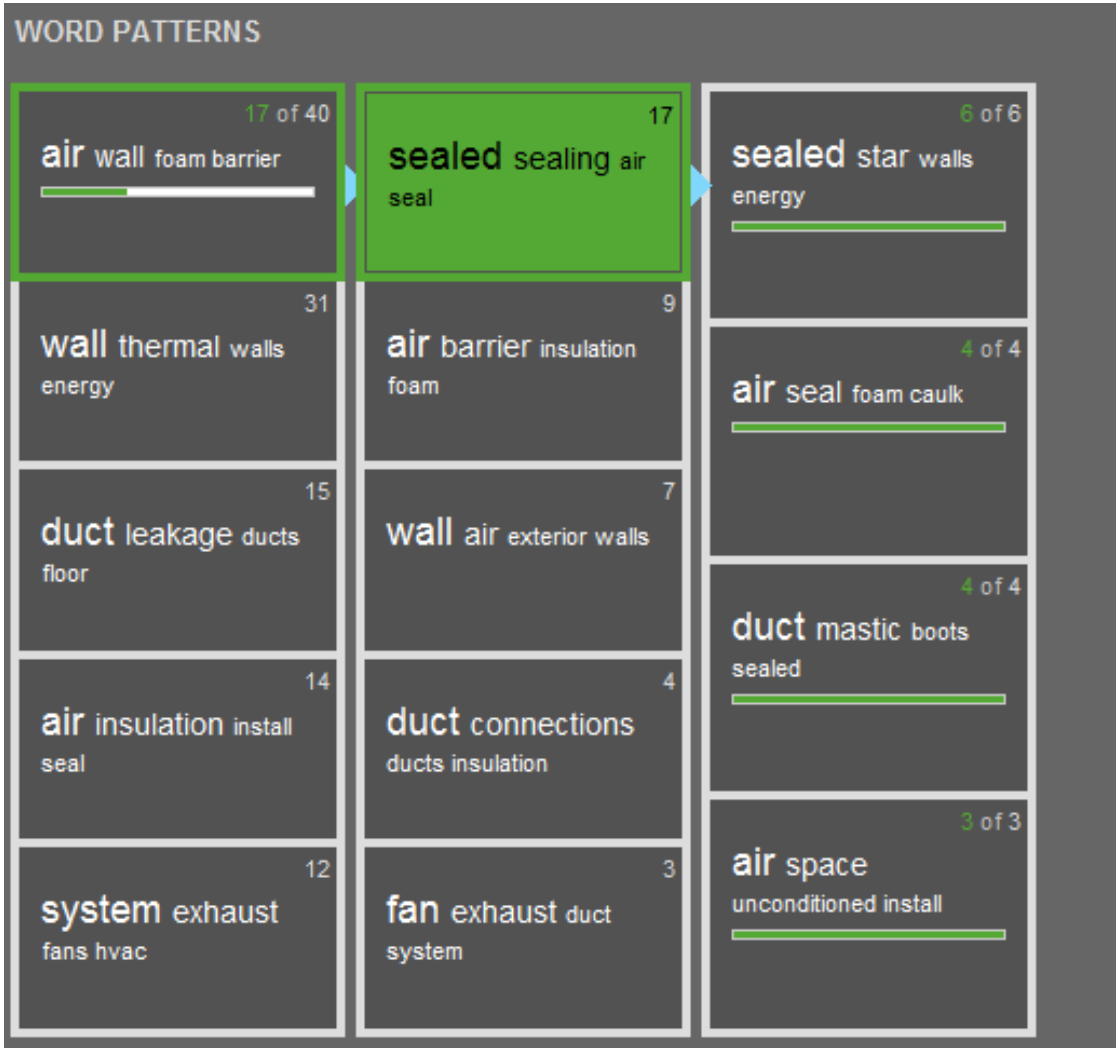
Select maximize icons to switch views.

