



REScheck Basics

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

July 19, 2022

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Senior Research Engineer

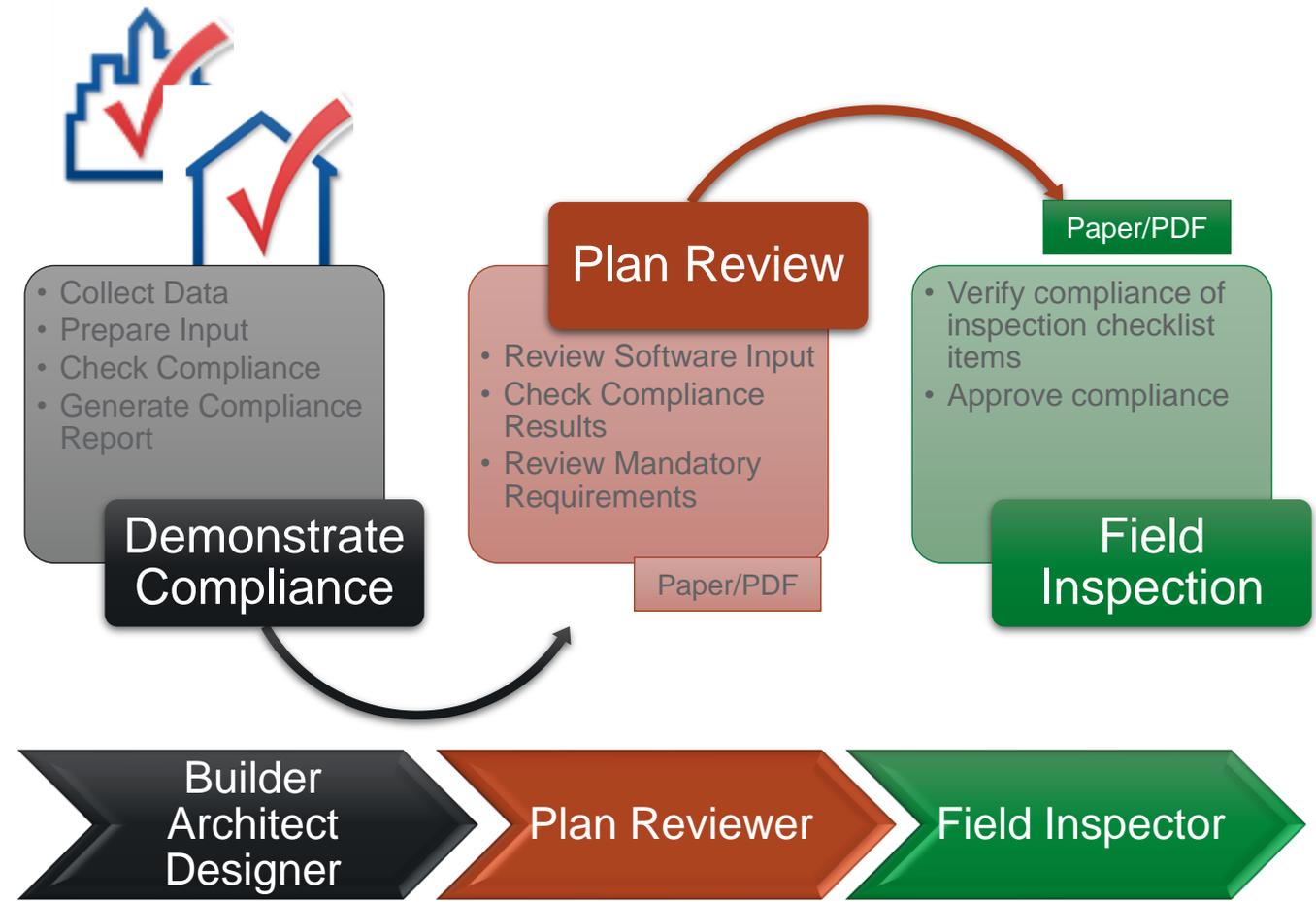


PNNL-SA-174904

PNNL is operated by Battelle for the U.S. Department of Energy



REScheck Current Use Scenario



BECP Tools used only during “Demonstrate Compliance” Stage

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](#)



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.



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State Energy Codes

Select a State



Highlights



Energy Standard and Code Determinations

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Recent Publication Spotlight

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Resilient and Efficient Codes Implementation RFI

