

ALIGNING HERS INDICES FOR ENERGY CODE ADOPTION

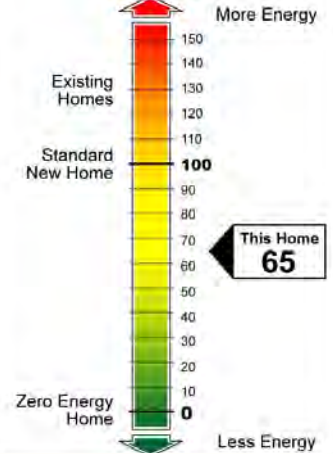
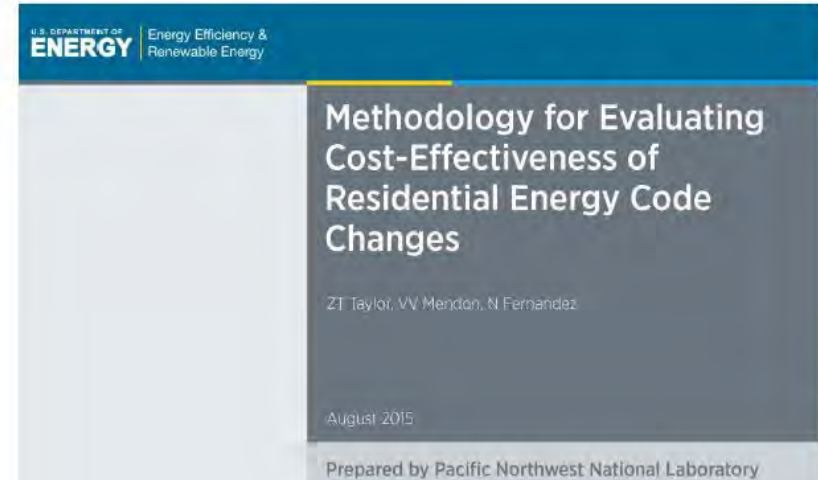
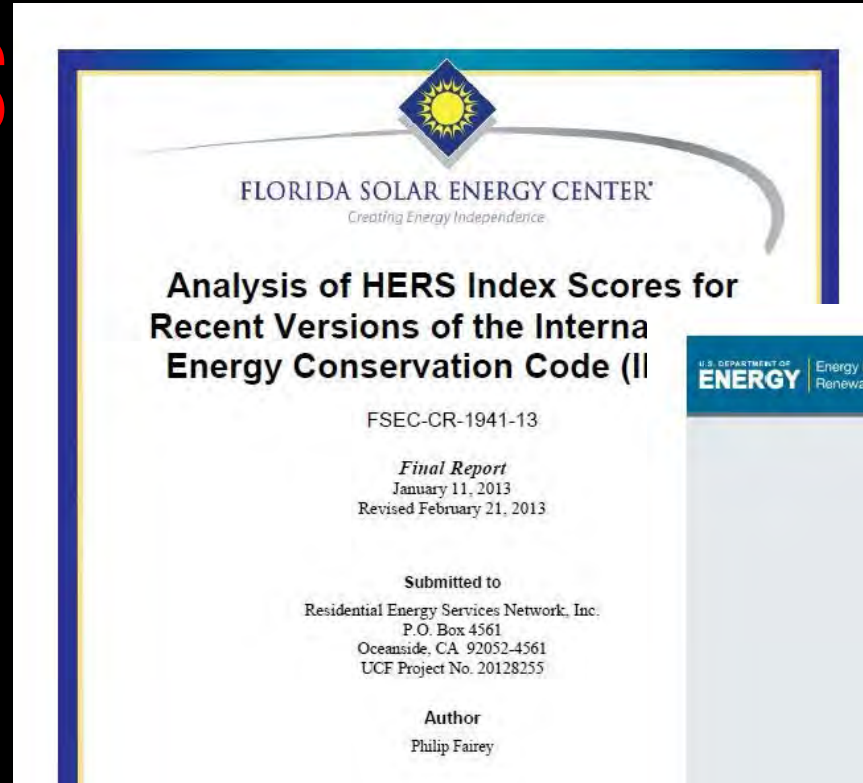
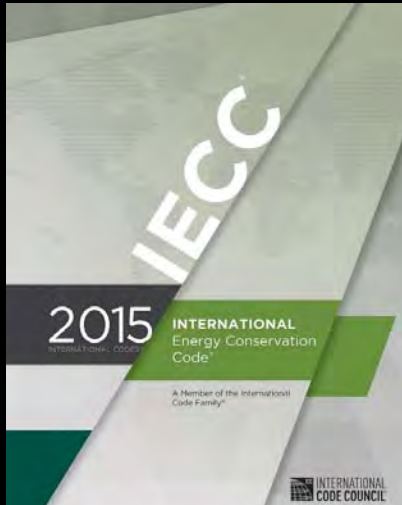
Jim Meyers