Building Science Explorer: CATEGORIES



- After selecting Insulation, the related content is displayed
- E.g. seven guides related to Insulation can be found under the Component Explorer Roof/Floor/Ceiling component

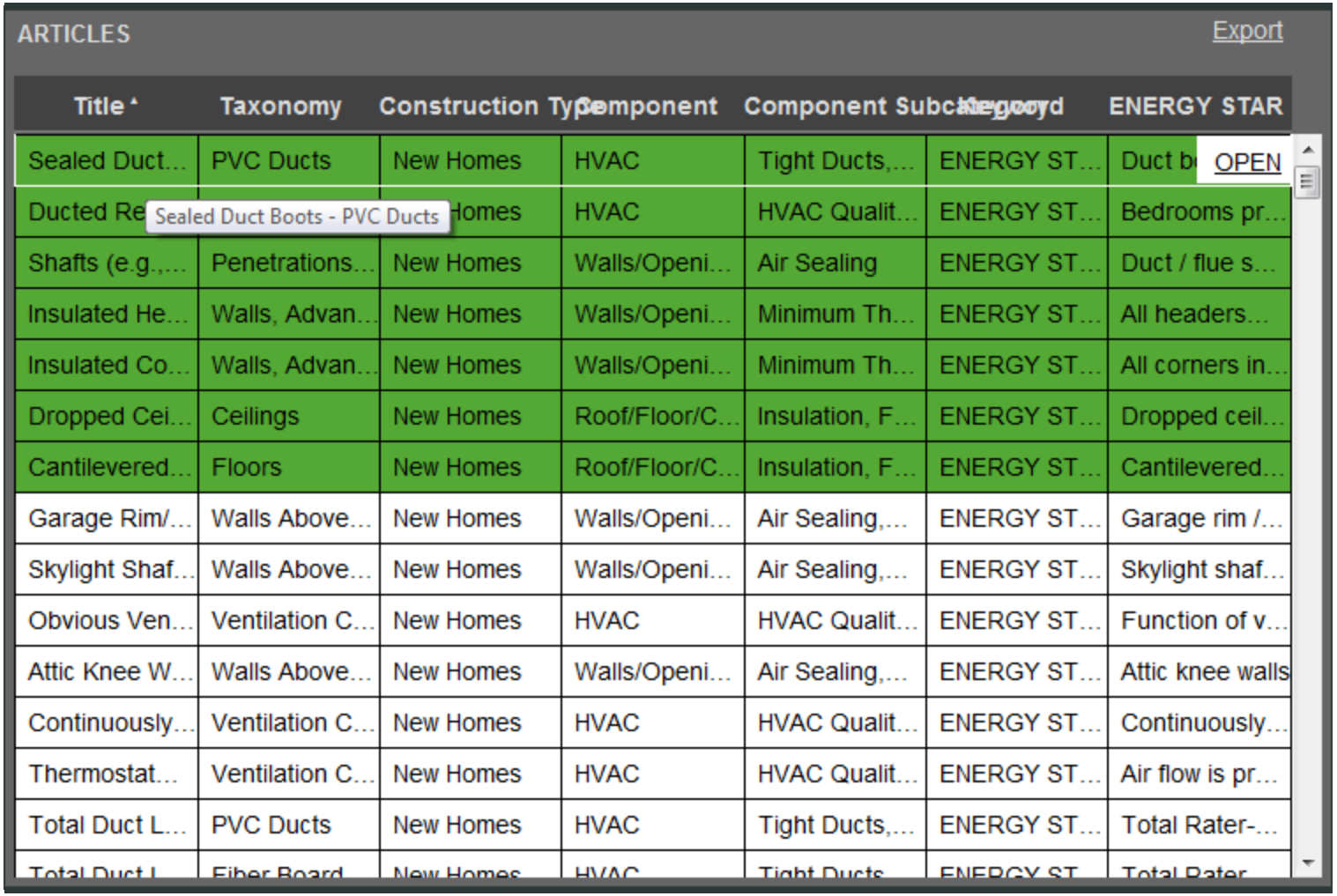
Building Science Explorer: WORD PATTERNS



Word Patterns explores word grouping in the content tagging.

