



REScheck Basics

2022 Department of Energy National Energy Codes Conference
Building Energy Codes Program

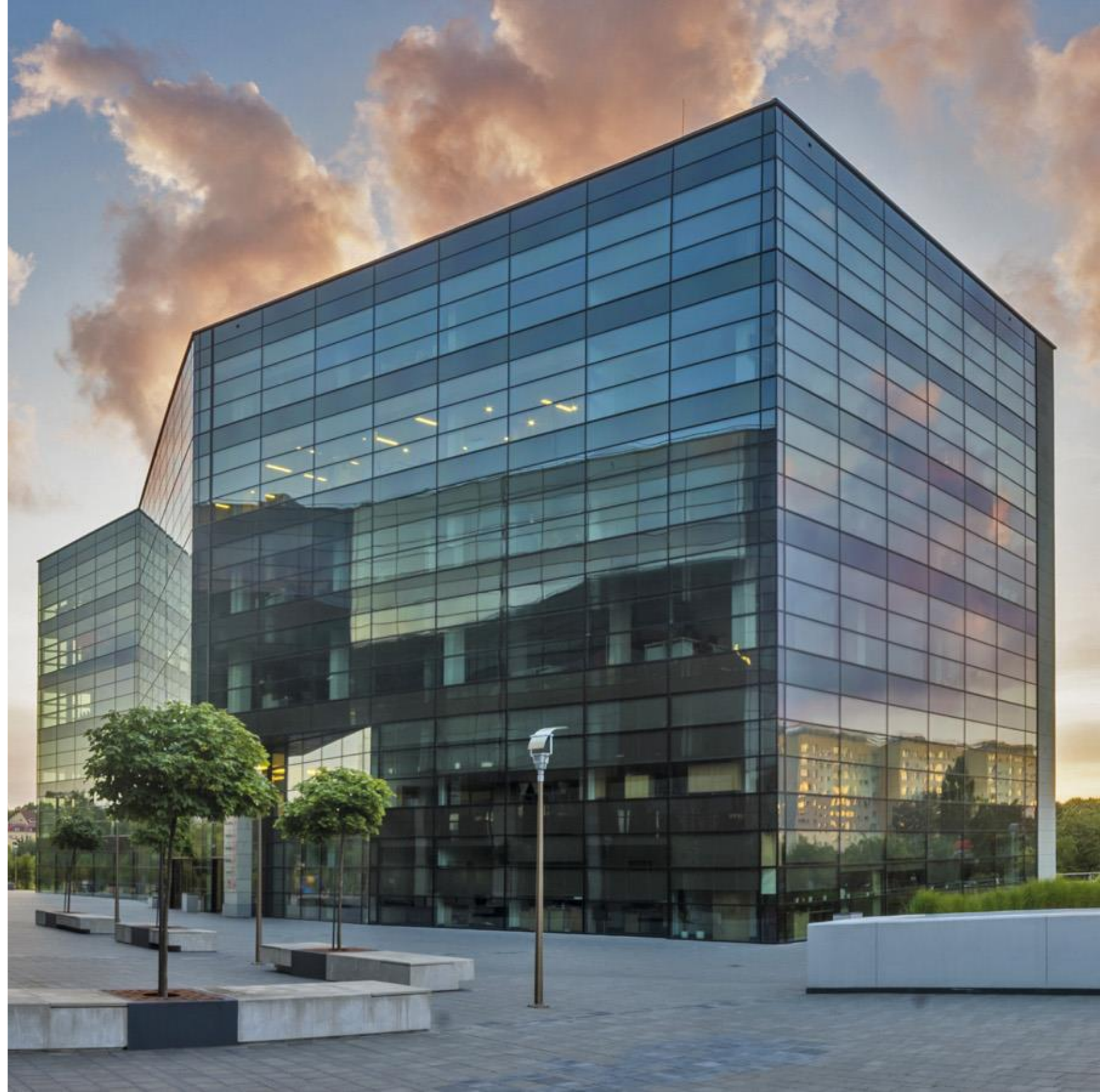
July 19, 2022

V. Robert Salcido
Senior Research Engineer

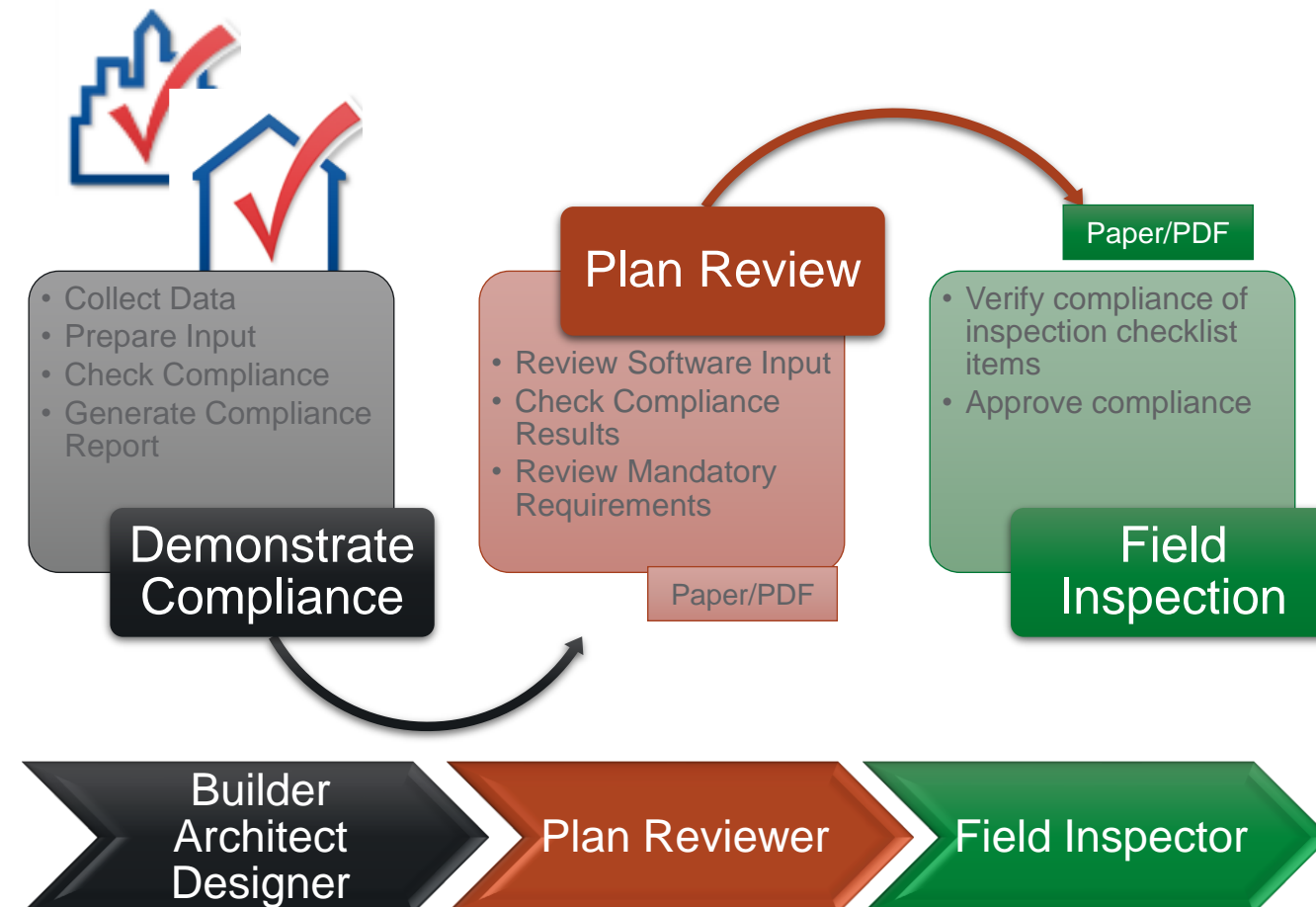


PNNL-SA-174904

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REScheck Current Use Scenario



BECP Tools used only during “Demonstrate Compliance” Stage

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Building Energy Codes Program

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2022 National Energy Codes Conference

The 2022 National Energy Codes Conference, hosted by the U.S. Department of Energy, will be virtual. Join us July 19-21!

READ MORE

ENERGY CODES | 2022

July 19-21 | Virtual

Tools

COMcheck

The COMcheck software and web tools simplify and clarify energy code compliance with the IECC, standard (ASHRAE Standard 90.1), and a number of state-specific energy codes.

Learn More

REScheck

The REScheck software and web tools simplify residential energy code compliance by automating trade-off calculations for the IECC and a number of state-specific codes.

Learn More

Help Desk

Submit technical questions about building energy codes, REScheck or COMcheck projects, or BECP website content.

Learn More

State Energy Codes

Select a State

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Highlights

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Building Energy Codes Program

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REScheck Page

<https://www.energycodes.gov/rescheck>

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REScheck

Getting Started

REScheck-Web™ is accessible directly from the website without having to download and install.

- View Getting Started guide.

REScheck™ Desktop for Windows™ may be downloaded and installed directly to your desktop.

- Download via the link at the bottom of the right sidebar.
- See if your state or county can use REScheck to show compliance.
- View a list of supported software versions for code compliance tools.

Residential Compliance Using REScheck™

The REScheck product group makes it fast and easy for builders, designers, and contractors to determine whether new homes, additions, and alterations meet the requirements of the IECC or a number of state energy codes. REScheck also simplifies compliance determinations for building officials, plan checkers, and inspectors by allowing them to quickly determine if a low-rise residence meets the code.

REScheck is appropriate for insulation and window trade-off calculations in residential detached one- and two-family buildings and multi-family buildings three stories or less in height above grade, such as apartments, condominiums, and townhouses. REScheck works by performing a simple U-factor x Area (UA) calculation for each building assembly to determine the overall UA of a building. The UA that would result from a building conforming to the code requirements is compared against the UA for your building. If the total heat loss (represented as a UA) through the envelope of your building does not exceed the total heat loss from the same building conforming to the code, the software generates a report that declares your building is compliant with the code.

REScheck Support

Have a compliance question or need assistance with the software?

BEC's team of building energy codes experts is available to answer specific questions submitted through our web-based help desk.