**Southwest Energy
Efficiency Project**



HERS/ERI SCORES IN STATE AND LOCAL ADOPTIONS

- Background
- Studies
- ERI



WORKING IN STATES

- State
- Local
- Regional



WORKING IN STATES, MUNICIPALITIES

- Three states:
- NM
- AZ
- UT



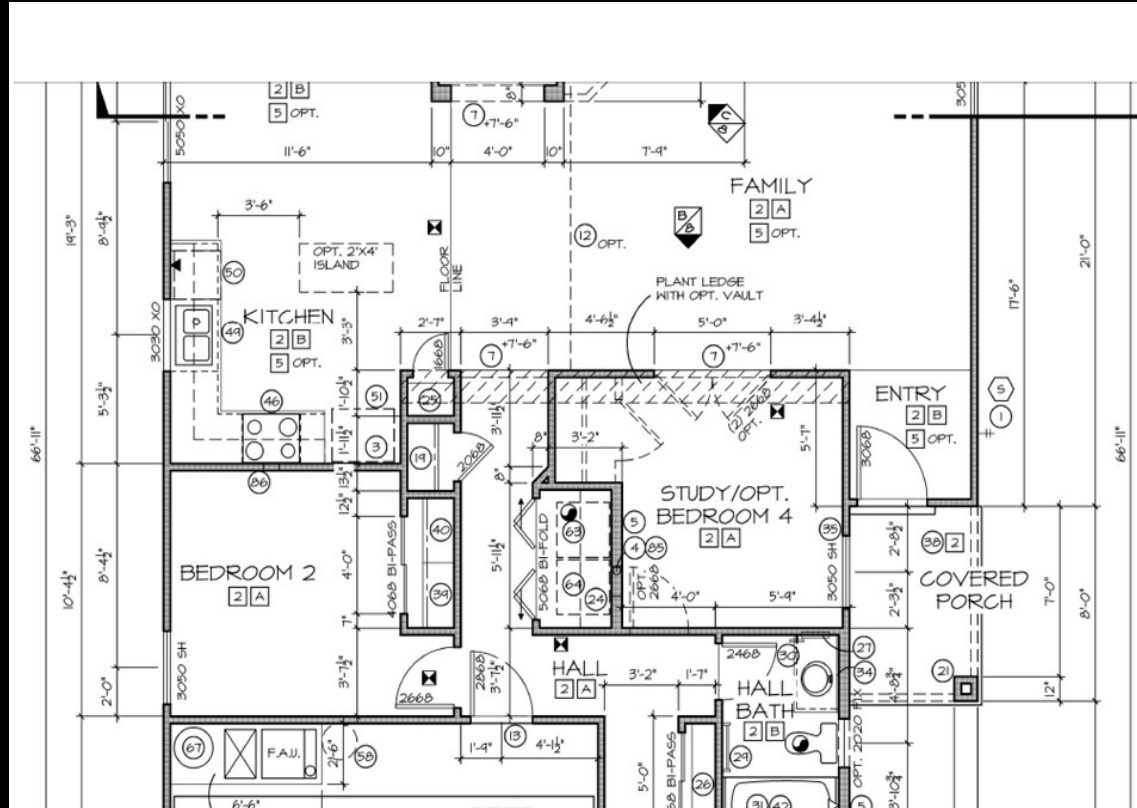
STATES — NEW MEXICO

- *Analyze residential buildings*
- *Work with energy office*
- *Stakeholders*
- *Process and outcome*