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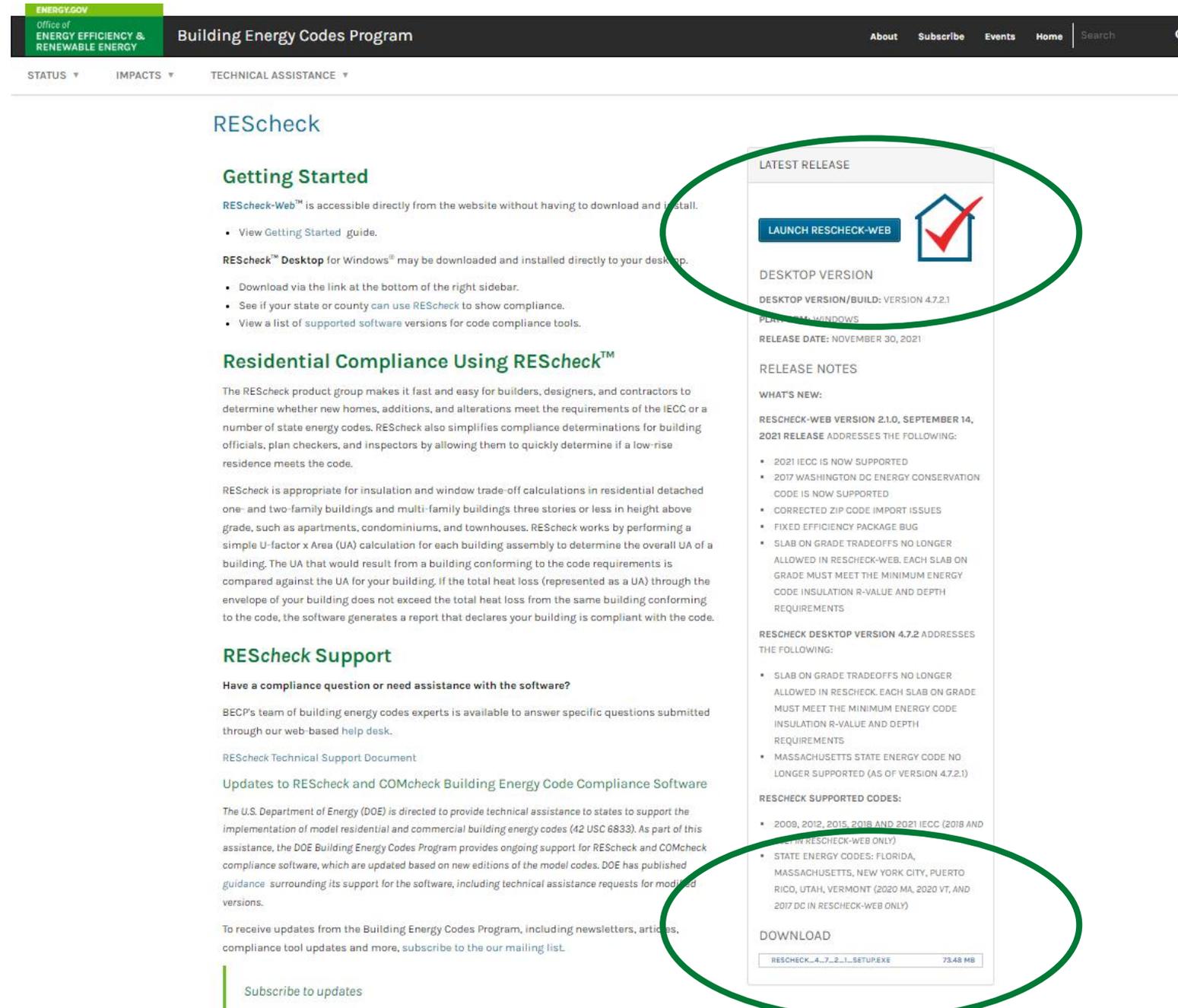


How Much Do Energy Codes Save?

[READ MORE](#)

REScheck Page

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



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Building Energy Codes Program

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STATUS ▾ | IMPACTS ▾ | TECHNICAL ASSISTANCE ▾

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?

BECP'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)

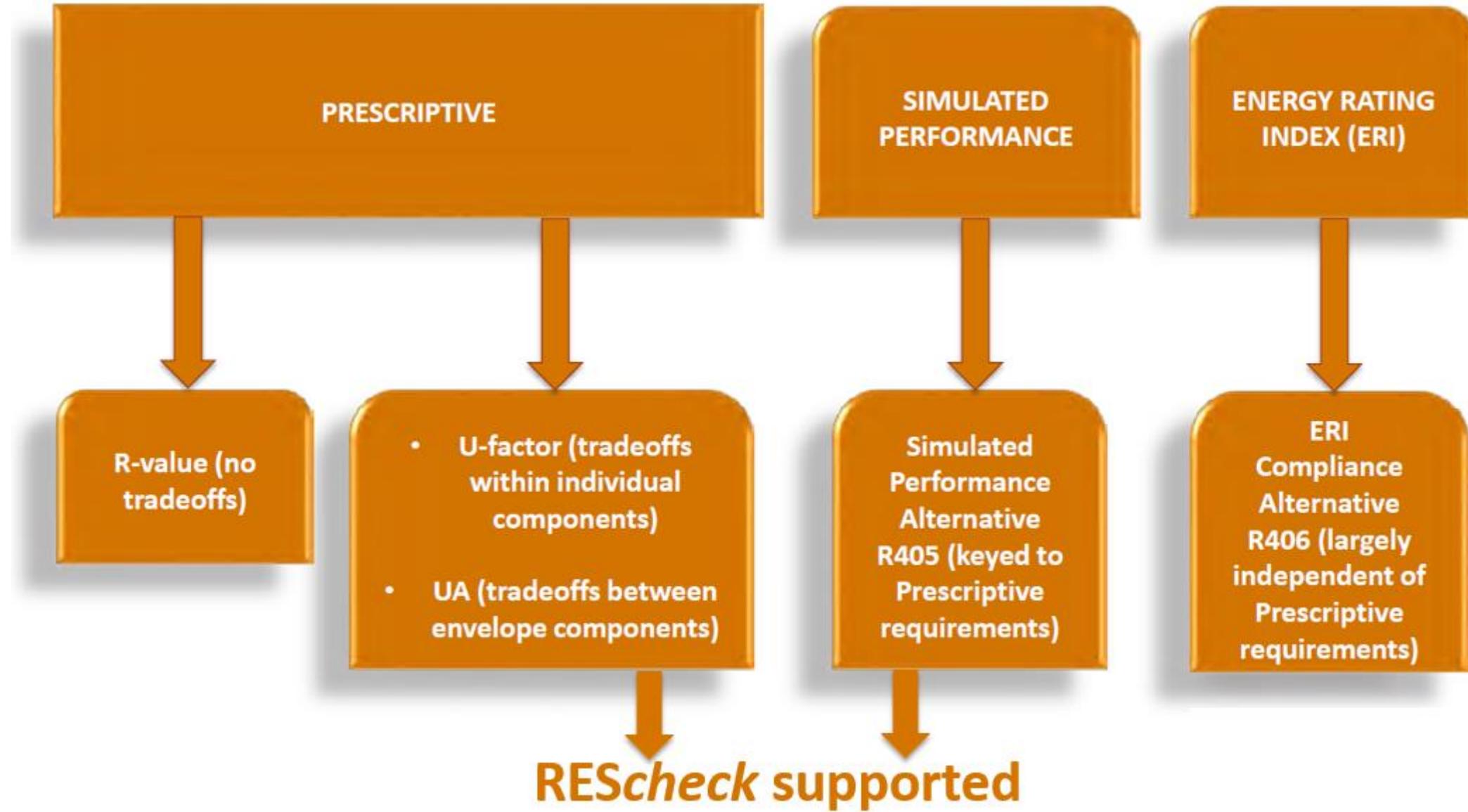
DOWNLOAD

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 COMPONENT³~~

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 ^e	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?](#)