[REScheck Technical Support Document](#)

Updates to REScheck and COMcheck Building Energy Code Compliance Software


The U.S. Department of Energy (DOE) is directed to provide technical assistance to states to support the implementation of model residential and commercial building energy codes (42 USC 6833). As part of this assistance, the DOE Building Energy Codes Program provides ongoing support for REScheck and COMcheck compliance software, which are updated based on new editions of the model codes. DOE has published guidance surrounding its support for the software, including technical assistance requests for modified versions.

To receive updates from the Building Energy Codes Program, including newsletters, articles, compliance tool updates and more, subscribe to the our mailing list.

[Subscribe to updates](#)

LATEST RELEASE

[LAUNCH RESCHECK-WEB](#)



DESKTOP VERSION

DESKTOP VERSION/BUILD: VERSION 4.7.2.1

PLATFORM: WINDOWS

RELEASE DATE: NOVEMBER 30, 2021

RELEASE NOTES

WHAT'S NEW:

RESCHECK-WEB VERSION 2.1.0, SEPTEMBER 14, 2021 RELEASE ADDRESSES THE FOLLOWING:

- 2021 IECC IS NOW SUPPORTED
- 2017 WASHINGTON DC ENERGY CONSERVATION CODE IS NOW SUPPORTED
- CORRECTED ZIP CODE IMPORT ISSUES
- FIXED EFFICIENCY PACKAGE BUG
- SLAB ON GRADE TRADEOFFS NO LONGER ALLOWED IN RESCHECK-WEB. EACH SLAB ON GRADE MUST MEET THE MINIMUM ENERGY CODE INSULATION R-VALUE AND DEPTH REQUIREMENTS

RESCHECK DESKTOP VERSION 4.7.2 ADDRESSES THE FOLLOWING:

- SLAB ON GRADE TRADEOFFS NO LONGER ALLOWED IN RESCHECK. EACH SLAB ON GRADE MUST MEET THE MINIMUM ENERGY CODE INSULATION R-VALUE AND DEPTH REQUIREMENTS
- MASSACHUSETTS STATE ENERGY CODE NO LONGER SUPPORTED (AS OF VERSION 4.7.2.1)

RESCHECK SUPPORTED CODES:

- 2009, 2012, 2015, 2018 AND 2021 IECC (2018 AND 2021 IN RESCHECK-WEB ONLY)
- STATE ENERGY CODES: FLORIDA, MASSACHUSETTS, NEW YORK CITY, PUERTO RICO, UTAH, VERMONT (2020 MA, 2020 VT, AND 2017 DC IN RESCHECK-WEB ONLY)

DOWNLOAD

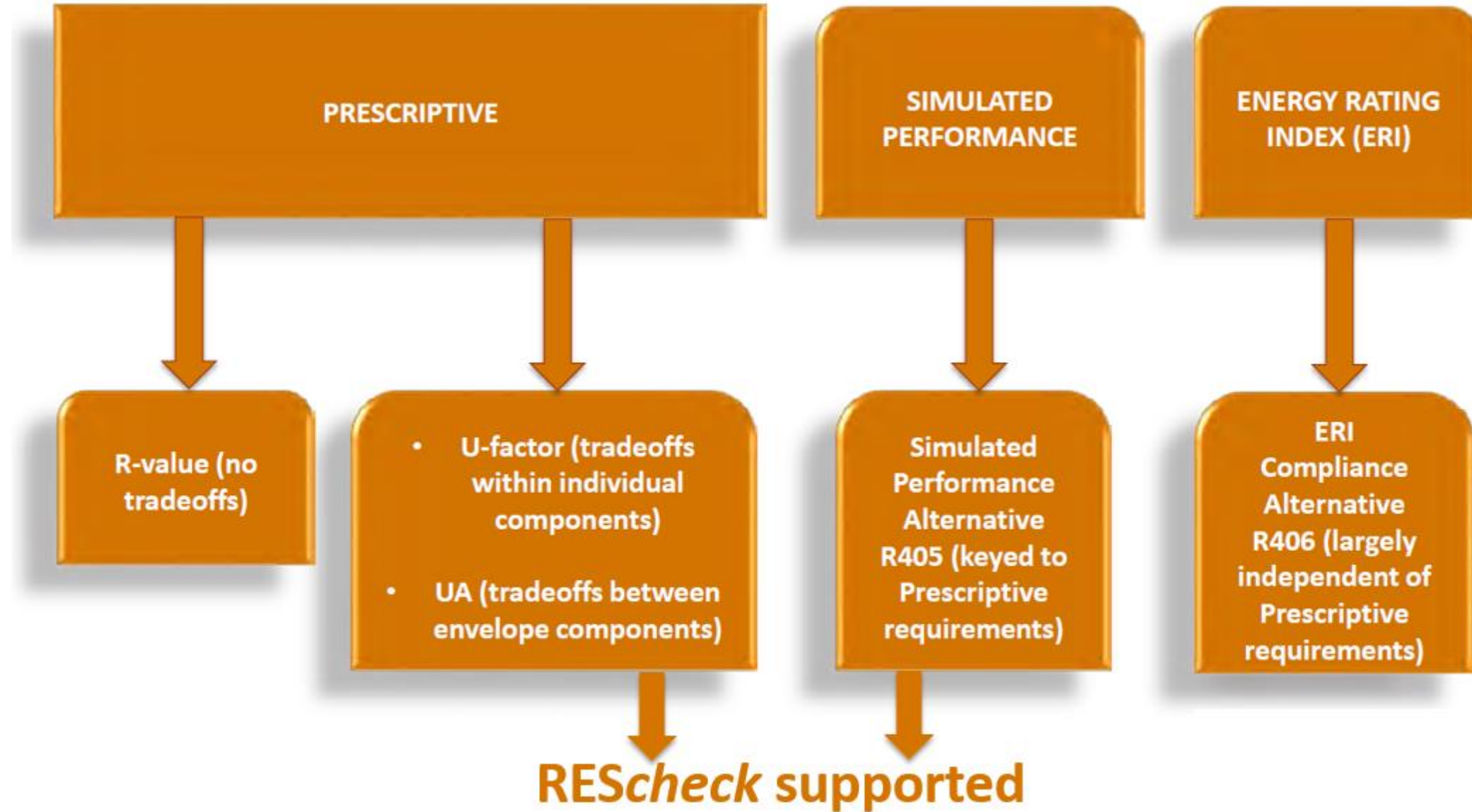
RESCHECK_4_7_2_1_SETUP.EXE

73.48 MB

REScheck Currently Supported Energy Codes



Residential Energy Code Compliance



REScheck Supported Compliance Methods

► Total UA

- Considers thermal conductance of envelope assemblies
- “Trades-off” UA from above-code assemblies to below-code assemblies
- $UA = U\text{-factor} \times \text{Area}$ for each building assembly
- Sum UA for Proposed Building compared to SUM UA for Code (Budget) Building

► Performance Alternative

- Considers the whole building energy performance
- Based on simulated performance of your building compared to an equivalent code building
- Requires additional inputs (over UA approach): building orientation, minimum of four walls having unique orientations, and a minimum of one roof and floor
- Envelope trade-off only, no mechanical equipment trade-off

Energy Code Envelope Assembly Requirements

~~TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a~~

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{b, e}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ⁱ	FLOOR R-VALUE	BASEMENT ^c WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^c WALL R-VALUE
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/6	13	0	0	0
3	0.35	0.55	0.25	38	20 or 13+5 ^h	8/13	19	5/13 ^f	0	5/13
4 except Marine	0.35	0.55	0.40	49	20 or 13+5 ^h	8/13	19	10 /13	10, 2 ft	10/13
5 and Marine 4	0.32	0.55	NR	49	20 or 13+5 ^h	13/17	30 ^g	15/19	10, 2 ft	15/19

TABLE R402.1.4
EQUIVALENT U-FACTORS^a

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR ^b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.091 ^c	0.136
4 except Marine	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.082	0.033	0.050	0.055
6	0.32	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.045	0.057	0.028	0.050	0.055

Walkthrough REScheck Steps

Register for Account
Log In

Select the
appropriate code

Enter project
information

Enter building
components

Enter mechanical
equipment (optional)

Review Mandatory
Requirements

Reports
View/print/save

REScheck-Web: Registration and Account Log-In

[Login](#) [Register](#)

Email Address*


Please enter a valid email address.

Confirm email Address*

Password*

Must be eight or more characters long, less than sixty-four characters long, and not a **commonly used password**.

Confirm Password*

☐ I'm not a robot 
reCAPTCHA
Privacy - Terms

[Register](#)

[Login](#) [Register](#)

Email Address

☐ Remember me

Password

[Forgot Password?](#) [Log In](#)

Home: My Projects (aka Project Dashboard)



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Home

My Projects

Shared Project Requests











All Users

New Project

Create Sample Project

Import

Search

<input type="checkbox"/>	Project	Last Updated ^	Energy Code	Status	Sharing
<input type="checkbox"/>	A Sample Project 	Jun 17, 2021 12:28:47 PM	2015 IECC	Draft ▾	
<input type="checkbox"/>	62 Clifton Place - Performance Alternative Method_052521 	Jun 16, 2021 8:53:37 AM	2020 NYCECC	Draft ▾	
<input type="checkbox"/>		Jun 14, 2021 4:10:43 PM	2015 IECC	Draft ▾	
<input type="checkbox"/>	New Test 	Jun 11, 2021 9:23:52 AM	2018 IECC	Draft ▾	
<input type="checkbox"/>	Montdella Lot 12 	Jun 11, 2021 9:21:03 AM	Utah 2012	Draft ▾	

« < 1 2 3 ... 6 > »

Help

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Joe Smith

Login email address: robert.schultz@pnnl.gov



Your information: Joe Smith
robert.schultz@pnnl.gov
[Edit](#)

Address Book:

Name	Email	Default Permissions	
Pam Cole	pam.cole@pnnl.gov	View Only	 
Bozeman Building Dept.	BZNBbuildDept@mt.gov	View Only	 
<input type="text" value="Name"/>	<input type="text" value="Email"/>	<input type="text" value="View Only"/>	<input type="button" value="Add"/>

My Settings



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Project defaults

☐ Use the following settings for every project

[Cancel](#)

[Save](#)