STATES — NEW MEXICO

- Analyze residential buildings
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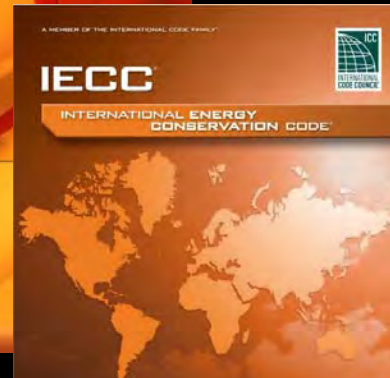
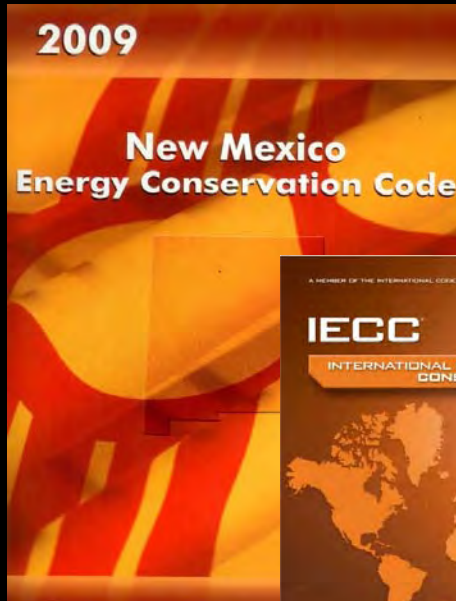


STATES — NEW MEXICO

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Wikipedia



SWEEP Models

Name

- 2006 IECC Code CZ3
- 2006 IECC Code CZ4
- 2006 IECC Model 3306A
- 2009 IECC Code CZ3
- 2009 IECC Code CZ4
- 4026 Roof CZ3
- 4026 Roof CZ4
- 4041 C Lighting CZ3
- 4041 C Lighting CZ4
- 40211 Table B1 CZ3
- 40211 Table B2 footnote CZ4
- 40211-40213 Table A1 CZ3
- 40211-40213 Table A1 CZ4
- 40211-40213 Table A2 13p5 CZ3
- 40211-40213 Table A2 13p5 CZ4
- 40211-40213 Table A2 CZ3
- 40211-40213 Table A2 CZ4
- 40243 Kiva CZ3
- 40243 Kiva CZ4
- 40321 Duct Insulation CZ3
- 40321 Duct Insulation CZ4

STATES — ARIZONA

- *Analyze residential buildings*
- *Work with utilities*
- *Use of FS&C Report*
- *Stakeholders*
- *Process and outcome*



STATES — ARIZONA

- Analyze residential buildings

- Work with utilities

- Use of TSEC Report

- Stakeholders

- Process and outcome

1 Be it enacted by the Legislature of the State of Arizona:

2 Section 1. Title 9, chapter 7, article 1, Arizona Revised Statutes, is
3 amended by adding section 9-808, to read:

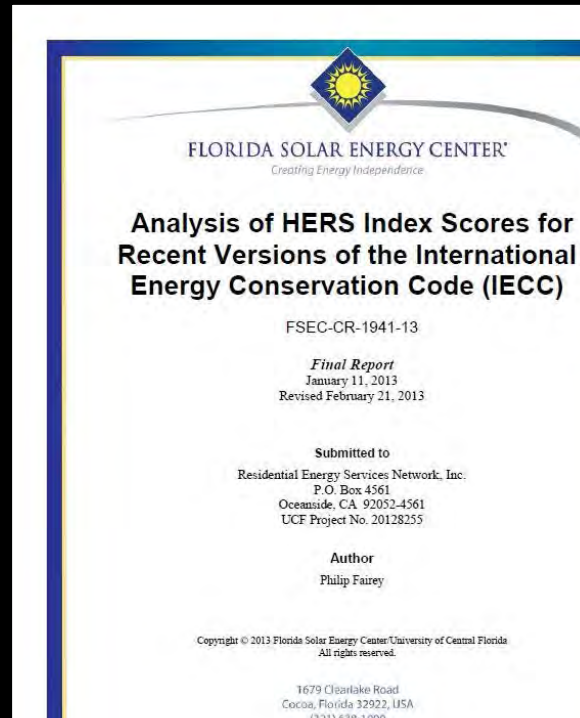
4 9-808. Affordable housing and residential energy conservation
5 or efficiency; state preemption; conformation;
6 definitions

7 A. AFFORDABLE HOUSING AND THE REGULATION OF RESIDENTIAL ENERGY
8 CONSUMPTION AND ENERGY EFFICIENCY IS OF STATEWIDE CONCERN. AFFORDABLE
9 HOUSING AND THE REGULATION OF RESIDENTIAL ENERGY CONSUMPTION AND ENERGY
10 EFFICIENCY PURSUANT TO THIS SECTION IS NOT SUBJECT TO FURTHER REGULATION BY A
11 COUNTY, CITY, TOWN OR OTHER POLITICAL SUBDIVISION OF THIS STATE.