Home: My Projects (aka Project Dashboard)



Home

[My Projects](#)
[Shared Project Requests](#)
[All Users](#)

[New Project](#)
[Create Sample Project](#)
[Import](#)

<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

- [Getting Started](#)
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My Profile



[Home](#) » [My Profile](#)

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



Home » My Settings

Project defaults

Use the following settings for every project

Energy Code
2009 IECC ▼

Location
Enter City and State

Enable orientation by default

Cancel Save

Project information

Owner/Agent

Name	First Name	Last Name
	<input type="text"/>	<input type="text"/>
Company	<input type="text"/>	
Address	Street Address	
	<input type="text"/>	

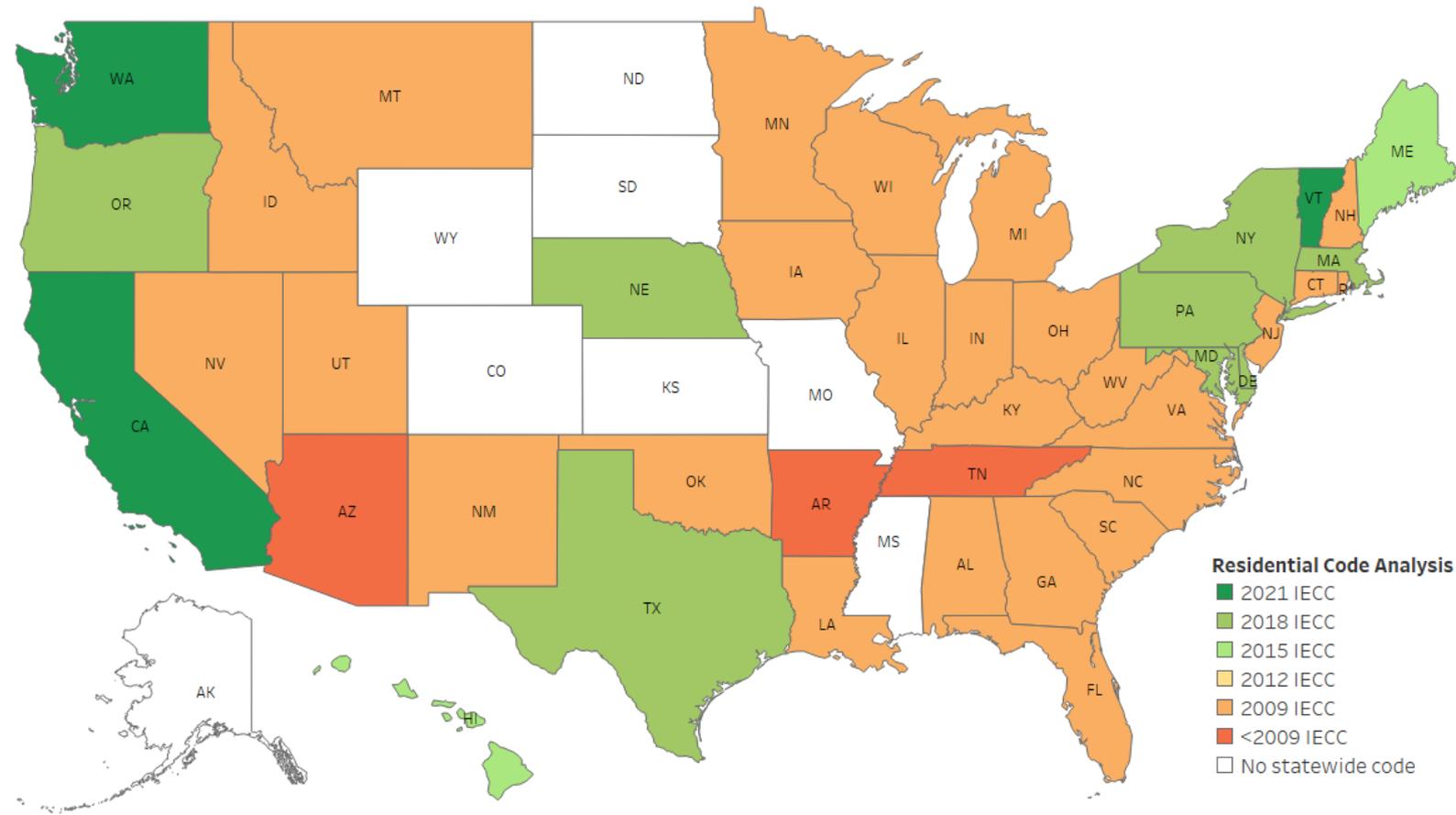
Designer/Contractor

Name	First Name	Last Name
	<input type="text"/>	<input type="text"/>
Company	<input type="text"/>	
Address	Street Address	
	<input type="text"/>	

Select the Appropriate Code

- Applicable to your state/ jurisdiction (Code menu)

Residential Buildings



Updated as of 06/30/22

Project Tab: New Project

Project
Envelope
Compliance ✕

Cancel
Save
Report
Compliance Check

Project Info:

Project Title*

Energy Code: What's my code?

Location

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

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?