Energy Code

2009 IECC

☐ Enable orientation by default

Location

Enter City and State

Project information

Owner/Agent

Name

First Name

Last Name

Company

Address

Street Address

Designer/Contractor

Name

First Name

Last Name

Company

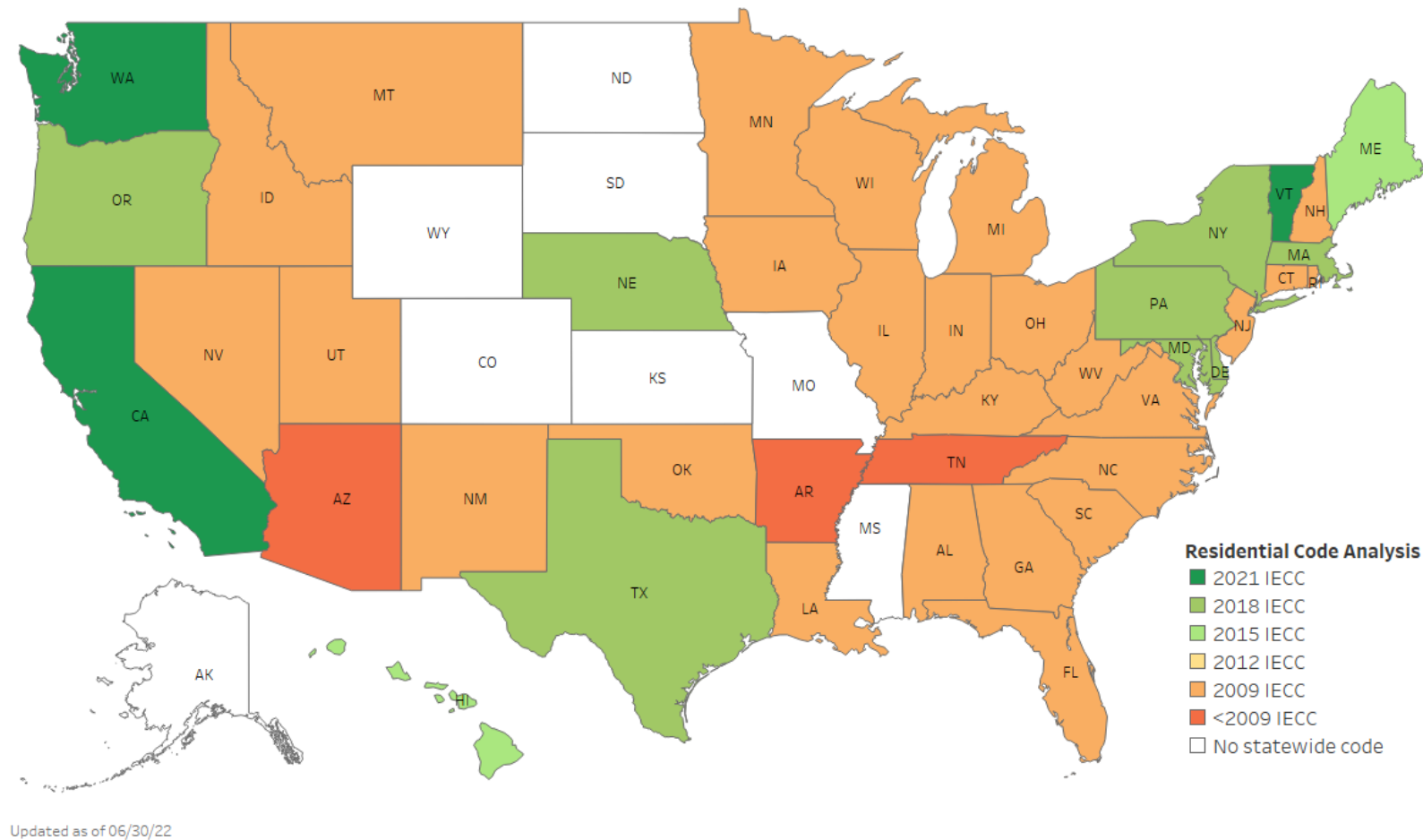
Address

Street Address

Select the Appropriate Code

- Applicable to your state/ jurisdiction (Code menu)

Residential Buildings



Project Tab: New Project

Project

Envelope

Compliance ✕

Cancel

Save

Report

Compliance Check

Project Info:

Project Title*

Energy Code:

2099 IECC

What's my code?

Location

Enter City and State or County and Sta

Project Type

☒ New Construction

☐ Addition

☐ Alteration

Compliance Method

☒ UA Trade-Off

☐ Performance Alternative

Building Characteristics

Construction Type

☒ 1- and 2-Family, Detached

☐ Multifamily

Conditioned Floor Area

ft²

Orientation - Front Faces

Enable: ☐

Features

All ducts and air handlers are located within conditioned spaces:

☐ Yes ☒ No

Thermally isolated sunroom:

☐ Yes ☒ No

Pool or inground spa:

☐ Yes ☒ No

Interior wood-burning fireplace:

☐ Yes ☒ No

Energy Code, Location, Project Type, Compliance Method



Home » A Sample Project - Energy Code: 2018 IECC **Draft**

If left unsaved, this project session will end in **59** minutes.

Project Envelope Compliance (17.8%) ✓

Check Compliance Save Report

Project Info:

Project Title*

A Sample Project

Energy Code:

[What's my code?](#)

2018 IECC

Location

Eugene, Oregon

Project Type

☒ New Construction

☐ Addition

☐ Alteration

Compliance Method

☒ UA Trade-Off

☐ Performance Alternative

Building Characteristics

Construction Type

☒ 1- and 2-Family, Detached

☐ Multifamily

Conditioned Floor Area

3000

ft²

Orientation - Front Faces

Enable: ☒

South 180°

Features

All ducts and air handlers are located within conditioned spaces:

☒ Yes ☐ No

Duct(s) are buried in ceiling insulation:

☐ Yes ☒ No

Thermally isolated sunroom:

☐ Yes ☒ No

Pool or inground spa:

☐ Yes ☒ No

Interior wood-burning fireplace:

☒ Yes ☐ No

Project Location Specification

Project Envelope Compliance ✕

Project Info:

Project Title*

Energy Code:
What's my code?

2009 IECC ▼

Location

59715

Project Type

Bozeman, Montana

New Construction

☐ Addition

☐ Alteration

Compliance Method

☒ UA Trade-Off

☐ Performance Alternative

Project Tab: Project Type

- Select New Construction, Addition or Alteration on Project screen
 - Additions
 - User choice:
 - Addition only
 - Addition plus existing home
 - Alterations
 - Only include those assemblies being altered
 - Exemptions may apply (“Alteration Details”)

Building Characteristics

- 1- and 2-Family, Detached
- Low-rise Multifamily




Building Characteristics: Multifamily

- Multifamily if
 - All multifamily buildings three stories or less in height above grade and
 - Contain three or more attached dwelling units
 - Examples
 - Apartments
 - Condominiums
 - Townhouses
 - Dormitories
 - Rowhouses



Envelope Tab

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Home » New Project

ProjectEnvelopeCompliance


Check ComplianceSaveReport

Show all

Ceilings / Skylights

Walls / Windows / Doors

Foundations



Home » New Project

ProjectEnvelopeCompliance

Show all

Ceilings / Skylights

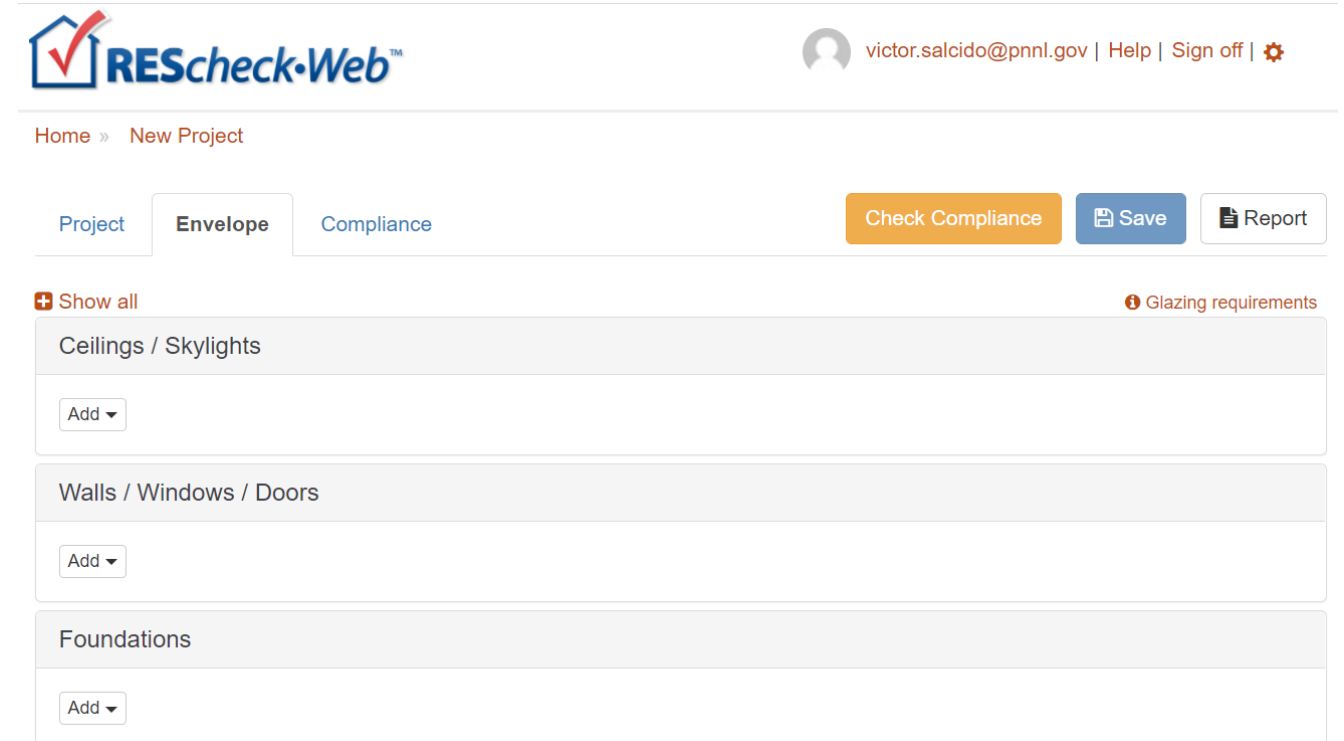
Walls / Windows / Doors

Foundations

Glazing requirements

Envelope Helpful Hints

- Don't have to use every button
- Can group "like" components
- Gross area (except slab-on-grade)
 - Gross *wall* area to include peripheral edges of floors (area of band joist and subfloor between floors)
- Use "Other" assembly as needed



The screenshot shows the REScheck-Web interface. At the top, there is a header with the REScheck-Web logo on the left and a user profile on the right showing the email victor.salcido@pnnl.gov with links for Help, Sign off, and a settings gear icon. Below the header is a breadcrumb trail: Home » New Project. A navigation bar contains three tabs: Project, Envelope (which is selected), and Compliance. To the right of these tabs are three buttons: Check Compliance (orange), Save (blue), and Report (white with a document icon). Below the navigation bar, there is a section titled '+ Show all' on the left and 'Glazing requirements' with an information icon on the right. This section contains three expandable panels: 'Ceilings / Skylights', 'Walls / Windows / Doors', and 'Foundations'. Each panel has an 'Add' button with a dropdown arrow.