Building Science Explorer: ARTICLES

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



ARTICLES

Export

Title	Taxonomy	Construction Type	Component	Component Subcategory	Region	ENERGY STAR
Sealed Duct...	PVC Ducts	New Homes	HVAC	Tight Ducts,...	ENERGY ST...	Duct b... OPEN
Ducted Re...		...Homes	HVAC	HVAC Qualit...	ENERGY ST...	Bedrooms pr...
Shafts (e.g.,...	Penetrations...	New Homes	Walls/Openi...	Air Sealing	ENERGY ST...	Duct / flue s...
Insulated He...	Walls, Advan...	New Homes	Walls/Openi...	Minimum Th...	ENERGY ST...	All headers...
Insulated Co...	Walls, Advan...	New Homes	Walls/Openi...	Minimum Th...	ENERGY ST...	All corners in...
Dropped Cei...	Ceilings	New Homes	Roof/Floor/C...	Insulation, F...	ENERGY ST...	Dropped ceil...
Cantilevered...	Floors	New Homes	Roof/Floor/C...	Insulation, F...	ENERGY ST...	Cantilevered...
Garage Rim/...	Walls Above...	New Homes	Walls/Openi...	Air Sealing,...	ENERGY ST...	Garage rim /...
Skylight Shaf...	Walls Above...	New Homes	Walls/Openi...	Air Sealing,...	ENERGY ST...	Skylight shaf...
Obvious Ven...	Ventilation C...	New Homes	HVAC	HVAC Qualit...	ENERGY ST...	Function of v...
Attic Knee W...	Walls Above...	New Homes	Walls/Openi...	Air Sealing,...	ENERGY ST...	Attic knee walls
Continuously...	Ventilation C...	New Homes	HVAC	HVAC Qualit...	ENERGY ST...	Continuously...
Thermostat...	Ventilation C...	New Homes	HVAC	HVAC Qualit...	ENERGY ST...	Air flow is pr...
Total Duct L...	PVC Ducts	New Homes	HVAC	Tight Ducts,...	ENERGY ST...	Total Rater-...
Total Duct L...	Fiber Board	New Homes	HVAC	Tight Ducts	ENERGY ST	Total Rater

Sealed Duct Boots - PVC Ducts

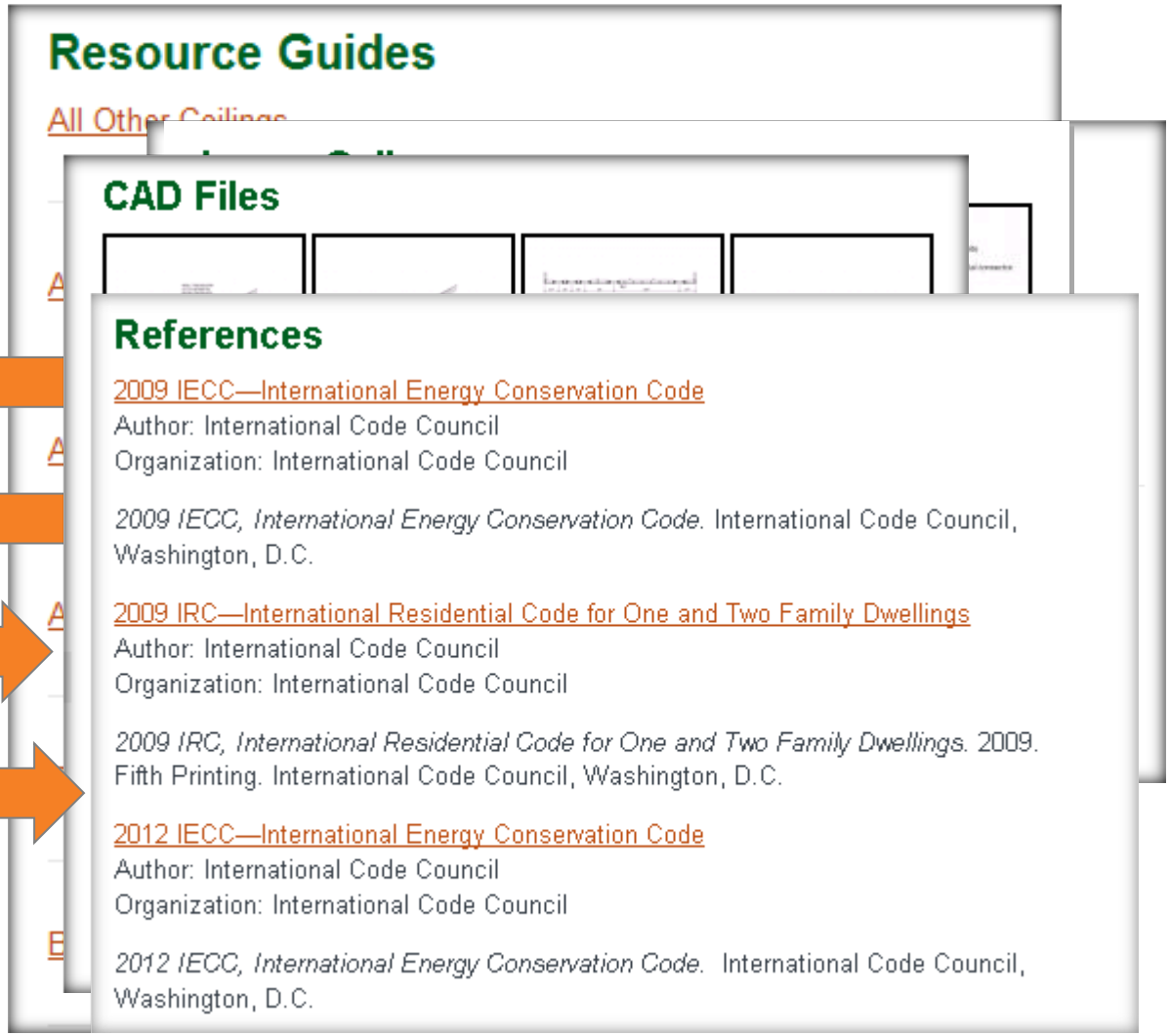
Articles takes you directly to the Guides (Insulation selected)