Location

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



Home » New Project

Project **Envelope** Compliance

Check Compliance Save Report

+ Show all

Ceilings / Skylights

Walls / Windows / Doors

Foundations

Glazing requirements



Home » New Project

Project **Envelope** Compliance

+ Show all

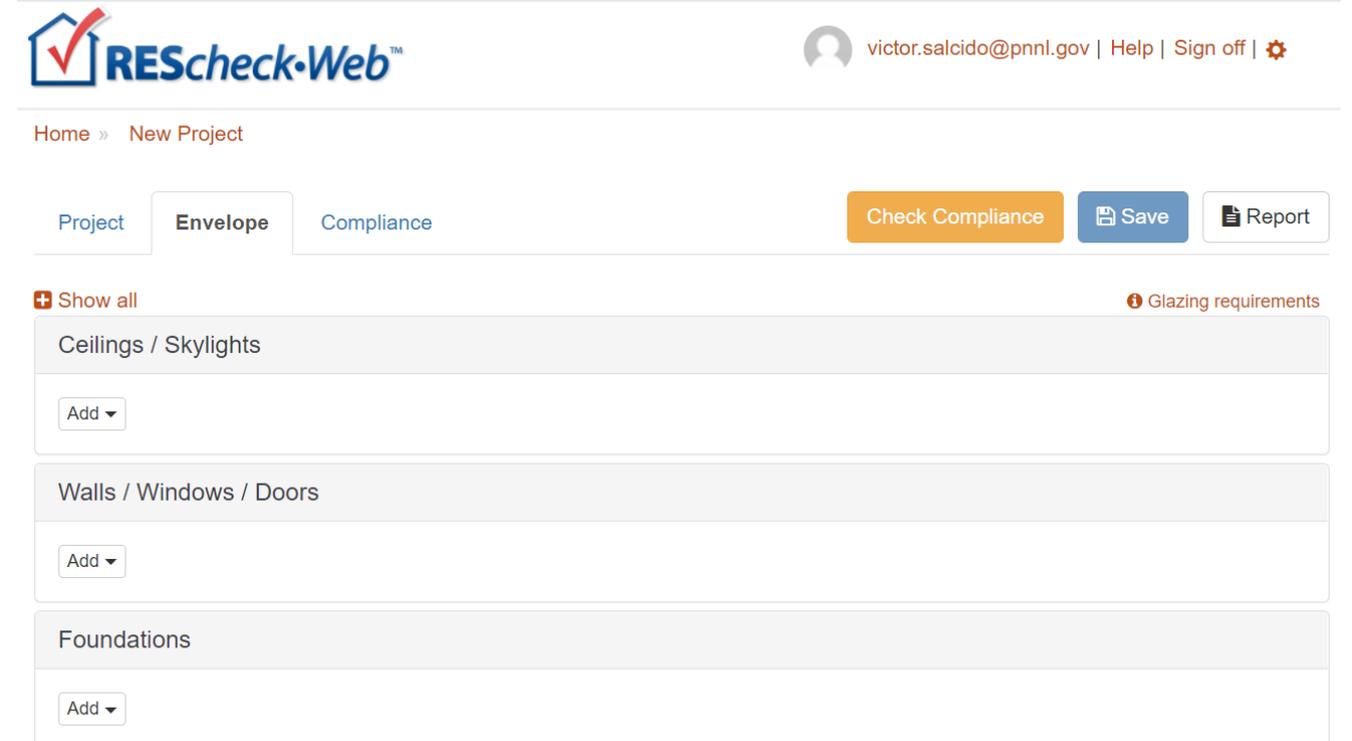
Ceilings / Skylights

Walls / Windows / Doors

Foundations

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 navigation bar with the REScheck-Web logo on the left and a user profile for victor.salcido@pnnl.gov on the right, with links for Help, Sign off, and a settings gear icon. Below the navigation bar, there is a breadcrumb trail: Home » New Project. The main content area has 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 (grey). Below the tabs, there is a section titled "Show all" with a plus icon on the left and "Glazing requirements" with an information icon on the right. This section contains three expandable categories: "Ceilings / Skylights", "Walls / Windows / Doors", and "Foundations". Each category has an "Add" button with a dropdown arrow.

Color Cues

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

Red



 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			Gross Area	U-Factor	
	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				Gross Area	U-Factor	
	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				Gross Area	U-Factor	
	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

+ 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:

Gross Area:

Cavity R-Value:

Continuous R-Value:

Cancel Apply

Glazing requirements

Cavity vs. Continuous

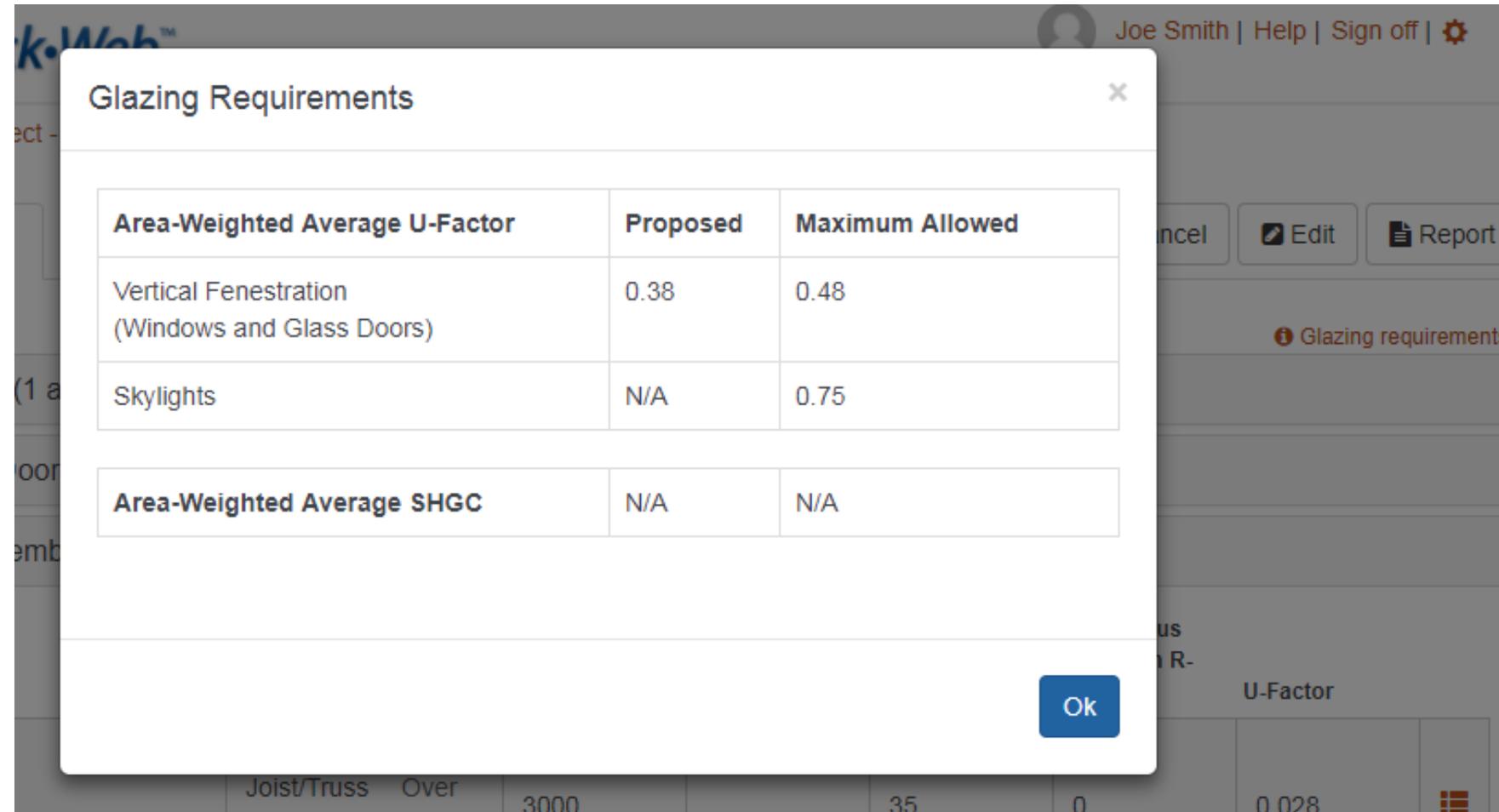


Cavity R-value – used for insulation placed between structural members



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

Envelope Glazing Requirements



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	Proposed	Maximum Allowed
	N/A	N/A

Ok

Fenestration: U-Factors and SHGCs

 <p>National Fenestration Rating Council® CERTIFIED</p>	<p>World's Best Window Co.</p> <p>Millennium 2000+ Vinyl-Clad Wood Frame Double Glazing • Argon Fill • Low E Product Type: Vertical Slider</p>	
	ENERGY PERFORMANCE RATINGS	
U-Factor (U.S./I-P)	Solar Heat Gain Coefficient	
0.35	0.32	
ADDITIONAL PERFORMANCE RATINGS		
Visible Transmittance	Air Leakage (U.S./I-P)	
0.51	0.2	
Condensation Resistance		
51	—	
<p><small>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</small></p>		

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	U-Factor	Depth Below Grade (ft)	Depth of Insulation (ft)	Required U-Factor
Floor 1	All-Wood Joist/Truss Over Unconditioned Space	3000 ft ²		35				
Basement	Solid Concrete or Masonry	1000 ft ²	Unspecified	0	15	0.05	7	0.05