Color Cues

Red

Add Ceiling Assembly Named *Ceiling*

Please select:

- ☒ Flat Ceiling or Scissor Truss
- ☐ Cathedral Ceiling
- ☐ Raised or Energy Truss
- ☐ Steel Truss
- ☐ Steel Joist/Rafter, 16in. o.c.
- ☐ Steel Joist/Rafter, 24in. o.c.
- ☐ Structural Insulated Panels (SIPs)
- ☐ Other

Component:

Ceiling

Gross Area:

0

$0 < x < 100000$

Cavity R-Value:

0

Continuous R-Value:

0



 rosemarie.bartlett@pnnl.gov | [Help](#) | [Sign off](#) | 

[Home](#) » [A Sample Project - Energy Code: 2018 IECC](#) Draft

[Project](#)

[Envelope](#)

Compliance (17.8%) ✓

 [Edit](#)

 [Report](#)

✓ Compliance Status: Passes by 17.8%

Compliance Method: UA Trade-Off, Max UA: 545, Your UA: 448

Requirements Checklist

Envelope

[Systems](#)

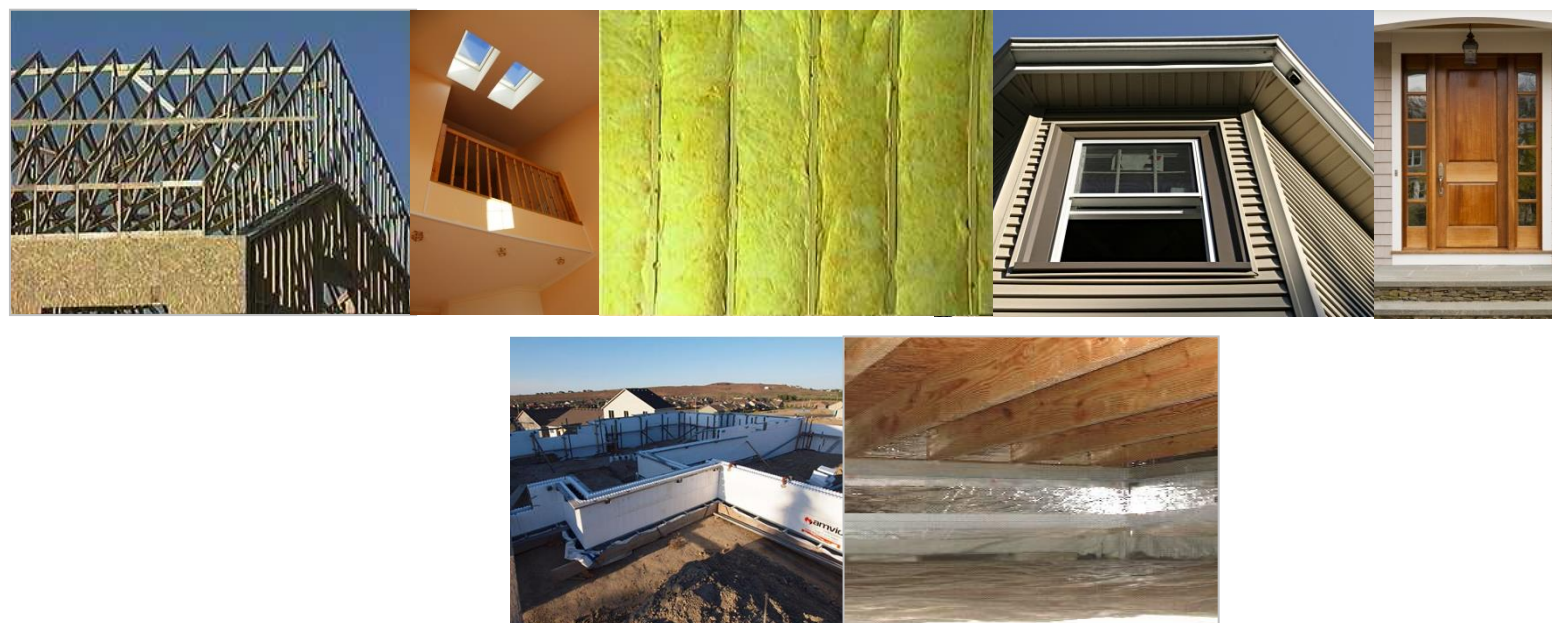
Green

What is the Building Thermal Envelope?



Entering Building Components

**Enter only applicable
building components**



Envelope Tab

Project Envelope Compliance (15.2%) ✓

Cancel Edit Report

+ Show all

Glazing requirements

Ceilings / Skylights (1 assembly)

Walls / Windows / Doors (4 assemblies)

Foundations (2 assemblies)

Project Envelope Compliance (15.2%) ✓

Cancel Edit Report

- Show less

Glazing requirements

Ceilings / Skylights (1 assembly)

Walls / Windows / Doors (4 assemblies)

Foundations (2 assemblies)

Floors		Assembly	Gross Area	Orientation	Cavity Insulation R-Value	Continuous Insulation R-Value	U-Factor	
	Floor 1	All-Wood Joist/Truss Over Unconditioned Space	3000		35	0	0.028	
	Basement	Solid Concrete or Masonry	1000	Unspecified	0	15	0.05	

Envelope Full View Example

Project

Envelope

Compliance (15.2%) ✓

Cancel

Edit

Report

Show less

Glazing requirements

Ceilings / Skylights (1 assembly)

	Ceilings	Assembly	Gross Area	Cavity Insulation R-Value	Continuous Insulation R-Value	U-Factor	
	my Ceiling	Flat Ceiling or Scissor Truss	3000	41	0	0.029	
	Skylights	Assembly					
	mySkylight	Metal Frame Single Pane			20	0.5	

Walls / Windows / Doors (4 assemblies)

	Walls	Assembly	Gross Area	Orientation	Cavity Insulation R-Value	Continuous Insulation R-Value	U-Factor	
	Wall 1	Wood Frame, 24" o.c.	1200	Front side	21	5	0.042	
	Doors	Assembly						
	Door 1	Solid Door (under 50% glazing)				32	0.7	
	Wall 2	Wood Frame, 24" o.c.	1200	Front side	21	5	0.042	
	Windows	Assembly						
	Window 1	Metal Frame Single Pane				16	0.25	
	Window 2	Metal Frame Single Pane				16	0.25	
	Window 3	Metal Frame Single Pane				16	0.25	

Envelope Tab (edit mode)

Home » A Sample Project - Energy Code: 2015 IECC **Final**

If left unsaved, this project session will end in **59** minutes.

Project

Envelope

Compliance (15.2%) ✓

Cancel

Save

Report






Compliance Check

Show all

Glazing requirements

Ceilings / Skylights (1 assembly)

Add

	Ceilings	Assembly	Gross Area	Cavity Insulation R-Value	Continuous Insulation R-Value	U-Factor	
   	my Ceiling	Flat Ceiling or Scissor Truss	3000	41	0	0.029	

Walls / Windows / Doors (4 assemblies)

Foundations (2 assemblies)

Envelope Add Wall Example

Project

Envelope

Compliance ✕

Cancel

Save

Report

Compliance Check

+

Show all

Ceilings / Skylights

Walls / Windows / Doors

Add ▾

Foundations

Add Wall Assembly Named Wall

Please select:

☐ Wood Frame, 16" o.c.

☒ Wood Frame, 24" o.c.

☐ Steel Frame, 16" o.c.

☐ Steel Frame, 24" o.c.

☐ Solid Concrete or Masonry

☐ Masonry Block w/ Empty Cells

☐ Masonry Block w/ Integral Insulation

☐ Log

☐ Structural Insulated Panels

☐ Insulated Concrete Forms

☐ Other

Component:

Wall

Gross Area:

0

Cavity R-Value:

0

Continuous R-Value:

0

Cancel

Apply

Glazing requirements

Cavity vs. Continuous

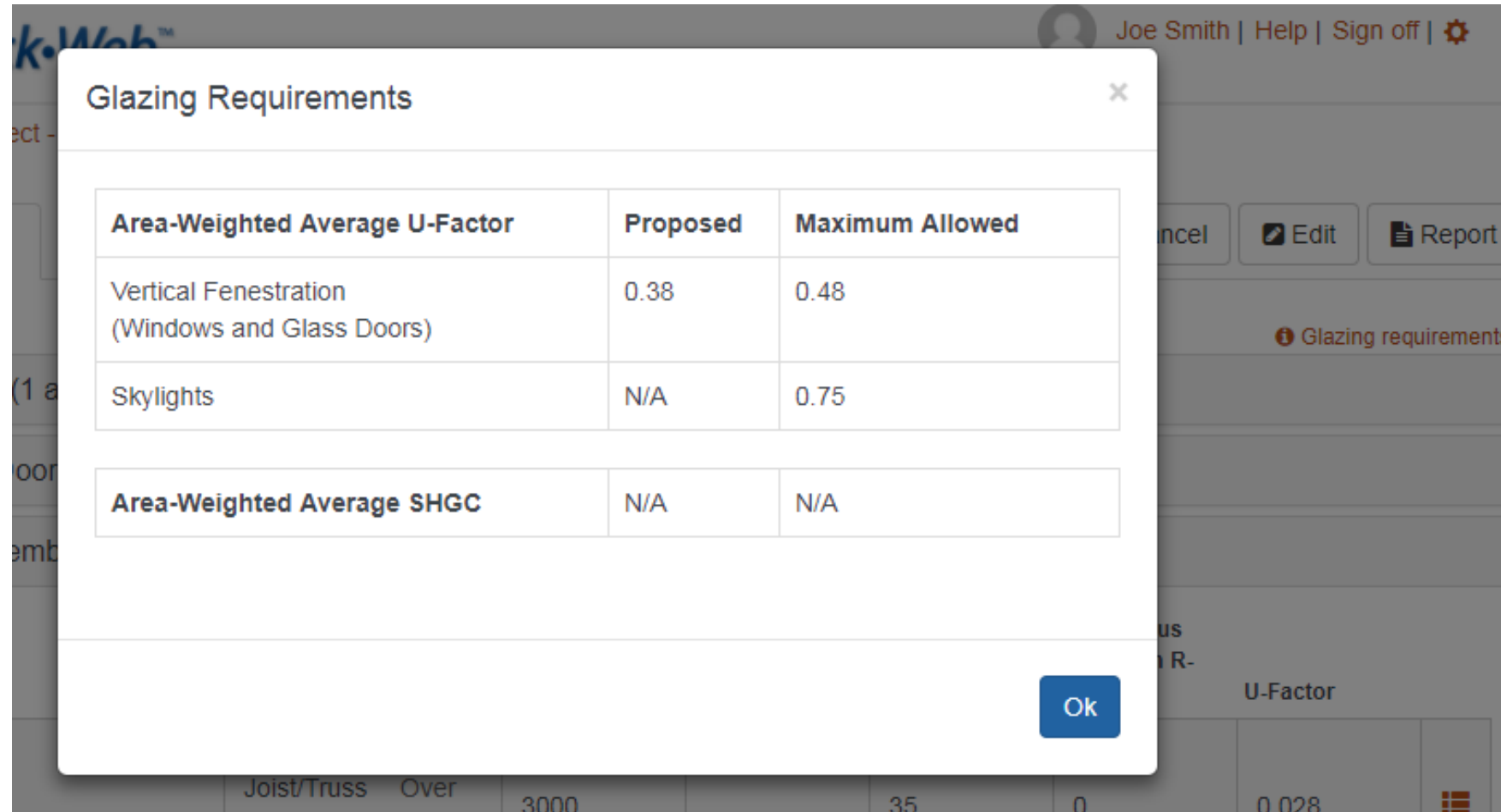


Cavity R-value – used for insulation placed between structural members



Continuous R-value – used for insulation that is continuous across the structure (e.g., rigid insulation)

Envelope Glazing Requirements



Area-Weighted Average U-Factor	Proposed	Maximum Allowed
Vertical Fenestration (Windows and Glass Doors)	0.38	0.48
Skylights	N/A	0.75
Area-Weighted Average SHGC	N/A	N/A

Ok

Fenestration: U-Factors and SHGCs

 National Fenestration Rating Council® CERTIFIED	World's Best Window Co. Millennium 2000+ Vinyl-Clad Wood Frame Double Glazing • Argon Fill • Low E Product Type: Vertical Slider	
ENERGY PERFORMANCE RATINGS		
U-Factor (U.S./I-P) 0.35	Solar Heat Gain Coefficient 0.32	
ADDITIONAL PERFORMANCE RATINGS		
Visible Transmittance 0.51	Air Leakage (U.S./I-P) 0.2	
Condensation Resistance 51	—	
Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole-product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. www.nfrc.org		

Envelope Show Assembly Details



Home » A Sample Project - Energy Code: 2018 IECC Draft

Project **Envelope** Compliance (15.2%) ✓

+ Show all

Ceilings / Skylights (2 assemblies)

Walls / Windows / Doors (10 assemblies)

Foundations (2 assemblies)

Floors	Assembly	Gross Area	Orientation	Cavity In R-Value
Floor 1	All-Wood Joist/Truss Over Unconditioned Space	3000 ft²		35
Basement	Solid Concrete or Masonry	1000 ft²	Unspecified	0

Orientation	Unspecified
Cavity Insulation R-Value	0
Continuous Insulation R-Value	15
U-Factor	0.05
Relative Orientation	Unspecified
Wall Height (ft)	8
Depth Below Grade (ft)	7
Depth of Insulation (ft)	7
Required U-Factor	0.05

Foundations – what button to use

Basement

- Basement is conditioned

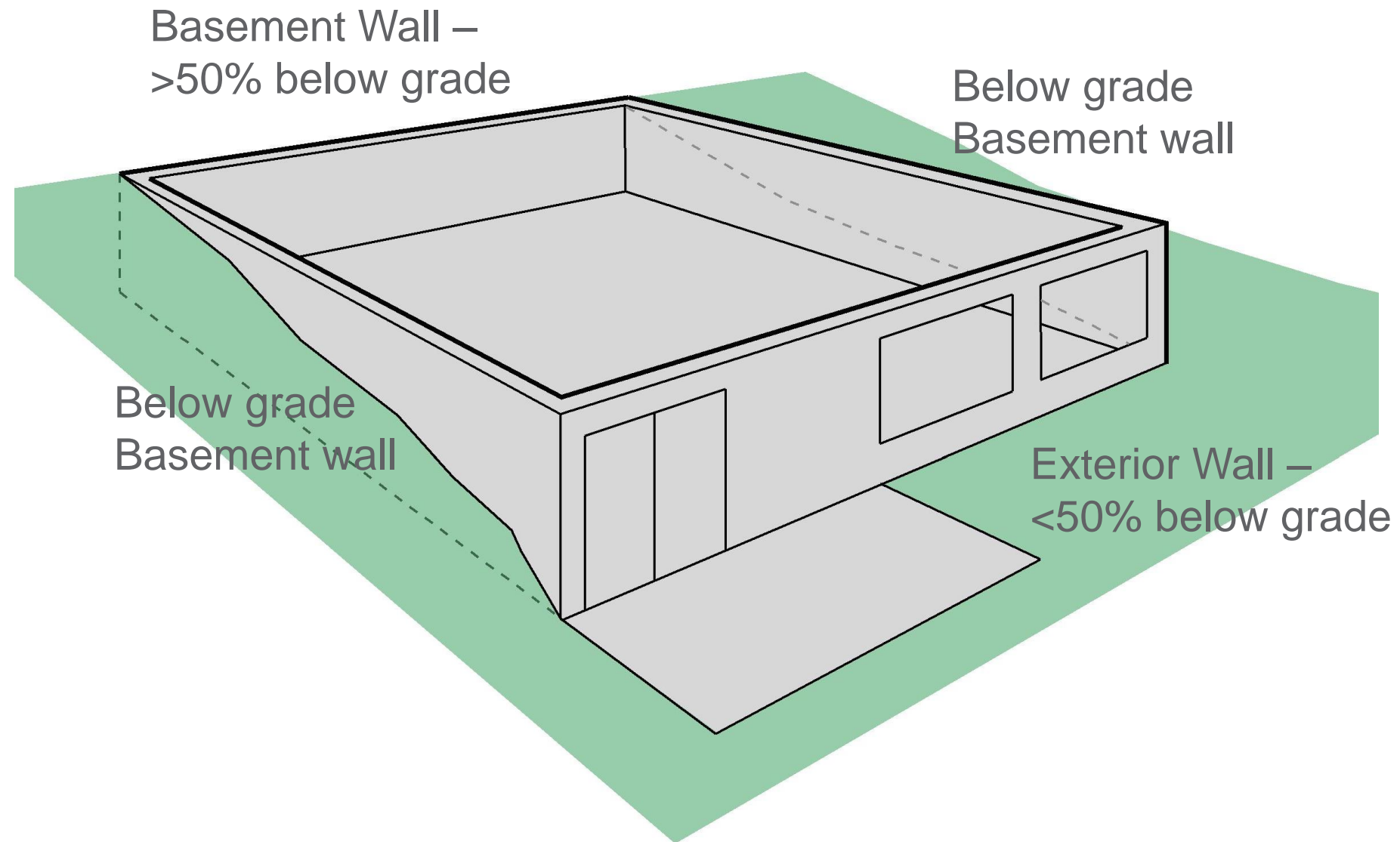
Floor

- Separates conditioned from ambient or unconditioned space

Crawl Wall

- Crawl space is not vented to the outside and floor above is NOT insulated

What's a Basement Wall?



Basement Wall

Add Basement Assembly Named *Basement 1*

Please select:

- ☒ Solid Concrete or Masonry
- ☐ Masonry Block w/ Empty Cells
- ☐ Masonry Block w/ Integral Insulation
- ☐ Wood Frame
- ☐ Insulated Concrete Forms
- ☐ Other

Component: Basement 1

Gross Area: 0

Orientation: Unspecified

Cavity R-Value: 0

Continuous R-Value: 0

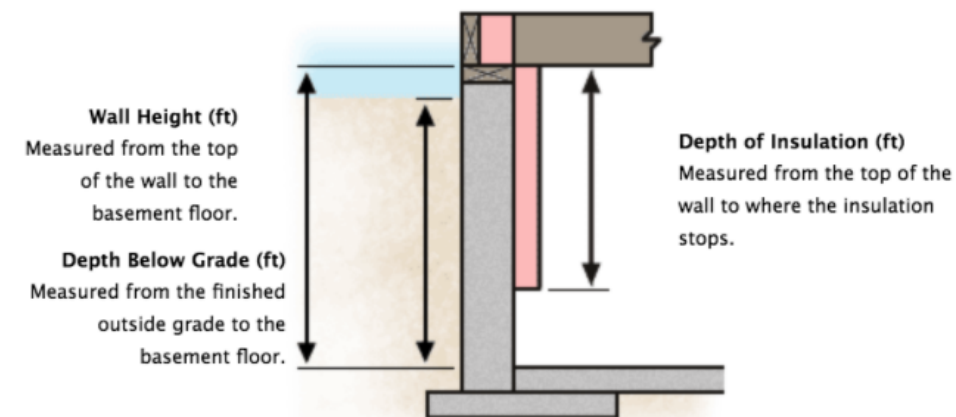
Wall Height (ft): 0

Depth Below Grade: 0

Depth of Insulation (ft): 0

- Wall Height: If not uniform, provide an average height
- Depth Below Grade: If sloped or uneven, provide an average depth below grade
- Depth of Insulation
 - Requirements are for full depth of basement wall (to 10 ft); REScheck allows trade offs
 - If you enter insulation depth of 0, program assumes no insulation, regardless of values in the insulation fields
- Continuous Insulation: Software assumes it's exterior rigid
- Cavity Insulation: Software assumes you're furring out on the interior

Enter the specified dimensions using feet (not inches) in the boxes provided. A basement wall less than 50% below grade is considered an above-grade wall and must be entered using the "Wall" button.



