

## AGENDA

### ARCHITECTURAL ADVISORY COMMITTEE MECHANICAL ADVISORY COMMITTEE JOINT MEETING

Tuesday July 16, 2013 9:00 AM

**Sandy City Hall, 10000 Centennial Pkwy Sandy, UT**

Third Floor Rm 341

*This agenda is subject to change up to 24 hours prior to the meeting.*

#### **ADMINISTRATIVE BUSINESS:**

Sign attendance sheet

1. Swear in new committee members
2. Elect a chairman and vice chairman
3. Approval of minutes from the June 20, 2012 Unified Code Analysis Council Architectural Advisory Committee joint meeting and the July 10, 2012 joint meeting

#### **DISCUSSION ITEMS**

4. Review request from Kevin Emerson on the residential energy code

#### **INFO ITEMS**

- a. IBC Amendment Status Log

Next Scheduled Meeting: as needed

If you do not plan on attending this meeting, please call Sharon at 530-6163 or email at [ssmalley@utah.gov](mailto:ssmalley@utah.gov) or [dansjones@utah.gov](mailto:dansjones@utah.gov).



**In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) during this meeting should notify Dave Taylor, ADA Coordinator, at least three working days prior to the meeting. Division of Occupational and Professional Licensing, 160 East 300 South, Salt Lake City UT 84115, Phone 530-6628 or toll-free in Utah only 866-275-3675.**



Sharon Smalley &lt;ssmalley@utah.gov&gt;

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## Comments to UBCC regarding REScheck changes required in HB 202 and request for meeting

1 message

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**Kevin Emerson** <kevin@utahcleanenergy.org>

Thu, Jun 13, 2013 at 10:06 AM

To: "Sharon Smalley (ssmalley@utah.gov)" &lt;ssmalley@utah.gov&gt;, Justin Naser &lt;JustinN@arwengineers.com&gt;, Brad Wilson &lt;bradwilson@le.utah.gov&gt;

Cc: Trent Hunt &lt;trenth@mp-int.com&gt;, Ron McArthur &lt;ronm@mcarthurhomes.com&gt;, "Scott Marsell (smarsell@sandy.utah.gov)" &lt;smarsell@sandy.utah.gov&gt;, Brent Ursenbach &lt;bursenbach@slco.org&gt;, "Dan S. Jones (dansjones@utah.gov)" &lt;dansjones@utah.gov&gt;

Dear Ms. Smalley, Mr. Naser, and Rep. Wilson,

These comments are being submitted on behalf of myself and Brent Ursenbach with regard to the contingent effective date of House Bill 202, Energy Conservation Code Amendments (HB202), passed in the 2013 Utah Legislative Session. In the enclosed document, we outline a proposal that **describes how the current 2006 IECC version of REScheck can be used to verify compliance to the requirements of House Bill 202.**

We respectfully request the opportunity to present this proposal to the Uniform Building Code Commission and request that a joint meeting of the UBCC and its Architectural and Mechanical Advisory Committees be scheduled at the earliest convenience, in order to present this proposal and answer questions from the Commission and its Advisory Committees.

Thank you for your consideration of these comments.

Regards,

Kevin

Kevin Emerson, MSc

Senior Policy &amp; Regulatory Associate | Utah Clean Energy

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**Comments to UBCC regarding REScheck changes required in House Bill 202\_FINAL.pdf**  
464K

## Comments regarding REScheck software to verify compliance with House Bill 202, Energy Conservation Code Amendments

**Date:** June 12, 2013  
**To:** Sharon Smalley, DOPL Secretary  
Justin Naser, Uniform Building Code Commission Chair  
Representative Brad Wilson, Utah Legislature  
**From:** Kevin Emerson, Utah Clean Energy  
Brent Ursenbach, Salt Lake County Planning and Development

These comments are being submitted with regard to the contingent effective date of House Bill 202, Energy Conservation Code Amendments (HB202), passed in the 2013 Utah Legislative Session. Below, we outline a proposal that **describes how the current 2006 International Energy Conservation Code (IECC) version of REScheck can be used to verify compliance to the requirements of House Bill 202.**

We respectfully request the opportunity to present this proposal to the Uniform Building Code Commission and request that a joint meeting of the UBCC and its Architectural and Mechanical Advisory Committees be scheduled at the earliest convenience, in order to present this proposal and answer questions from the Commission and its Advisory Committees. Thank you for your consideration of these comments.

### BACKGROUND

House Bill 202, which was passed during the 2013 Legislative Session, adopted a hybrid version of the 2006 and 2012 IECC in Utah. The effective date of HB202 is contingent on the UBCC submitting a statement in writing, that the U.S. Department of Energy has adopted a version of REScheck that can be used to verify compliance with the provisions in House Bill 202. See the following excerpt from the enrolled version of HB202:

286 Section 5. **Contingent effective date.**  
287 *This bill takes effect on the first day of the month following the month in which the*  
288 *Uniform Building Code Commission certifies in writing to the Business and Labor Interim*  
289 *Committee that the United States Department of Energy has adopted a version of the*  
290 *REScheck software that can be used to verify compliance to the requirements of this bill.*

In March 2013, Utah Clean Energy and other parties initiated a request to the U.S. Department of Energy (DOE) to create a modified version of its REScheck software to comply with the requirements of HB202. In early June 2013, several interested parties investigated alternative methods of demonstrating how the already-existing 2006 IECC version of REScheck could be used comply with the requirements of HB202, thus making a new Utah-specific version of the software unnecessary.