Browser

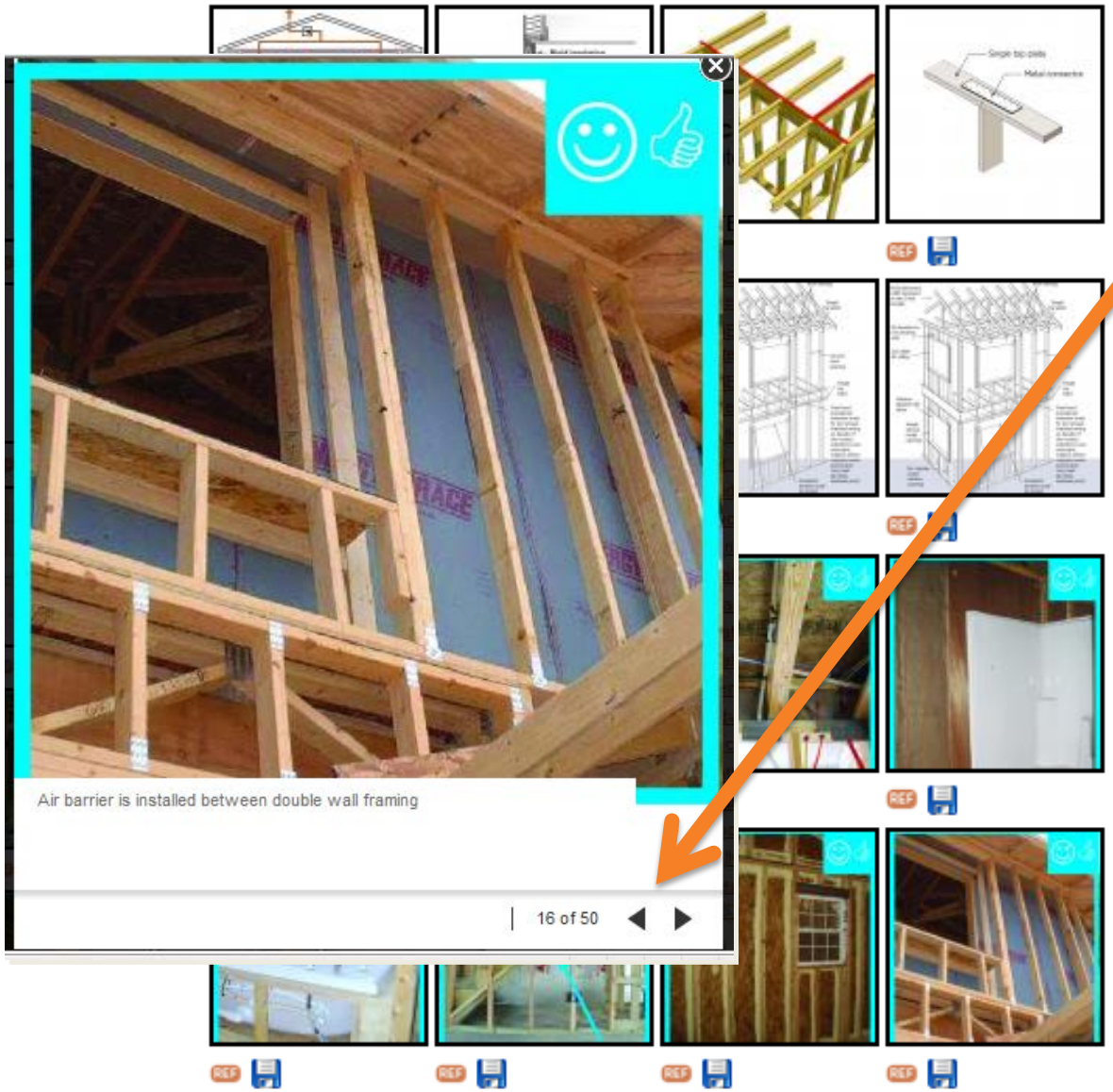
Browse content by media type

Browser

- Guides
- Case Studies
- Image Gallery
- CAD Files
- References