Cancel Apply

Crawl Wall

Add Crawl Assembly Named *Crawl*



Please select:

- ☒ Solid Concrete or Masonry
- ☐ Masonry Block w/ Empty Cells
- ☐ Masonry Block w/ Integral Insulation
- ☐ Wood Frame
- ☐ Insulated Concrete Forms
- ☐ Other

Component:

Gross Area:

Cavity R-Value:

Continuous R-Value:

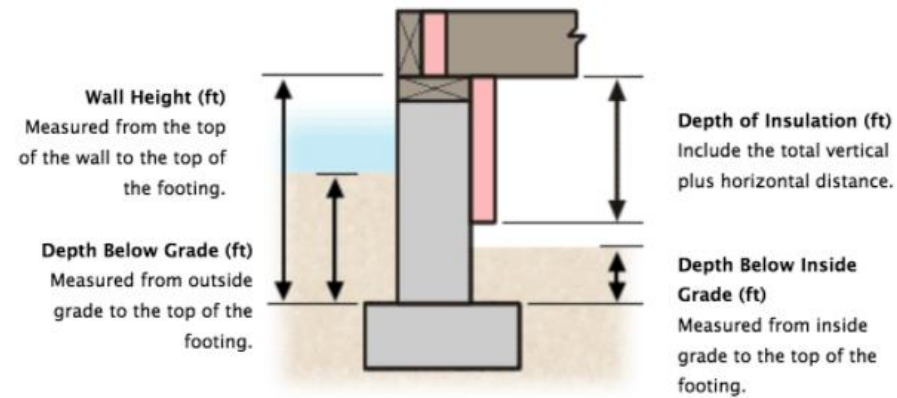
Wall Height (ft):

Depth Below Grade (ft):

Depth Below Inside Grade (ft):

Depth of Insulation (ft):

The crawl space wall option applies only to walls of unventilated crawl spaces. Enter the specified dimensions in feet (not inches) in the boxes provided.



Cancel

Apply

Mechanical Tab – Performance Alternative Only



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[Home](#) » [A Sample Project - Energy Code: 2018 IECC](#) **Draft**

If left unsaved, this project session will end in 59 minutes.

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! Important Information






List the heating and/or cooling equipment in your building here. The selected code does not allow for equipment trade-off.

NOTE: These inputs are optional.

System Efficiency Units

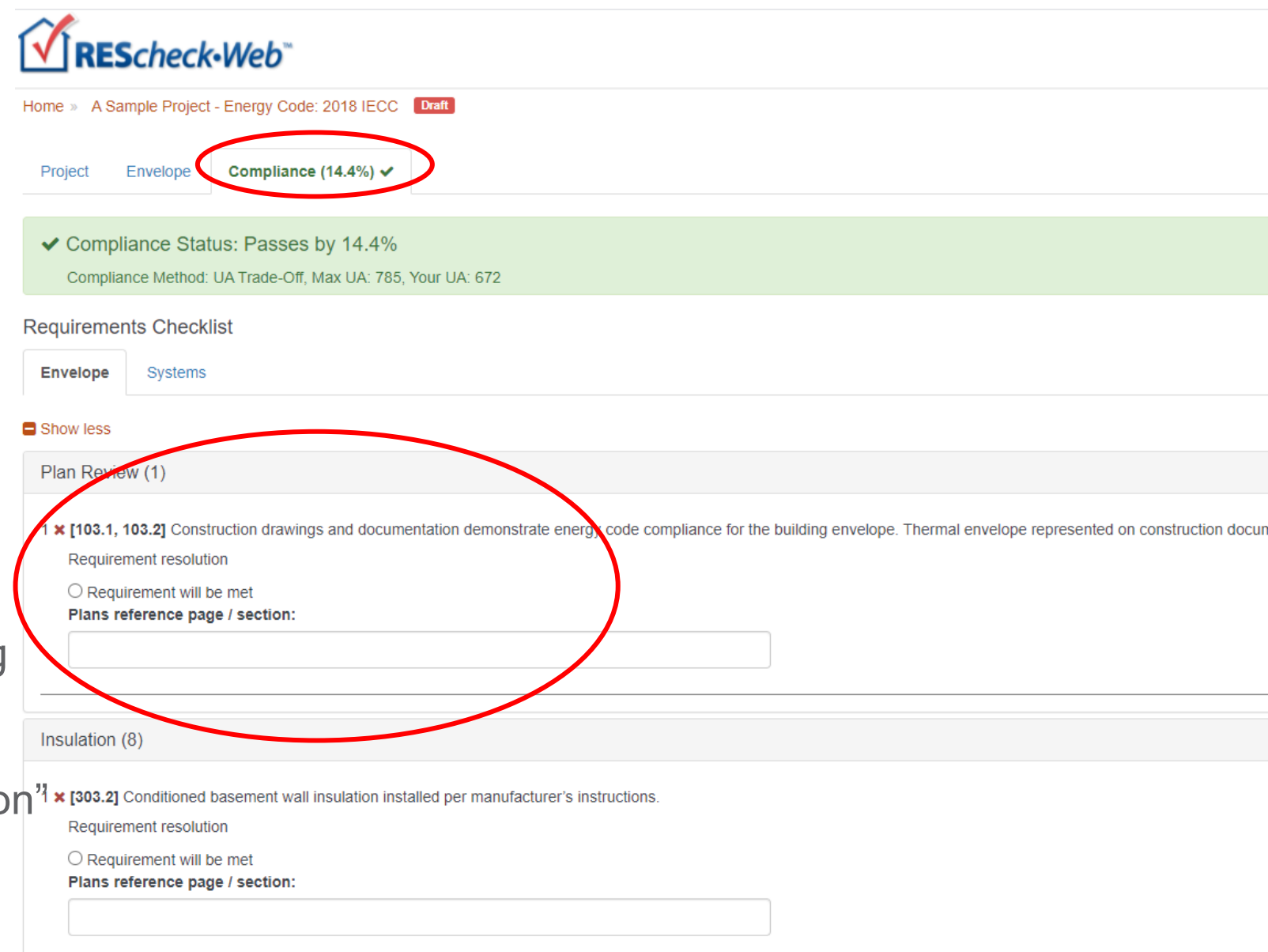
- Furnace/Boiler: AFUE
- Heat pump heating: HSPF
- Heat pump cooling/AC: SEER

[Add HVAC Equipment](#)

	HVACs	Assembly	Heating Efficiency	Cooling Efficiency	
   	HVAC	Furnace	78	13	

Compliance Tab

- Mandatory requirements
 - Air leakage
 - Building mechanical systems and equipment
 - Service water heating
 - Duct construction, insulation, testing
- For each requirement, the user
 - Chooses an applicable “compliance option”
 - Requirement will be met
 - Exempt or Exceptions
 - Requirement is Not Applicable
 - Notes how compliance for applicable requirements are documented



REScheck-Web™

Home » A Sample Project - Energy Code: 2018 IECC **Draft**

Project Envelope **Compliance (14.4%) ✓**

✓ Compliance Status: Passes by 14.4%
Compliance Method: UA Trade-Off, Max UA: 785, Your UA: 672

Requirements Checklist

Envelope Systems

Show less

Plan Review (1)

1 x [103.1, 103.2] Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.

Requirement resolution

☐ Requirement will be met

Plans reference page / section:

Insulation (8)

1 x [303.2] Conditioned basement wall insulation installed per manufacturer's instructions.

Requirement resolution

☐ Requirement will be met

Plans reference page / section:

This information is shown on the report in the “Comments/ Assumptions” column of the Inspection Checklist

Compliance Tab (edit mode)

Project

Envelope

Compliance (15.2%) ✓

Cancel

Save

Report

Compliance Check

✓ Compliance Status: Passes by 15.2%



Compliance Method: UA Trade-Off, Max UA: 553, Your UA: 469

Requirements Checklist

Envelope

Systems

Show less

Plan Review (1)

1 ✕ [103.1, 103.2] Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.

Requirement resolution

☐ Resolution will be met

Plans reference page / section:

Compliance Failing – Helpful Hints



















- Review building plans to ensure all components are entered correctly
- Confirm takeoffs (areas) are correct
- Confirm insulation values
 - Double check cavity vs. continuous entries
- Confirm fenestration values
 - Double check ratings on windows and doors (U-factor and SHGC)
- Compare proposed U-factors with required U-factors
- Evaluate UA data

Evaluate Assembly Performance

TABLE R402.1.4
EQUIVALENT *U*-FACTORS^a

CLIMATE ZONE	FENESTRATION <i>U</i> -FACTOR	SKYLIGHT <i>U</i> -FACTOR	CEILING <i>U</i> -FACTOR	FRAME WALL <i>U</i> -FACTOR	MASS WALL <i>U</i> -FACTOR ^b	FLOOR <i>U</i> -FACTOR	BASEMENT WALL <i>U</i> -FACTOR	CRAWL SPACE WALL <i>U</i> -FACTOR
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	0.047	0.091 ^c	0.136
4 except Marine	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.060	0.082	0.033	0.050	0.055
6	0.32	0.55	0.026	0.045	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.045	0.057	0.028	0.050	0.055

  	Wall	Wood Frame, 16" o.c.	1000	Unspecified	19	5	0.045	
  	Wall 1	Wood Frame, 24" o.c.	1000	Unspecified	19	5	0.044	
  	Wall 2	Steel Frame, 16" o.c.	1000	Unspecified	19	5	0.071	
  	Wall 3	Steel Frame, 24" o.c.	1000	Unspecified	19	5	0.064	

Reports

- Choices, choose any or all
 - Compliance Certificate
 - Inspection Checklist
 - Panel Certificate

 rosemarie.bartlett@pnnl.gov | [Help](#) | [Sign off](#) | 

 Edit  Report

Create Report ×

Which sections do you want to include?

- ☒ Compliance Certificate
- ☒ Inspection Checklist
- ☒ Panel Certificate

Cancel

Continue

Reports

- Requirements
- Inspection checklists set up by phase of construction
 - Plan Review
 - Footing/Foundation
 - Rough-in
 - Final

Reports

Create Report ×

Which sections do you want to include?