12 B. A RESIDENTIAL BUILDING THAT ACHIEVES A HOME ENERGY RATING SYSTEM
13 INDEX SCORE OF SEVENTY-THREE OR LOWER IN ARIZONA CLIMATE ZONES TWO AND THREE,
14 SEVENTY-SIX OR LOWER IN ARIZONA CLIMATE ZONE FOUR OR EIGHTY OR LOWER IN
15 ARIZONA CLIMATE ZONE FIVE THAT IS CONFIRMED IN WRITING BY A HOME ENERGY
16 RATING PROVIDER SHALL BE DEEMED TO COMPLY WITH ANY, OR PART OF ANY, BUILDING
17 ENERGY CODE, ORDINANCE, STIPULATION OR OTHER LEGAL REQUIREMENT RELATING TO
18 ENERGY CONSERVATION OR ENERGY EFFICIENCY ADOPTED OR ENFORCED BY A CITY OR
19 TOWN. THE WRITTEN CONFIRMATION OF THE HOME ENERGY RATING SYSTEM INDEX SCORE
20 SHALL BE PROVIDED TO THE CITY OR TOWN IN WHICH THE RESIDENTIAL BUILDING IS
21 LOCATED. A HOME BUILDER MAY VOLUNTARILY DESIGN AND CONSTRUCT A RESIDENTIAL

STATES — ARIZONA

- Analyze residential buildings
- Work with utilities
- Use of FSEC Report
- Stakeholders
- Process and outcome



ENVIRONMENTS FOR <i>Living</i>	
Builder:	I - Tucson
Contact Name:	D: n
Phone Number:	502
Report Date:	03/13/12
RemRate Version:	12.97
Program Level:	ENERGY STAR
Subdivision/Plan(s):	Estancia Del Cora
ENVELOPE	
Basement walls	
Crawlspace walls	
Slab	
Framed floors - over crawl	
Framed floors - over ambient/cantilevers	
Framed floors - over garage	
Exterior walls - 1st floor	R-
Exterior walls - 2nd floor	R-
Exterior walls - Continuous Sheathing	
Garage wall	
Kneewalls	
Common walls	
Advanced Framing	
Window Frame type	
Window Glass type	
U-Value	
SHGC	
Door Properties - Front	
Door Properties - Other	
Door Properties - Garage	
Ceiling 1	
Ceiling 2	
Ceiling 3	
Radiant Barrier	

STATES — ARIZONA

- A
- V
- U
- S
- P



City of Phoenix

PLANNING & DEVELOPMENT DEPARTMENT

BUILDING CONSTRUCTION CODE CHANGE PROPOSAL

Proposed Amendments to 2012 International Energy Conservation Code Section R401.2.1

Submitted by: Connie Wilhelm, Home Builders Association of Central Arizona

R401.2.1 Alternative approach for compliance. A Home Energy Rating System (“HERS”) Index of 70 or less, confirmed in writing by a Residential Energy Services Network certified energy rater may be used in lieu of the energy conservation requirements of Section R401.2 above. Compliance may be demonstrated by the Mortgage Industry National Home Energy Rating Systems or the Residential Energy Services Network.

Submittal to the
ENERGY

Energy Efficiency &
Renewable Energy

BUILDING TECHNOLOGIES PROGRAM

Arizona
Energy
and Cost
Savings
for New
Single- and
Multifamily
Homes:

2009 and 2012 IECC
as Compared to the
2006 IECC



2012 International Energy
Conservation Code

STATES — UTAH

- Analyze residential buildings using DOE Methodology
- Stakeholders
- Legislative action
- Process and outcome



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H.B. 202

58 issued by the International Code Council, with the alternatives or amendments approved by the
59 Utah Division of Forestry, as a construction code that may be adopted by a local compliance
60 agency by local ordinance or other similar action as a local amendment to the codes listed in
61 this section.