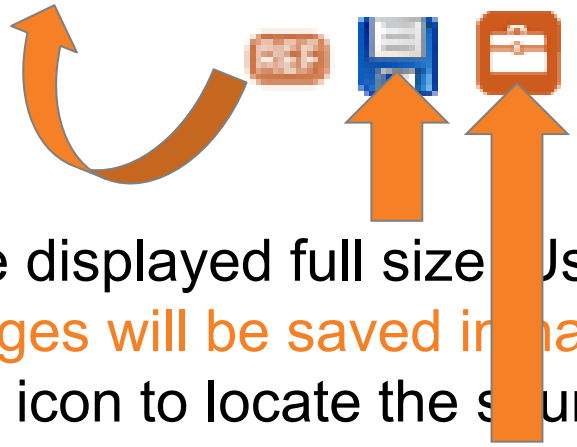


Browser: Image Gallery



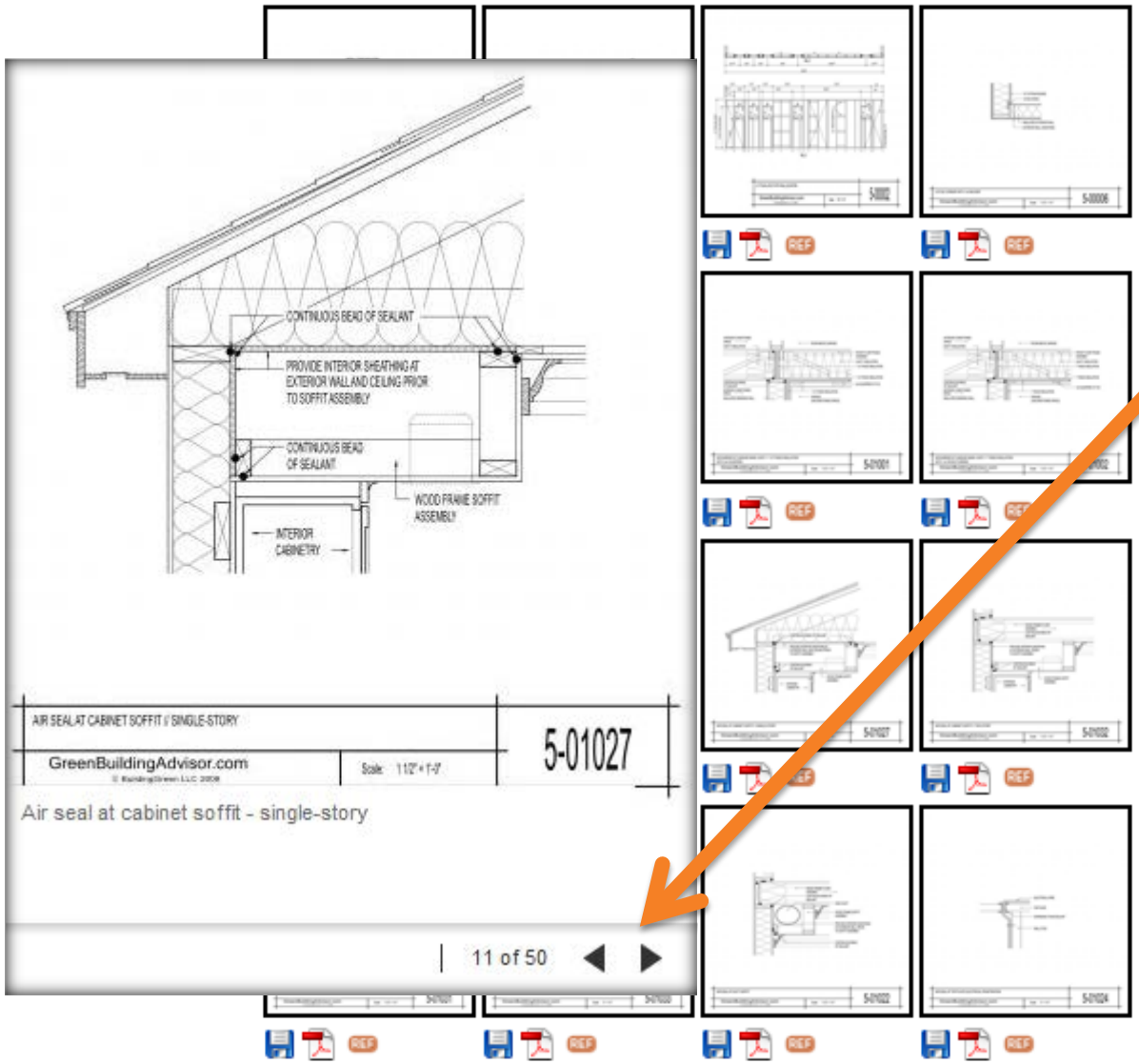
- Click an image to enlarge in a sliding window.