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**

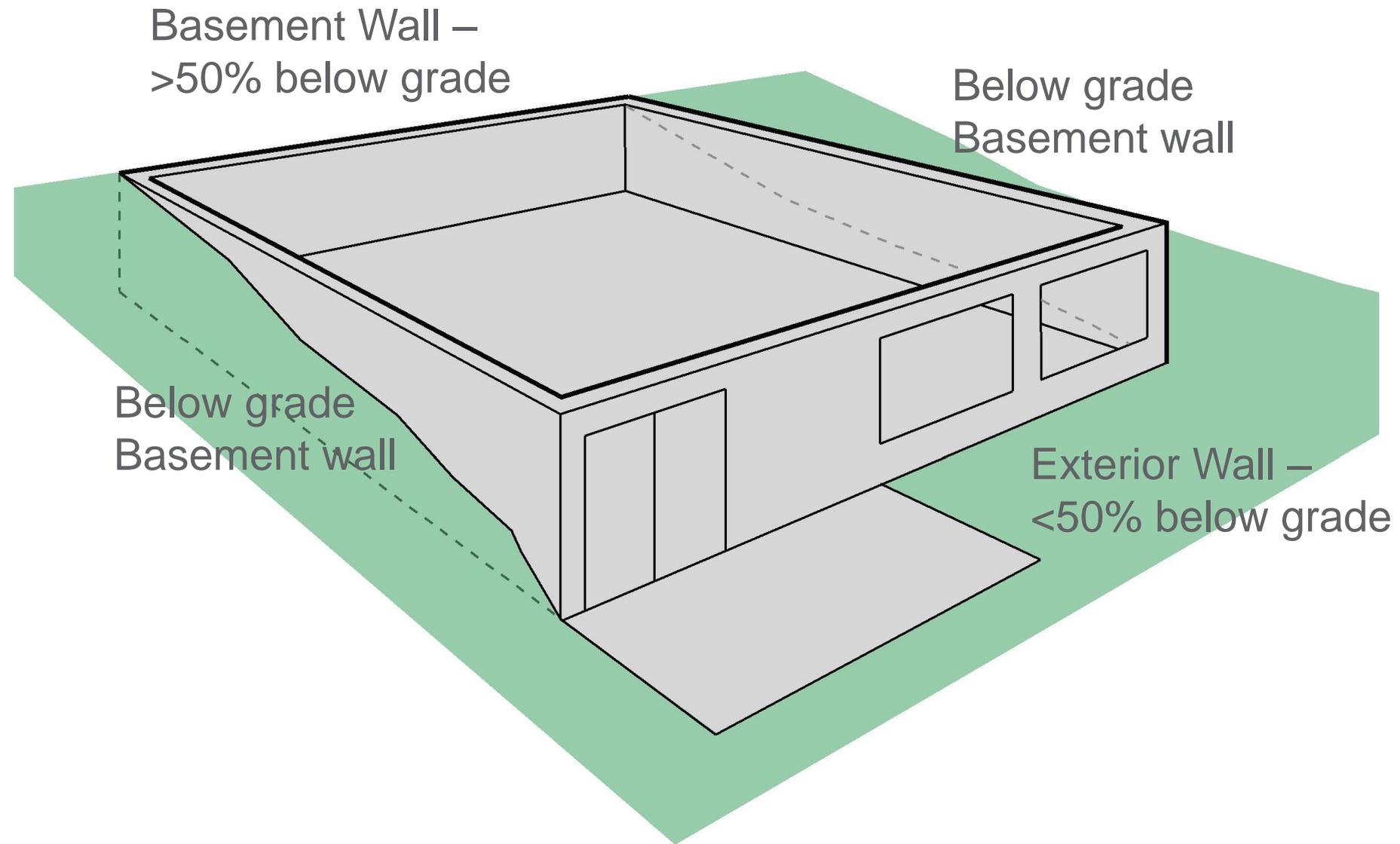
Floor

- **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*

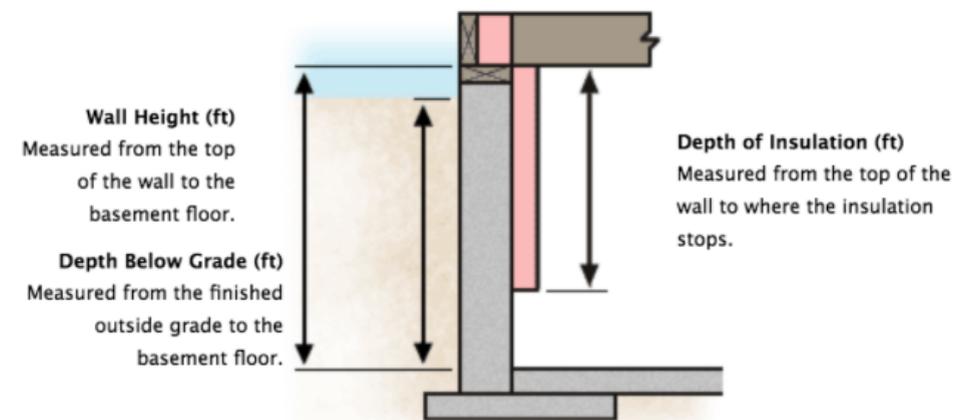
Please select:

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

Component:	<input type="text" value="Basement 1"/>
Gross Area:	<input type="text" value="0"/>
Orientation:	<input type="text" value="Unspecified"/>
Cavity R-Value:	<input type="text" value="0"/>
Continuous R-Value:	<input type="text" value="0"/>
Wall Height (ft):	<input type="text" value="0"/>
Depth Below Grade:	<input type="text" value="0"/>
Depth of Insulation (ft):	<input type="text" value="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:

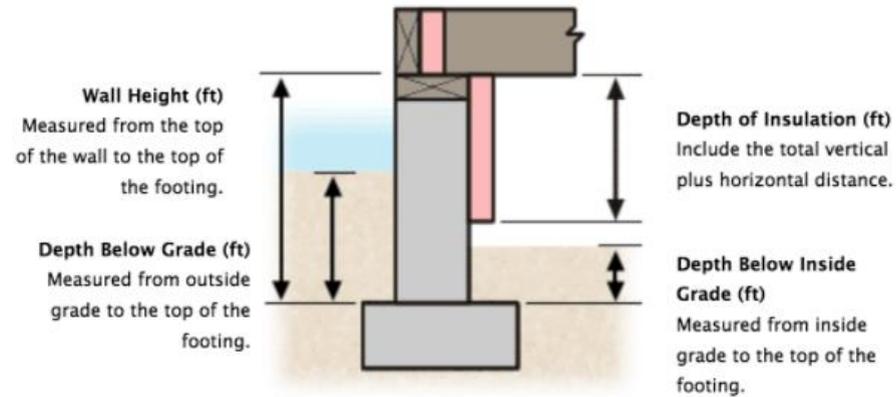
Wall Height (ft):

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

Mechanical Tab – Performance Alternative Only



victor.salcido@pnnl.gov | Help | Sign off | ⚙️

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

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

Project Envelope **Mechanical** Compliance

Check Compliance Save Report

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

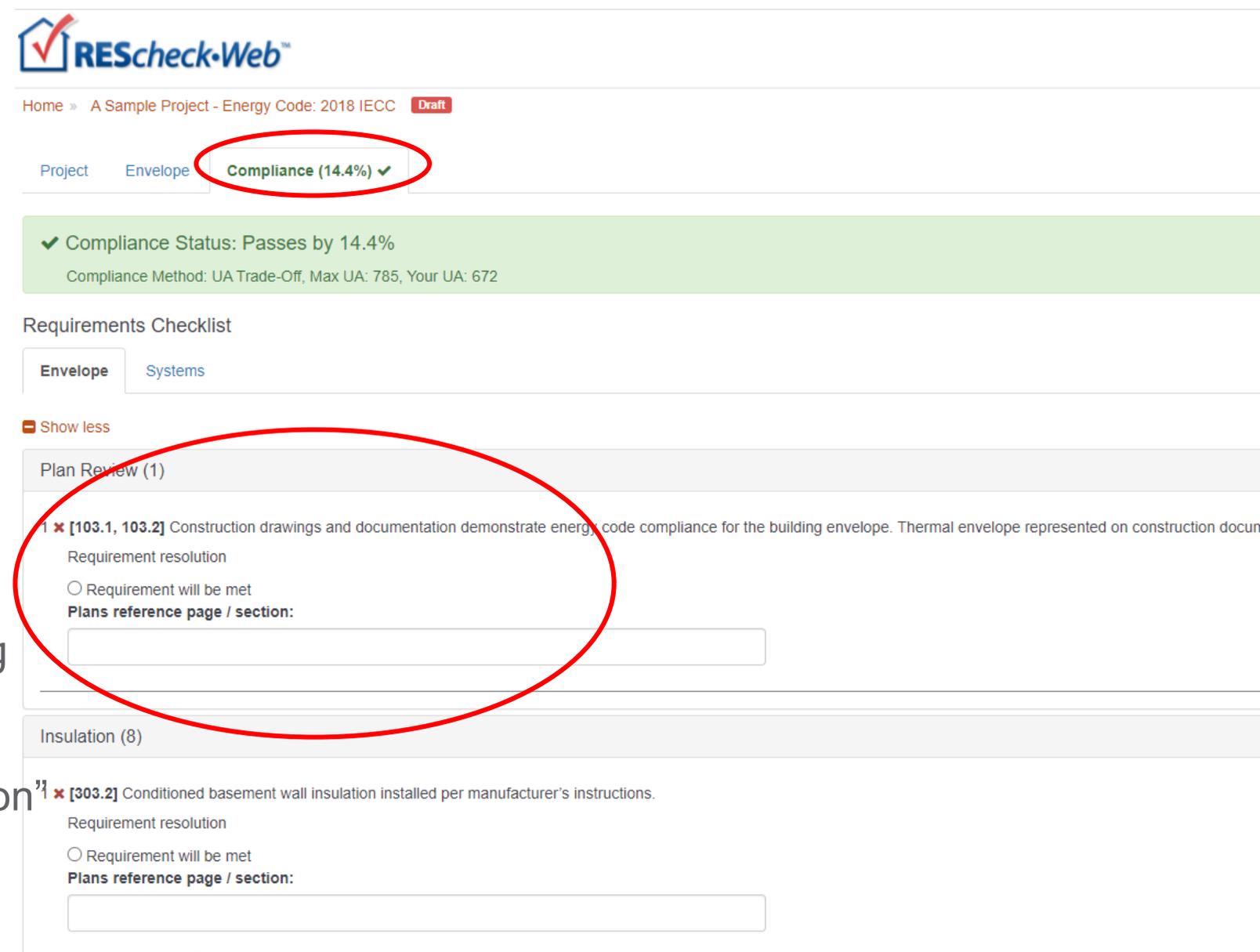
- Furnace/Boiler: AFUE
- Heat pump heating: HSPF
- Heat pump cooling/AC: SEER