62 Section 2. Section 15A-3-203 is amended to read:

63 **15A-3-203. Amendments to Chapters 6 through 15 of IRC.**

64 [(1) IRC, Sections R612.2 through R612.4.2, are deleted:]

65 [(2) IRC, Chapter 11, is deleted and replaced with Chapter 11 of the 2006 International
66 Residential Code and Chapter 4 of the 2006 International Energy Conservation Code:]

67 (1) In IRC, Section N1101.8 (R103.2), all words after the words "herein governed." are
68 deleted and replaced with the following: "Construction documents include all documentation
69 required to be submitted in order to issue a building permit."

70 (2) In IRC, Section N1101.14 (R303.3), all wording after the first sentence is deleted.

71 (3) In IRC, Table N1102.1.1 (R402.1.1) and Table N1102.1.3 (R402.1.3), the rows for
72 "climate zone 3", "climate zone 5 and Marine 4", and "climate zone 6" are deleted and replaced
73 and a new footnote j is added as follows:

REM/Rate™

REM/Design™

TABLE N1102.1.1 (R402.1.1)

INSULATION AND PENETRATION REQUIREMENTS BY COMPONENT*

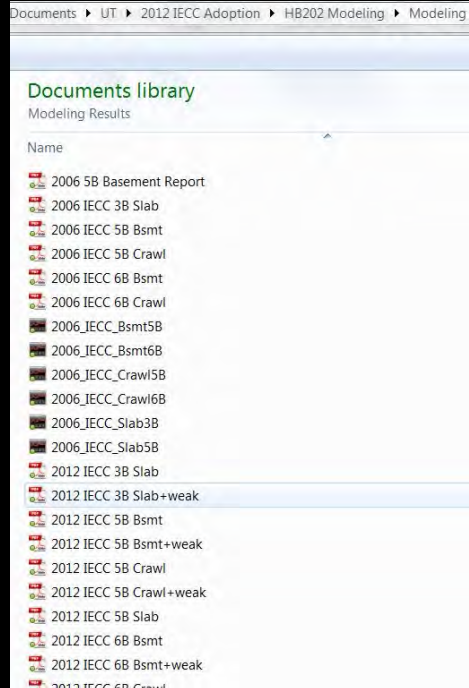
CLIMATE ZONE	PENETRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED PENETRATION SHGC ^{bc}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ^{d1}	FLOOR R-VALUE	BASEMENT ^e WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^e WALL R-VALUE
3	0.65	0.65	0.40	30	15	5	19	0	0	5/13
5 and	0.35	0.60	NR	38	19 or 13 +	13	30 ^f	10/13	10, 2 ft	10/13

STATES — UTAH

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QUICK ANALYSIS

Building Name: UT 12 IECC basemt
Owner's Name: Utah Clean Energy
Property: CZ 5B
Address: Salt Lake, UT



Energy Savings Analysis of HB 202 as compared to 2006 IECC

An Analysis Prepared for Utah Clean Energy
by Southwest Energy Efficiency Project (SWEET)

March 1, 2013

Summary

SWEET performed an energy savings analysis of the proposed residential energy code changes in House Bill 202 (HB 202). The changes in HB 202 were made to the 2012 International Energy Conservation Code (IECC), and the energy savings analysis was performed against the current residential energy code in Utah, the 2006 IECC.

SWEET followed the methodology for analyzing energy savings using the Pacific Northwest National Laboratory's (PNNL) report *Methodology for Evaluating Cost-Effectiveness of Residential Energy Code Changes*, April 2012 (PNNL-21294)¹. The U.S. Department of Energy's Building Energy Codes Program (BECP) developed and established this methodology through industry comments and input as published through the Federal Register.

SWEET applied the DOE methodology for this effort and modeled the single family criteria but did not estimate energy savings for multifamily structures 3 stories or less as the PNNL methodology includes in the report. This analysis applies to typical single family detached construction.

The analysis shows modifications to the baseline 2012 IECC, included in HB 202, will save energy over the current statewide residential energy code the 2006 IECC. Savings were achieved because of improved air infiltration and duct leakage rates.