Browser: Image Gallery



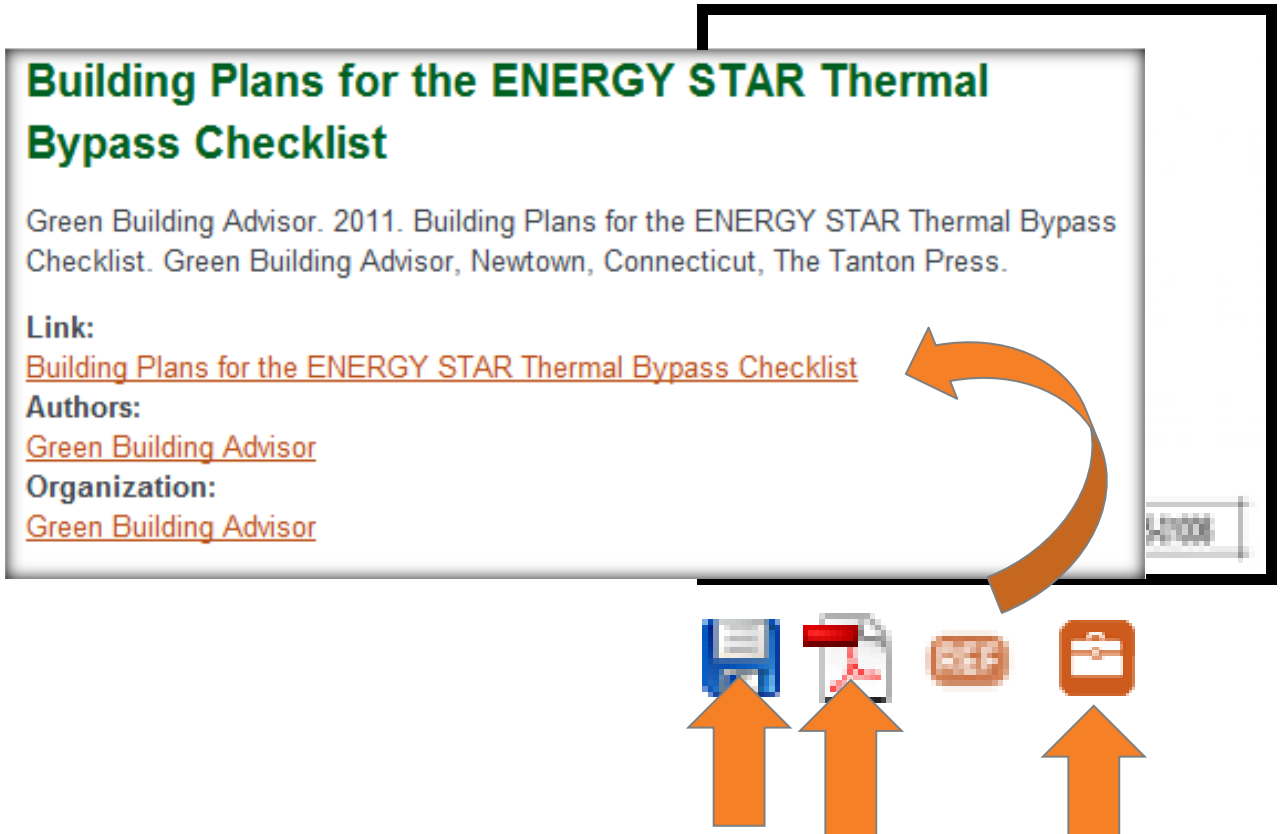
- Images can be displayed full size. Use Save As to save to file.
- COMING: Images will be saved in native/original format
- Use the “REF” icon to locate the source of the image
- Select the Field Kit icon to add to your Field Kit

Browser: CAD Files



- Click the CAD file image to load in a slider window.