### ENERGY CODE COMPLIANCE USING RESCHECK

REScheck is a free software tool developed by the DOE, used to demonstrate compliance with the IECC. Demonstrating compliance through REScheck is based on calculating the heat loss (represented as *U-factor multiplied by area* to provide an overall "UA" of the building envelope) associated with each building assembly

of the home being modeled.<sup>1</sup> If the total heat loss (UA) through the building envelope is less than or equal to the prescriptive code requirements, the building complies with the UA trade-off option allowed by the code.

REScheck software confirms compliance with *only* the *Fenestration and Insulation Requirements* per assembly type as found in Table R402.1.1 of the 2012 IECC (or Table 402.1.1 in the 2006 IECC). REScheck *is not used* to demonstrate compliance with other efficiency measures, including lighting, duct tightness, air leakage, and other provisions of the IECC. The Total UA Alternative in the 2012 IECC allows a UT trade-off method (using the REScheck software) to be used to show compliance with Table R402.1.1.

#### UTAH'S MODIFICATIONS TO THE 2012 IECC (HB202)

HB 202 uses the 2012 IECC as the foundation for the development of the new Utah residential energy code provisions. HB 202 modifies the 2012 IECC to a configuration that can be considered a 2006/2012 IECC hybrid.

In the "2006/2012 IECC hybrid" the prescriptive insulation and fenestration requirements are *nearly identical to the prescriptive table found in the 2006 IECC*. Table R402.1.1 (shown below) contains the prescriptive requirements of the 2006/2012 IECC hybrid. The single change from the 2006 IECC relevant for REScheck compliance purposes is for wood frame wall R-value in Climate Zone 3 (CZ3), and is highlighted in the table below. In the 2006 IECC, the wood frame wall R-value was 13, and in the hybrid IECC it is 15.

**"TABLE N1102.1.1 (R402.1.1)**

**INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT<sup>a</sup>**

<u>CLIMATE ZONE</u>	<u>FENESTRATION U-FACTOR<sup>b</sup></u>	<u>SKYLIGHT<sup>b</sup> U-FACTOR</u>	<u>GLAZED FENESTRATION SHGC<sup>b,e</sup></u>	<u>CEILING R-VALUE</u>	<u>WOOD FRAME WALL R-VALUE</u>	<u>MASS WALL R-VALUE<sup>i,j</sup></u>	<u>FLOOR R-VALUE</u>	<u>BASEMENT<sup>c</sup> WALL R-VALUE</u>	<u>SLAB<sup>d</sup> R-VALUE &amp; DEPTH</u>	<u>CRAWL SPACE<sup>c</sup> WALL R-VALUE</u>
<u>3</u>	<u>0.65</u>	<u>0.65</u>	<u>0.40</u>	<u>30</u>	<u>15</u>	<u>5</u>	<u>19</u>	<u>0</u>	<u>0</u>	<u>5/13</u>
<u>5 and Marine 4</u>	<u>0.35</u>	<u>0.60</u>	<u>NR</u>	<u>38</u>	<u>19 or 13 + 5h</u>	<u>13</u>	<u>30<sup>g</sup></u>	<u>10/13</u>	<u>10, 2 ft</u>	<u>10/13</u>
<u>6</u>	<u>0.35</u>	<u>0.60</u>	<u>NR</u>	<u>49</u>	<u>19 or 13 + 5h</u>	<u>15</u>	<u>30<sup>g</sup></u>	<u>10/13</u>	<u>10, 4 ft</u>	<u>10/13</u>

*<sup>i</sup> Log walls complying with ICC400 and with a minimum average wall thickness of 5" or greater shall be permitted in Zones 5-8 when overall window glazing is .31 U-factor or lower, minimum heating equipment efficiency is 90 AFUE (gas) or 84 AFUE (oil), and all other component requirements are met."*

<sup>1</sup> "Envelope heat loss" is calculated by multiplying the UA by the temperature difference. "Total heat loss" includes infiltration and duct losses, accounted for in the mandatory requirements. REScheck doesn't of course look at temperature differences, other than climate zone information for requirements. The UA remains the same in all climate zones.

## **2006 IECC VERSION OF RESCHECK CAN BE USED TO MEET THE REQUIREMENTS OF HOUSE BILL 202**

As REScheck verifies compliance with Table R402.1.1 as adopted in HB202, and as this table is *identical* to the Table 402.1.1 in the 2006 IECC (as used by the 2006 IECC version of REScheck for Climate Zones 5 and 6), **the 2006 IECC version of the REScheck software can be used to verify compliance to the requirements of HB202 in the majority of the state**<sup>2</sup>. Therefore, the requirement for a version of the REScheck software that can verify compliance to the requirements of HB 202 is already available and ready to be used in Climate Zones 5 and 6.