- ☒ Compliance Certificate
- ☒ Inspection Checklist
- ☒ Panel Certificate

Cancel Continue

Report successfully generated.

Check your downloads folder for a file called **rc-report-a-sample-project-jul-10-17.pdf**

Is this document final?

No

Yes

Reports – Sample Compliance Certificate



Generated by REScheck-Web Software

Compliance Certificate

Project A Sample Project

Energy Code: **2018 IECC**
Location: **Eugene, Oregon**
Construction Type: **Single-family**
Project Type: **New Construction**
Orientation: **Bldg. faces 180 deg. from North**
Conditioned Floor Area: **3,000 ft²**
Glazing Area: **2%**
Climate Zone: **4 (4546 HDD)**
Permit Date:
Permit Number:

Construction Site:
123 Main St.
Dogtown, WA 99532

Owner/Agent:
R. Franklin
321 W. Tenth
Dogtown, WA 99532
509.888.7777

Verify energy
code, location,
construction
type, and
conditioned
floor area

Designer/Contractor:
Anne Hatchet
Acme Home Designers
555 Paire Ridge
Dogtown, WA 99532
509.888.999

Compliance: Passes using UA trade-off

Compliance: **17.8% Better Than Code** Maximum UA: **545** Your UA: **448**

The % Better or Worse Than Code Index reflects how close to compliance the house is based on code trade-off rules.
It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Evaluate Assembly Performance (cont)

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
my Ceiling: Flat Ceiling or Scissor Truss	3,000	41.0	0.0	0.029	0.026	86	77
mySkylight: Metal Frame	20			0.500	0.550	10	11
Wall 1: Wood Frame, 24" o.c. Orientation: Front	1,200	21.0	5.0	0.042	0.060	50	72
Wall 2: Wood Frame, 24" o.c. Orientation: Front	1,200	21.0	5.0	0.042	0.060	48	69
Window 1: Metal Frame Orientation: Front	16			0.250	0.300	4	5
Window 2: Metal Frame Orientation: Front	16			0.250	0.300	4	5

Reports – Sample Compliance Certificate, cont

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
my Ceiling: Flat Ceiling or Scissor Truss	3,000	41.0	0.0	0.029	0.026	86	77
mySkylight: Metal Frame	20			0.500	0.550	10	11
Wall 1: Wood Frame, 24" o.c. Orientation: Front	1,200	21.0	5.0	0.042	0.060	50	72
Wall 2: Wood Frame, 24" o.c. Orientation: Front	1,200	21.0	5.0	0.042	0.060	48	69
Window 1: Metal Frame Orientation: Front	16			0.250	0.300	4	5
Window 2: Metal Frame Orientation: Front	16			0.250	0.300	4	5

Reports – Sample Compliance Certificate, cont

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Prop. U-Factor	Req. U-Factor	Prop. UA	Req. UA
Basement: Solid Concrete Orientation: Unspecified Wall height: 8.0' Depth below grade: 0' Insulation depth: 0'	1,000	0.0	15.0	0.050	0.050	50	50

Verify
Compliance
Statement is
Signed

Verify Values are
Consistent with
Plans






Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, calculations submitted with the permit application. The proposed building has been designed to meet the 2018 IECC requirements. REScheck Version : REScheck-Web and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Name - Title

Signature

Date

Envelope Sample Inspection Checklist

Section # & Req.ID	Foundation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1 [FO4] ¹ 	Conditioned basement wall insulation R-value. Where interior insulation is used, verification may need to occur during Insulation Inspection. Not required in warm-humid locations in Climate Zone 3.	R-____ R-____	R-____ R-____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
303.2 [FO5] ¹ 	Conditioned basement wall insulation installed per manufacturer's instructions.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
402.2.9 [FO6] ¹ 	Conditioned basement wall insulation depth of burial or distance from top of wall.	____ ft	____ ft	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
303.2.1 [FO11] ² 	A protective covering is installed to protect exposed exterior insulation and extends a minimum of 6 in. below grade.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
403.9 [FO12] ² 	Snow- and ice-melting system controls installed.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	

Additional Comments/Assumptions:

Panel Certificate



2021 IECC Energy Efficiency Certificate

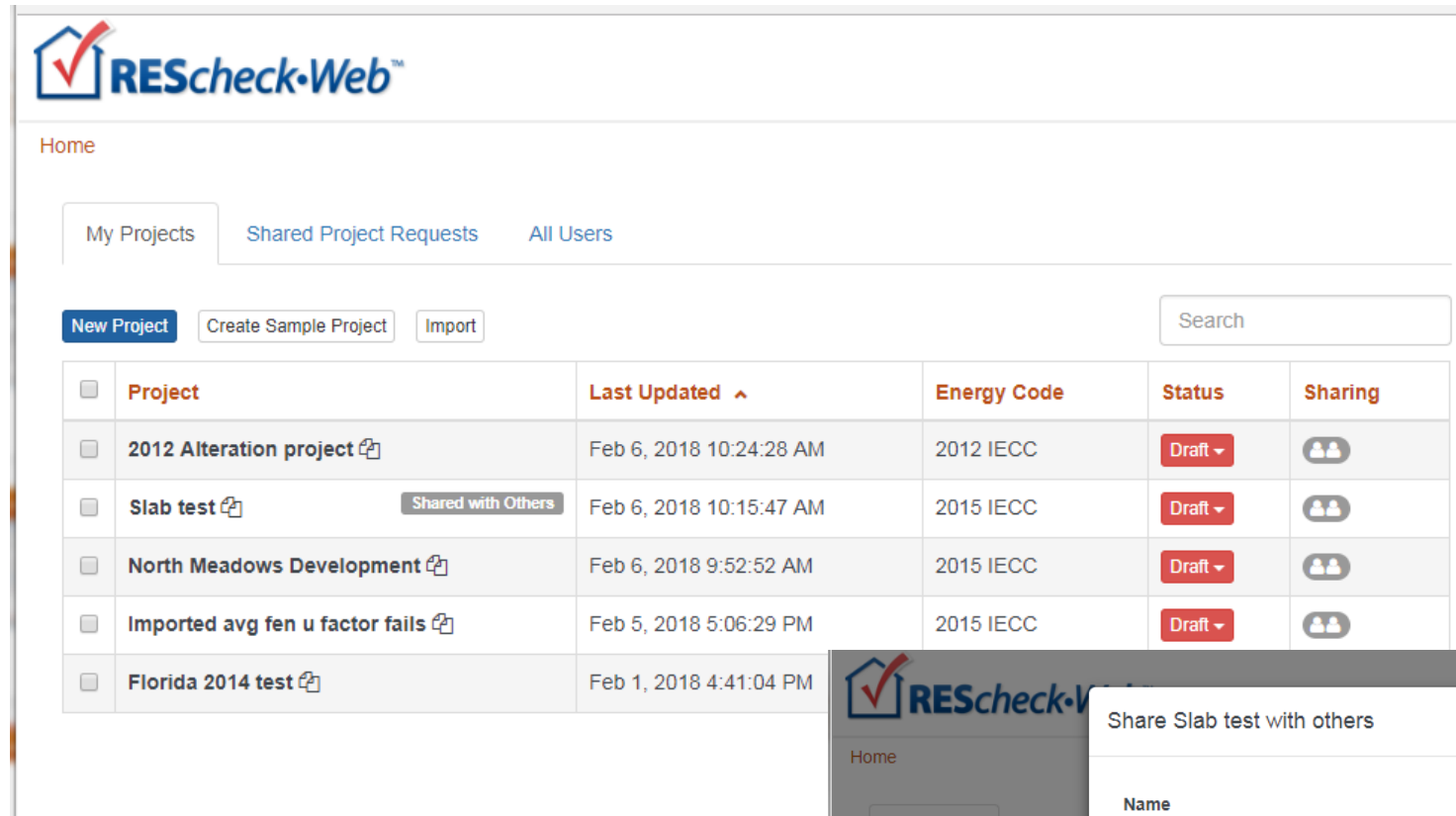
Insulation Rating	R-Value
Above-Grade Wall	24.00
Below-Grade Wall	15.00
Floor	35.00
Ceiling / Roof	49.00
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	0.25	
Door	0.70	
Skylight	0.50	

Heating & Cooling Equipment	Efficiency
Heating System: _____	_____
Cooling System: _____	_____
Water Heater: _____	_____