Browser: CAD Files



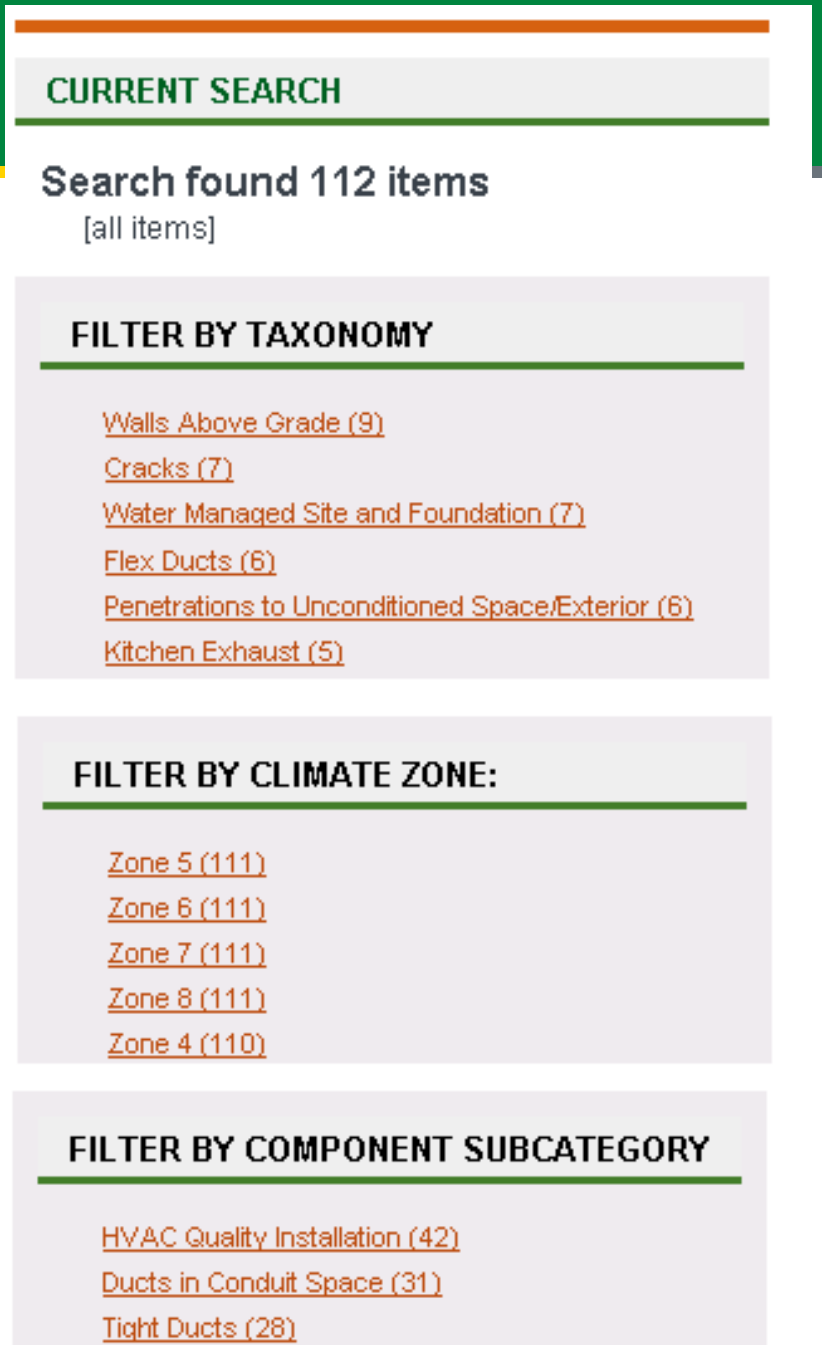
- CAD files can be saved in .dwg format
- CAD files can be converted to pdf
- Use the “REF” icon to locate the source of the CAD file
- Save CAD files directly to your Field Kit

Faceted Search

All Browser media can be searched using faceted search or simply browsed.

Search filters include:

- Taxonomy
- Component Subcategory
- Climate Zone
- Keywords
- Author
- Organization



Faceted Search (cont.)