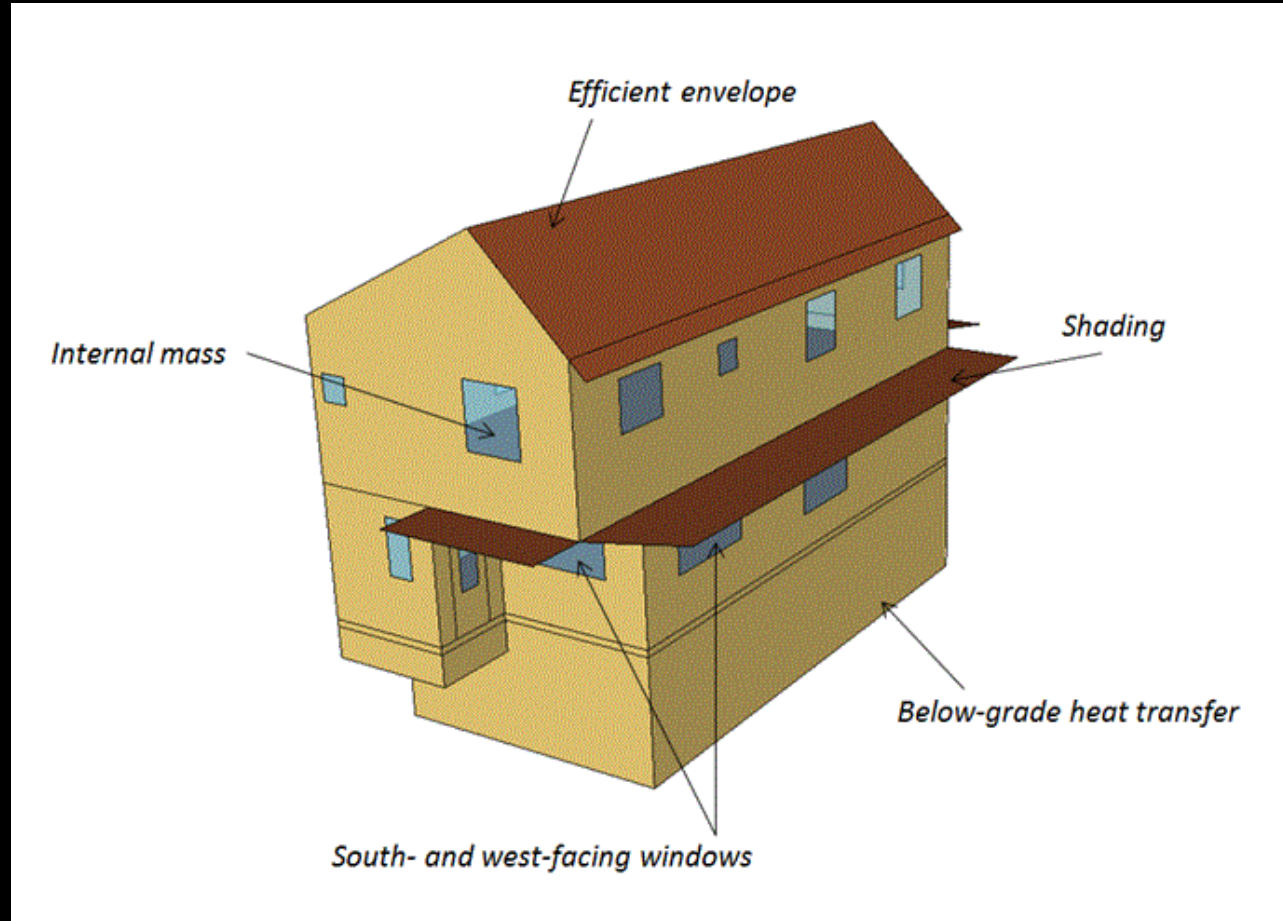
HB 202 Improvements to the 2006 IECC

HB 202 uses the 2012 IECC as the foundation for the development of the new Utah residential energy code provisions. The 2012 IECC has changed since the 2006 IECC was released; in appearance, prescriptive compliance path requirements and also performance path requirements. The 2012 IECC as released by the International Code Council (ICC) has made changes in most if not all prescriptive requirements within the Insulation and Fenestration Component table. HB 202 modifies the 2012 IECC to a configuration that could be considered a hybrid 2006 IECC with 2012 IECC provisions.

- Climate zone 3, which includes the communities of St. George and Santa Clara, will see a change in the above grade wall to an R-15

WHAT WOULD YOU DO

- Plans
- Method
- Climate Zones
- Energy Code
- DOE Methodology



THANKS

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- Twitter: [@energymeyers](https://twitter.com/energymeyers)
- www.swenergy.org