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 ✖ [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 ✖ [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

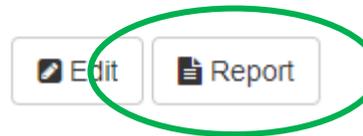
CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR ^b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
1	0.50	0.75	0.035	0.084	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.060	0.098	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

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](#) | 



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 99352

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

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

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

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 Co Orientation: Unsp Wall height: 8.0' Depth below grad Insulation depth:	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 <i>Envelope Assemblies</i> 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 <i>Envelope Assemblies</i> 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:

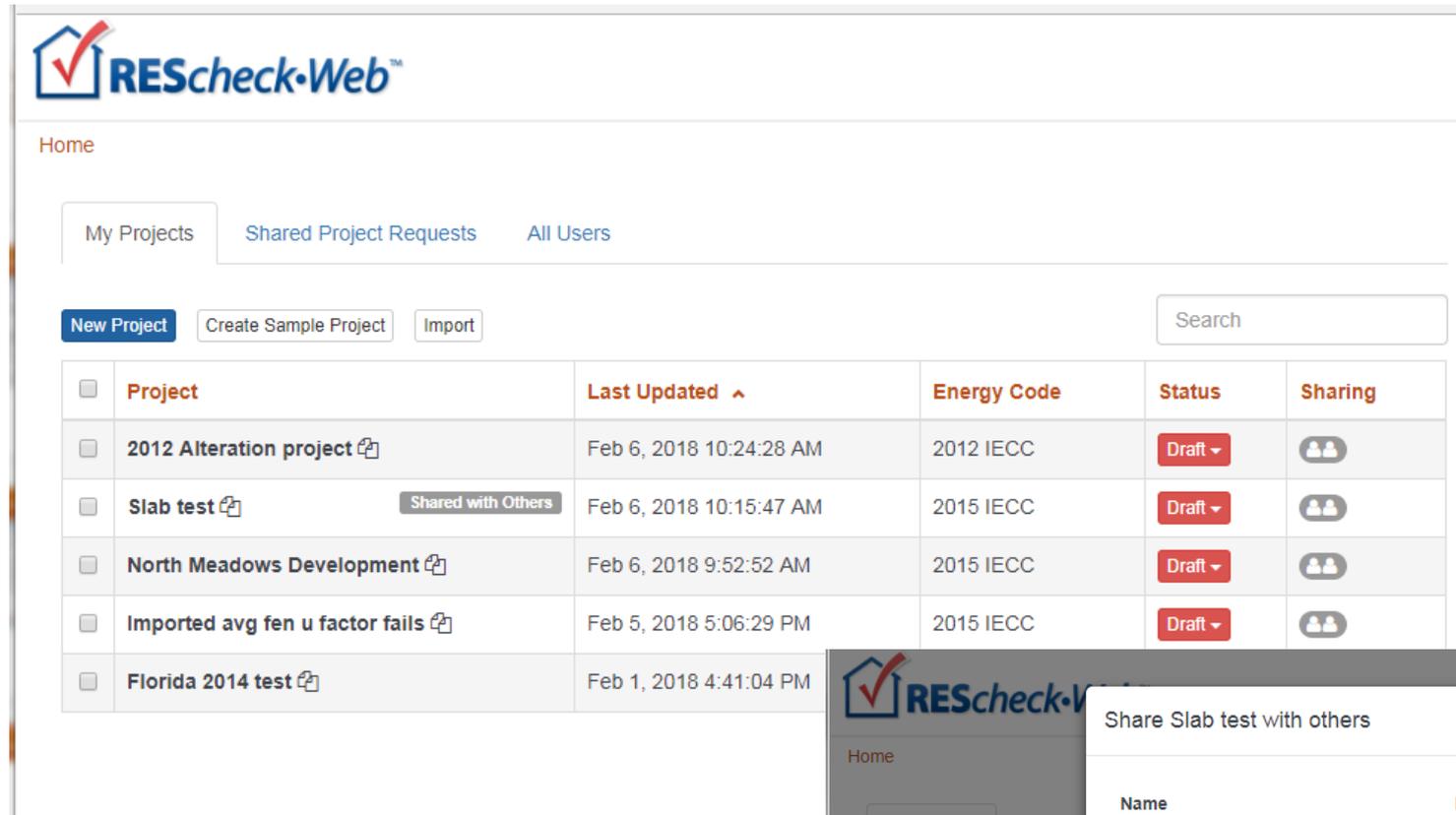
Panel Certificate



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



REScheck-Web™

Home

My Projects Shared Project Requests All Users

New Project Create Sample Project Import Search

Project	Last Updated	Energy Code	Status	Sharing
2012 Alteration project	Feb 6, 2018 10:24:28 AM	2012 IECC	Draft	[Sharing Icon]
Slab test Shared with Others	Feb 6, 2018 10:15:47 AM	2015 IECC	Draft	[Sharing Icon]
North Meadows Development	Feb 6, 2018 9:52:52 AM	2015 IECC	Draft	[Sharing Icon]
Imported avg fen u factor fails	Feb 5, 2018 5:06:29 PM	2015 IECC	Draft	[Sharing Icon]
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