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Resource Guides

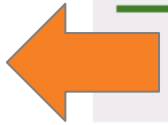
Back-Draft Dampers at Shared Common Exhaust Duct

Bathroom Exhaust

Common Exhaust Duct Not Shared by Fans in Separate Dwellings

Kitchen Exhaust

Proper Clothes Dryer Venting



CURRENT SEARCH

Search found 5 items

[all items]

(-) Kitchen Exhaust

FILTER BY TAXONOMY

(-) Kitchen Exhaust

FILTER BY CLIMATE ZONE:

Zone 1 (5)
Zone 2 (5)
Zone 3 (5)
Zone 4 (5)
Zone 5 (5)
Zone 6 (5)
Zone 7 (5)
Zone 8 (5)

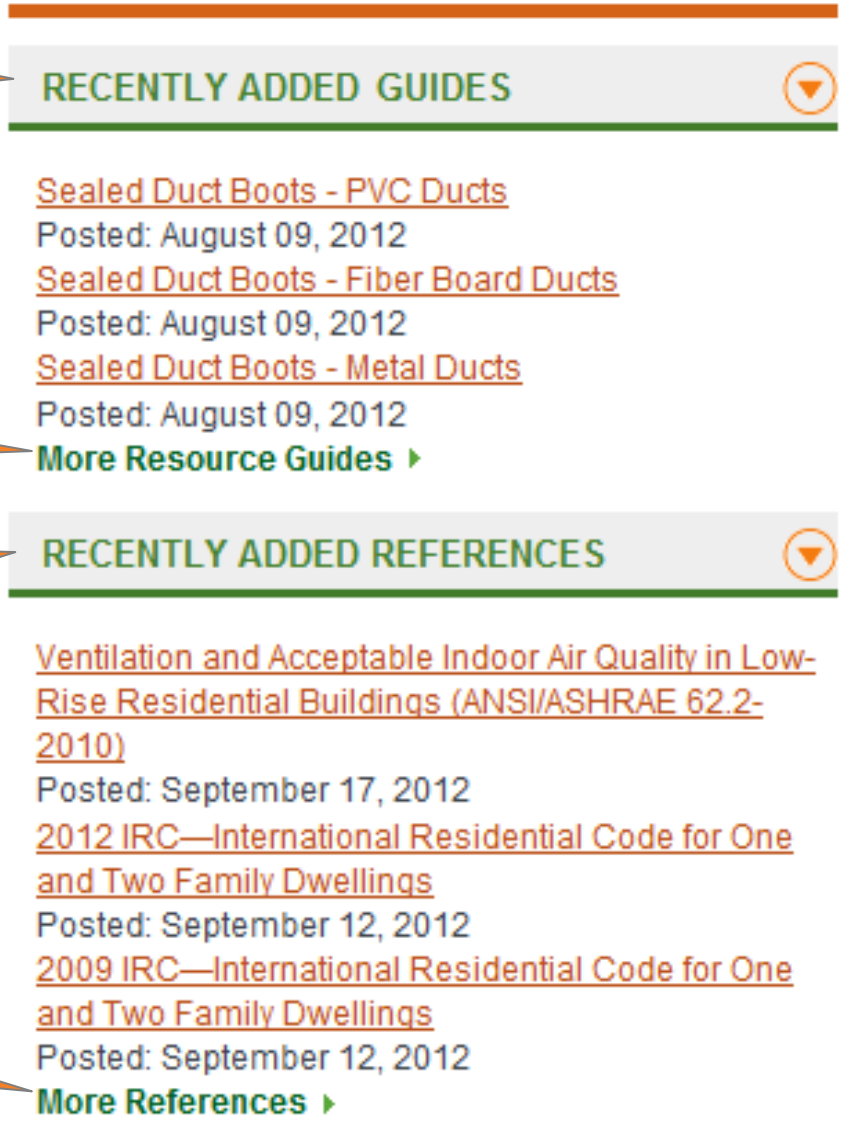
Recent Content

Recently added Guides automatically show up on the home page.

All Guides can be quickly accessed as a list.

Recently added References automatically show up on the home page.

All References can be quickly accessed as a list.



Building America Solution Center
Wrap-Up

Summary

- At its core, the Solution Center is web-accessible, structured data base of Building America best practices.
- The user interface consists of a number of tools to find focused content and to support partnering programs.
- Registered users are emphasized to give them more relevant information.
- The first priority has been developing tools and content to support ENERGY STAR Version 3.
- Initial content has been based on legacy information. New content will flow from Building America research.
- The Solution Center is a living database that will be continually populated and updated.

Important Dates

- Review comments submitted: 1 December 2012
- Public launch: January 2013
- DOE Challenge Home upgrade: October 2013
- Existing home renovation: 2014
- Content will be continuously populated and updated

Three Mechanisms for Comments for Registered Users

- Submit specific comments on each guide using the "FEEDBACK" links within the guides.
- A general comments and content submission feature will be added by Monday, 15 October.
- Email comments to:

basc@pnnl.gov

Beta Test URL

Access the Building America Solution Center at:

http://basc.pnnl.gov