Name: _____	Date: _____
Comments	

REScheck-Web Project Sharing

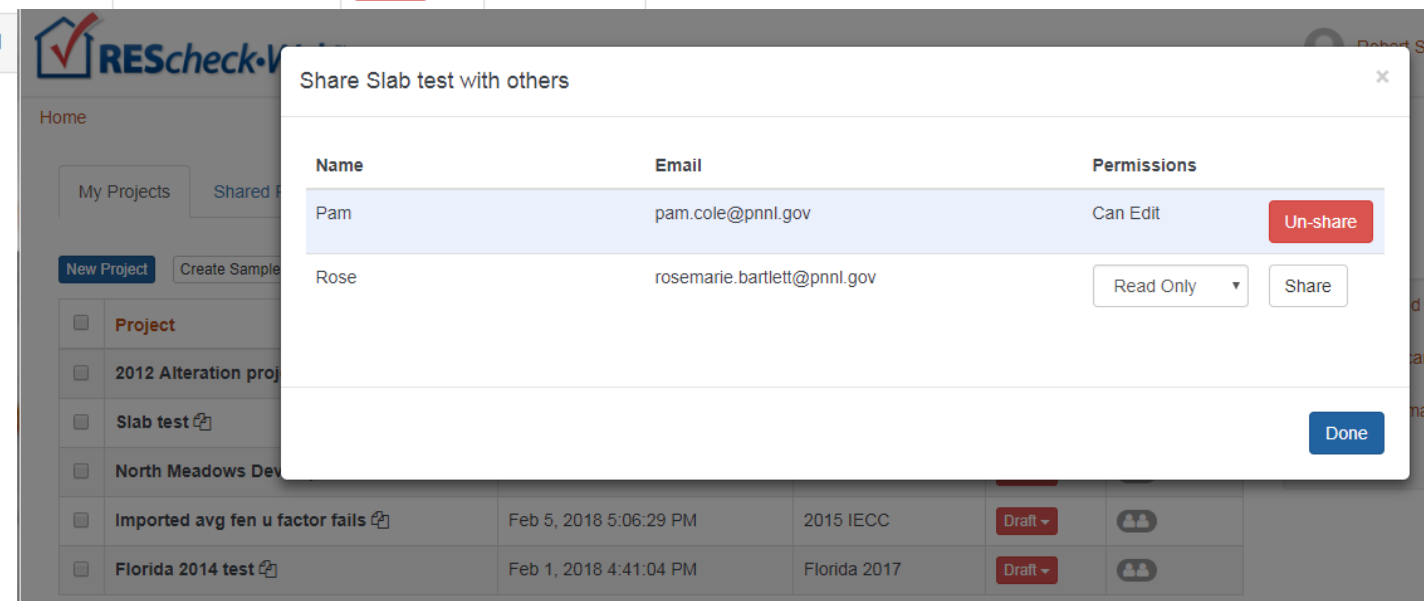


Home

My Projects Shared Project Requests All Users

New Project Create Sample Project Import Search

<input type="checkbox"/>	Project	Last Updated ^	Energy Code	Status	Sharing
<input type="checkbox"/>	2012 Alteration project	Feb 6, 2018 10:24:28 AM	2012 IECC	Draft ▾	
<input type="checkbox"/>	Slab test Shared with Others	Feb 6, 2018 10:15:47 AM	2015 IECC	Draft ▾	
<input type="checkbox"/>	North Meadows Development	Feb 6, 2018 9:52:52 AM	2015 IECC	Draft ▾	
<input type="checkbox"/>	Imported avg fen u factor fails	Feb 5, 2018 5:06:29 PM	2015 IECC	Draft ▾	
<input type="checkbox"/>	Florida 2014 test	Feb 1, 2018 4:41:04 PM			



Share Slab test with others

Name	Email	Permissions	
Pam	pam.cole@pnnl.gov	Can Edit	Un-share
Rose	rosemarie.bartlett@pnnl.gov	Read Only ▾	Share

Done

Sharing Projects: Shared Project Invitation



Home

My Projects

Shared Project Requests

These are projects other users have asked to share with you.

<input type="checkbox"/>	Project ^	Location	Permission	Sender	Action
--------------------------	-----------	----------	------------	--------	--------

You don't currently have any unconfirmed sharing requests.



Home

My Projects

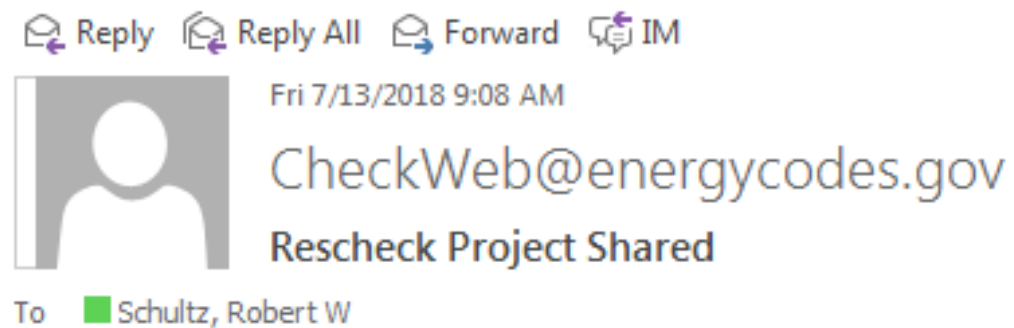
Shared Project Requests 1

These are projects other users have asked to share with you.

<input type="checkbox"/>	Project ^	Location	Permission	Sender	Action
<input type="checkbox"/>	A Sample Project	Dogtown, WA	Can Edit		<button>Accept</button> <button>Ignore</button>

Sharing Projects: Email Invitation

Shared project recipient will receive email with invitation to accept the “share”



membobmt@gmail.com has offered to share a project with you via REScheck. To accept, click on the project link below.

Project: [A Sample Project](#)
Location: Richland, Washington

Sharing Projects: Shared Projects



Home

My Projects











Shared Project Requests

New Project

Create Sample Project

Import

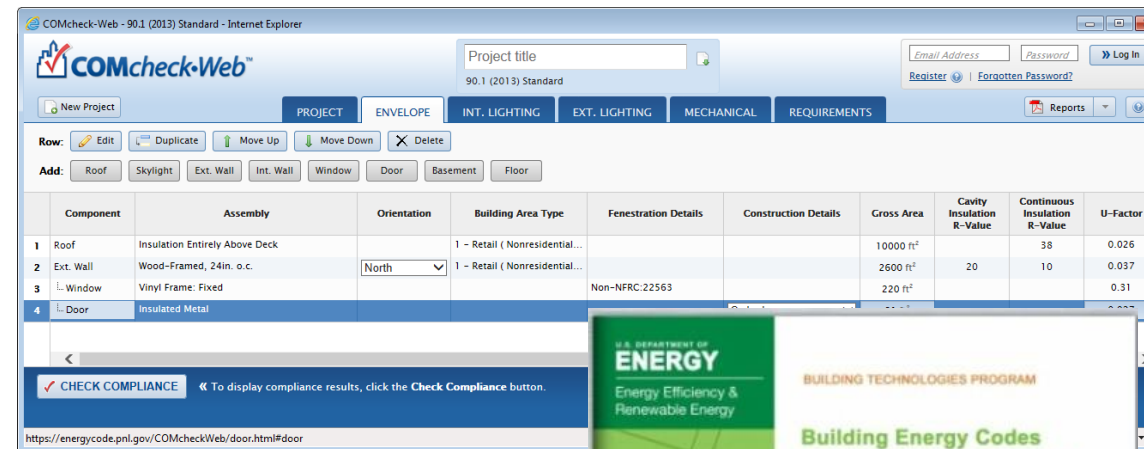
Search

<input type="checkbox"/>	Project	Last Updated ^	Energy Code	Status	Sharing
<input type="checkbox"/>	A Sample Project 	Feb 6, 2018 2:14:19 PM	2015 IECC	Draft ▾	
<input type="checkbox"/>	2012 Alteration project 	Feb 6, 2018 10:24:28 AM	2012 IECC	Draft ▾	
<input type="checkbox"/>	Slab test 	Feb 6, 2018 10:15:47 AM	2015 IECC	Draft ▾	
<input type="checkbox"/>	North Meadows Development 	Feb 6, 2018 9:52:52 AM	2015 IECC	Draft ▾	
<input type="checkbox"/>	Imported avg fen u factor fails 	Feb 5, 2018 5:06:29 PM	2015 IECC	Draft ▾	

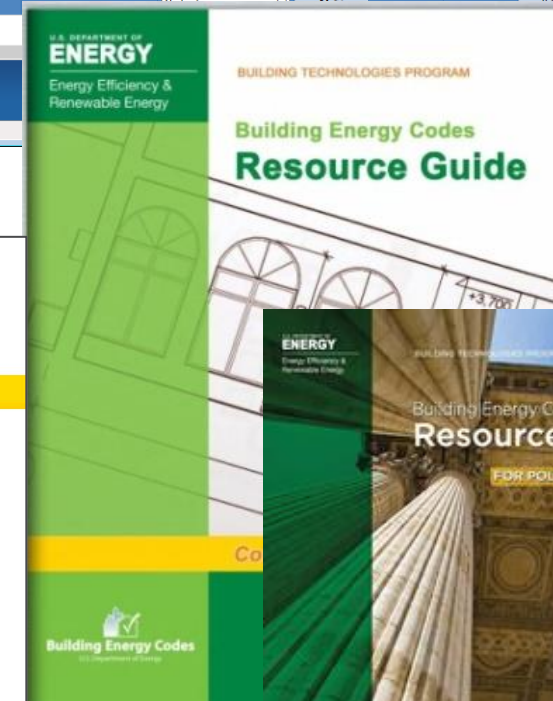
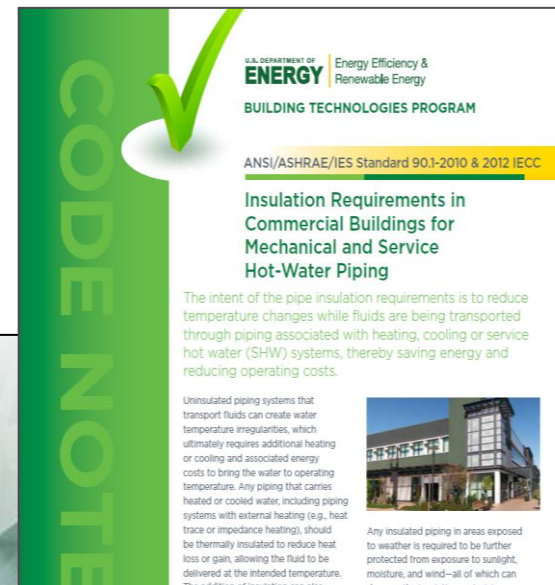
U.S. DOE: BECP Resources

- Compliance software
- Technical support
- Code notes
- Publications
- Resource guides
- Training materials

www.energycodes.gov



Row	Component	Assembly	Orientation	Building Area Type	Fenestration Details	Construction Details	Gross Area	Cavity Insulation R-Value	Continuous Insulation R-Value	U-Factor
1	Roof	Insulation Entirely Above Deck		1 - Retail (Nonresidential...			10000 ft²		38	0.026
2	Ext. Wall	Wood-Framed, 24in. o.c.	North	1 - Retail (Nonresidential...			2600 ft²	20	10	0.037
3	Window	Vinyl Frame: Fixed			Non-NFRC 22563		220 ft²			0.31
4	Door	Insulated Metal								



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2022 NATIONAL ENERGY CODES CONFERENCE
HOSTED BY THE U.S. DEPARTMENT OF ENERGY

July 19-21 | Virtual

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ENERGY

Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY



Building Energy Codes
U.S. DEPARTMENT OF ENERGY

- If you want AIA LUs or a Certificate of Attendance for self-reporting to ICC or RESNET, WRITE DOWN THIS LINK:

www.energycodes.gov/necc/2022_credit_request

Once you have attended your **last** conference session, go to the link, request credits or a certificate, mark the sessions you attended, and submit!

NOTE: This link will only be active until Monday, July 25

THANK YOU!!!

V. Robert Salcido
victor.salcido@pnnl.gov

Building Energy Codes Program
www.energycodes.gov

BECP help desk
<http://www.energycodes.gov/resource-center/help-desk>

Thank you