As noted above, the only difference between the prescriptive tables in the 2006/2012 IECC hybrid and the 2006 IECC is the CZ3 wood frame wall requirement of R-15 in the 2006/2012 IECC hybrid (compared to R-13 in the 2006 IECC). If a home in CZ3 is built using Table R402.1.1 found in the 2006/2012 IECC hybrid adopted in HB 202, and uses R-15 insulation in wood frame walls, it will automatically comply with Utah's hybrid energy code.

However, when a home in CZ3 is modeled using R13 as the wood frame wall R-value (using the Total UA Alternative), the 2006 IECC version of REScheck doesn't recognize that the 2006/2012 IECC hybrid requires the wood framed walls to be R15. Therefore, the 2006 IECC version of REScheck won't accurately reflect the new minimum wood frame wall requirement (R15) versus the 2006 IECC requirement (R13).

**As a solution to this single inconsistency, we recommend that the UBCC develop and publish simple guidance for design professionals, contractors, and code officials to use to demonstrate how homes built in CZ3 with an R-value of less than R15 in wood frame walls can comply with HB202, as described below.** Utah's eleven ICC Energy Code Ambassadors, strategically located in various jurisdictions across Utah, can easily distribute guidance to design professionals, contractors and code officials across the state.

When a home demonstrates compliance with the 2006/2012 IECC hybrid using the 2006 IECC version of REScheck, the home should show **"2.1% Better than Code,"** in the compliance documentation provided by the REScheck software. This 2.1% above code value reflects the improved energy performance of a home with R15 in the walls (2006/2012 IECC hybrid) as compared to R13 (2006 IECC). **We recommend that this value should be used as a proxy to verify compliance with the requirements in HB202** when a home is modeled using efficiency values that are lower than the prescriptive requirements in R402.1.1, e.g., wood frame wall insulation value lower than R15 in CZ3. Two examples of how to use 2006 REScheck software to confirm compliance with Utah's hybrid code are provided below:

Example 1: When a new home in CZ3 is modeled with R13 walls, the home would need to include increased energy efficiency in other measures found in Table R402.1.1, or increased HVAC efficiency, sufficient to show the home to be 2.1% better than code.

Example 2: When a new home in CZ3 is modeled with R15 walls and lower efficiency measures elsewhere in the home, the REScheck report would need to show that the home is at least 2.1% better than code to account for the trade-off value of the new provisions of HB202.

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<sup>2</sup> In 2012, 87 percent of the total housing permits in Utah were in Climate Zones 5 and 6. Source: BEBER Utah Construction Information Database, URL: <http://bit.ly/11fvi4g>

## CONCLUSION

For the vast majority of the homes built in Utah, the DOE's 2006 IECC version of REScheck already serves as "a version of the REScheck software that can be used to verify compliance to the requirements of this bill," as required by House Bill 202. Simple guidance is needed to clarify how to use the 2006 IECC version of REScheck to verify compliance with HB202 for homes in CZ3.

We urge the UBCC and its advisory committees to adopt simple guidelines describing how the 2006 IECC version of REScheck can be used to verify compliance with HB202, including how a proxy value of "2.1% better than code" can be used to verify compliance with the requirements in HB 202, when a home is modeled using efficiency values that are lower than the prescriptive requirements in R402.1.1 in CZ3. This guidance should be sufficient to enable the UBCC to certify that 2006 REScheck software can be used to verify compliance with HB202.

This method is effective and much more efficient than waiting for DOE to make modifications to the 2012 IECC version of REScheck, and will allow increased flexibility when future improvements to the provisions in HB202 are considered.

Thank you for your consideration of these comments. Please contact us if you have any questions about the viability of our recommendations.

Sincerely,

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IBC AMENDMENT STATUS LOG  
PENDING

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Section to Amend	Proposed by Agency	Approved/Disapproved by Committee	Commission Appr. Date for Hearing	Published	Public Hearing	Commission Appr. Date Amendment	Effective Date
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No new proposed amendments

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July 2, 2013

Mr. Justin Naser, Uniform Building Code Chair  
Uniform Building Code Commission  
160 E 300 S  
Salt Lake City Utah, 84111

**RE: Emerson and Ursenbach REScheck proposal**

Dear Mr. Naser,

I have read the June 12, 2013 commentary on REScheck applicability that was sent to your attention and wish to encourage you and the Board to accept the provisions of the proposal. I have worked in codes and standards since 1986 and have provided industry education on REScheck since its inception and I believe that the methodology for compliance suggested in the commentary is sound.

If you should have any questions on the technical application of REScheck for use in compliance to the newly legislated Utah Energy Code (HB 202), please do not hesitate to contact me.

Respectfully yours,

A handwritten signature in black ink, appearing to read 'Ken Baker', written over a faint, illegible background.

Ken Baker