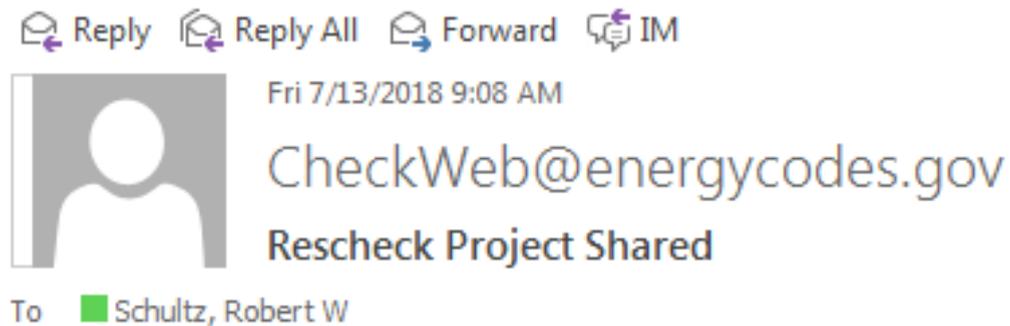
My Projects Shared Project Requests 1

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		Accept Ignore

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

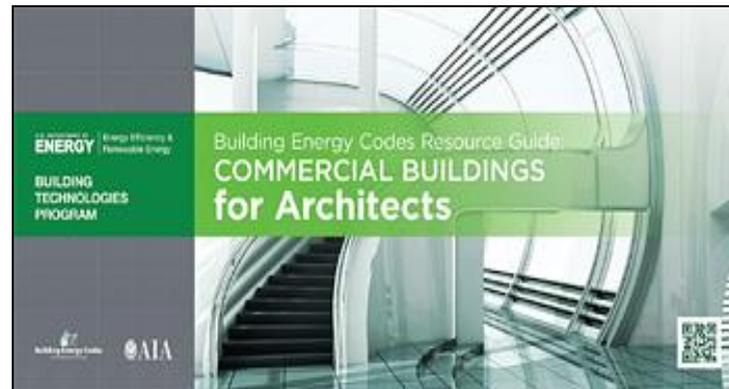
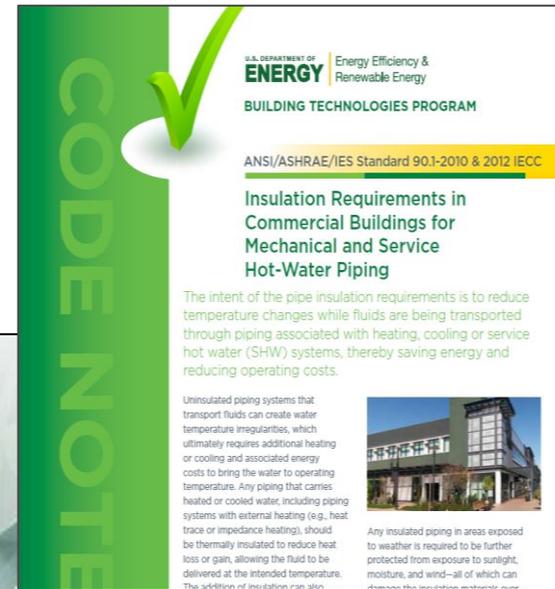
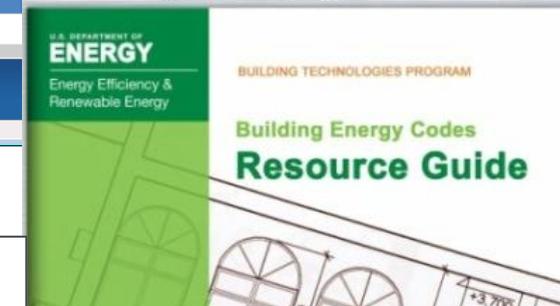
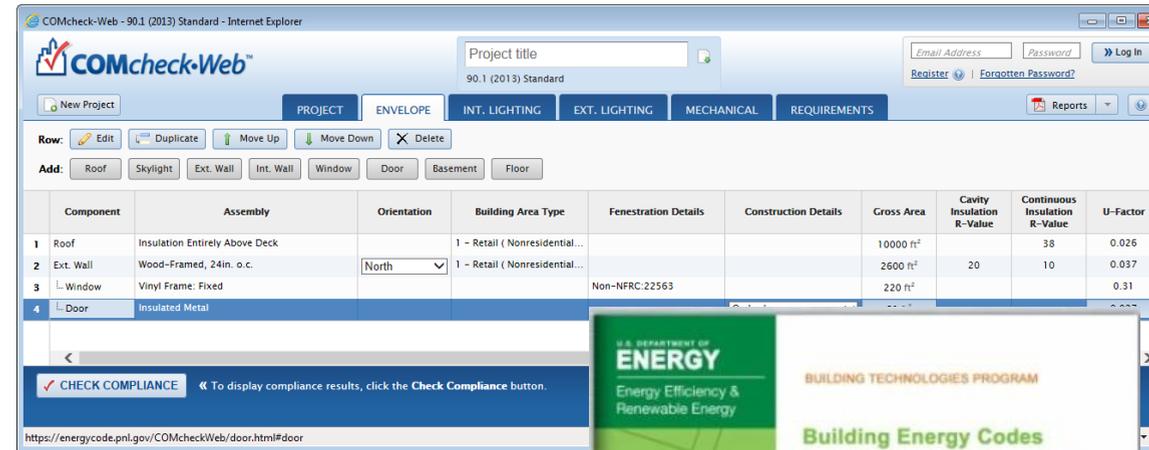
New Project Create Sample Project Import Search

<input type="checkbox"/>	Project	Last Updated ^	Energy Code	Status	Sharing
<input type="checkbox"/>	A Sample Project  Shared with Me	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  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 ▾	

« < 1 2 3 ... 8 > »

U.S. DOE: BECP Resources

- Compliance software
 - Technical support
 - Code notes
 - Publications
 - Resource guides
 - Training materials
- www.energycodes.gov



ENERGY CODES | 2022

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

July 19-21 | Virtual

U.S. DEPARTMENT OF
ENERGY

Office of ENERGY EFFICIENCY
& RENEWABLE 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
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BECP help desk
<http://www.energycodes.gov/resource-center/help-desk>



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Northwest**
NATIONAL LABORATORY

Thank you

