

## Project BUTLER RESIDENCE

Energy Code: 2015 IECC
Location: Lehi, Utah
Construction Type: Single-family
Project Type: New Construction

Orientation: Bldg. faces 0 deg. from North

Conditioned Floor Area: **9,616 ft2** Glazing Area **12%** 

Climate Zone: 5 (6521 HDD)

Permit Date: Permit Number:

Construction Site: Owner/Agent:

LEHI, UTAH



Designer/Contractor:

### Compliance: Passes using UA trade-off

Compliance: 0.7% Better Than Code Maximum UA: 1092 Your UA: 1084

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.

Slab-on-grade tradeoffs are no longer considered in the UA or performance compliance path in REScheck. Each slab-on-grade assembly in the specified climate zone must meet the minimum energy code insulation R-value and depth requirements.

## **Envelope Assemblies**

| Assembly  | Gross Area<br>or<br>Perimeter | Cavity<br>R-Value | Cont.<br>R-Value | Prop.<br>U-Factor | Req.<br>U-Factor | Prop.<br>UA | Req.<br>UA |
|---|-------------------------------|-------------------|------------------|-------------------|------------------|-------------|------------|
| Ceiling: Raised or Energy Truss   | 4,770                         | 0.0               | 38.0             | 0.025             | 0.026            | 119         | 124        |
| Above Floor Wall: Solid Concrete or Masonry<br>Orientation: Unspecified                       | 6,340                         | 19.0              | 0.0              | 0.059             | 0.065            | 297         | 328        |
| Door: Solid Door (under 50% glazing)<br>Orientation: Unspecified                              | 84                            |                   |                  | 0.200             | 0.320            | 17          | 27         |
| Window: Metal Frame<br>Orientation: Unspecified   | 1,214                         |                   |                  | 0.300             | 0.320            | 364         | 388        |
| Basement Walls: Solid Concrete or Masonry<br>Orientation: Unspecified                         | 3,456                         | 13.0              | 0.0              | 0.083             | 0.065            | 287         | 225        |
| Floor: Slab-On-Grade (Heated)<br>Insulation depth: 2.0'<br>Insulation position: No Insulation | 3,670                         |                   | 30.0             | 0.767             | 0.767            | 0           | 0          |

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2015 IECC requirements in REScheck Version: REScheck-Web and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

| Name - Title | Signature | Date |
|--------------|-----------|------|

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## **REScheck Software Version: REScheck-Web**

# **Inspection Checklist**

Energy Code: 2015 IECC

Requirements: 59.0% were addressed directly in the REScheck software

Text in the "Comments/Assumptions" column is provided by the user in the REScheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

| Section<br>#<br>& Req.ID                        | Pre-Inspection/Plan Review   | Plans Verified<br>Value         | Field Verified<br>Value         | Complies?   | Comments/Assumptions     |
|---|--|---------------------------------|---------------------------------|---|--------------------------|
| 103.1,<br>103.2<br>[PR1] <sup>1</sup>           | Construction drawings and documentation demonstrate energy code compliance for the building envelope. Thermal envelope represented on construction documents.  |                                 |                                 | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable |                          |
| 103.1,<br>103.2,<br>403.7<br>[PR3] <sup>1</sup> | Construction drawings and documentation demonstrate energy code compliance for lighting and mechanical systems. Systems serving multiple dwelling units must demonstrate compliance with the IECC Commercial Provisions. |                                 | R                               | □Complies □Does Not □Not Observable □Not Applicable | Requirement will be met. |
| 302.1,<br>403.7<br>[PR2] <sup>2</sup>           | Heating and cooling equipment is sized per ACCA Manual S based on loads calculated per ACCA Manual J or other methods approved by the code official.   | Heating: Btu/hr Cooling: Btu/hr | Heating: Btu/hr Cooling: Btu/hr | □Complies □Does Not □Not Observable □Not Applicable | Requirement will be met. |

Additional Comments/Assumptions:



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| Section<br>#<br>& Req.ID       | Foundation Inspection   | Plans Verified<br>Value | Field Verified<br>Value | Complies?                           | Comments/Assumptions                             |
|--------------------------------|---|-------------------------|-------------------------|-------------------------------------|--|
| 402.1.2<br>[FO1] <sup>1</sup>  | Slab edge insulation R-value.   | R<br>Unheated  Heated   | R<br>Unheated  Heated   | □Complies □Does Not □Not Observable | See the Envelope Assemblies table for values.    |
|                                |   |                         |                         | □Not Observable □Not Applicable     |  |
| 402.1.2<br>[FO3] <sup>1</sup>  | Slab edge insulation<br>depth/length.   | ft                      | ft                      | □Complies<br>□Does Not              | See the Envelope Assemblies table for values.    |
| •                              |   |                         | <br>                    | □Not Observable □Not Applicable     |  |
| 303.2.1<br>[FO11] <sup>2</sup> | A protective covering is installed<br>to protect exposed exterior<br>insulation and extends a |                         |                         | □Complies<br>□Does Not              |  |
| •                              | minimum of 6 in. below grade.   |                         |                         | □Not Observable □Not Applicable     |  |
| 403.9<br>[FO12] <sup>2</sup>   | Snow- and ice-melting system controls installed.  |                         |                         | □Complies<br>□Does Not              | <b>Exception:</b> Requirement is not applicable. |
| •                              |   |                         |                         | □Not Observable □Not Applicable     |  |

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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| Section<br>#<br>& Req.ID                  | Framing / Rough-In Inspection   | Plans Verified<br>Value | Field Verified<br>Value | Complies?                                    | Comments/Assumptions                             |
|---|---|-------------------------|-------------------------|--|--|
| 402.1.1,<br>402.3.4<br>[FR1] <sup>1</sup> | Door U-factor.  | U                       | U                       | □Complies<br>□Does Not                       | See the Envelope Assemblies table for values.    |
| (i)                                       |   |                         | <br>                    | □Not Observable □Not Applicable              |  |
| 402.1.1,<br>402.3.1,                      | Glazing U-factor (area-weighted average).   | U                       | U                       | $\square$ Complies $\square$ Does Not        | See the Envelope Assemblies table for values.    |
| 402.3.3,<br>402.5<br>[FR2] <sup>1</sup>   |   |                         |                         | □Not Observable<br>□Not Applicable           |  |
| 303.1.3<br>[FR4] <sup>1</sup>             | U-factors of fenestration products are determined in accordance with the NFRC test procedure or taken from the default table.                                   |                         |                         | □Complies □Does Not □Not Observable          |  |
| 402.4.1.1                                 | Air barrier and thermal barrier   |                         |                         | ☐Not Applicable ☐Complies                    | <br>   |
| [FR23] <sup>1</sup>                       | installed per manufacturer's instructions.  |                         | 8                       | □Does Not □Not Observable                    | <br>   |
| 402.4.3                                   | Fenestration that is not site built   |                         |                         | □Not Applicable □Complies                    |  |
| [FR20] <sup>1</sup>                       | is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440 or has infiltration rates per NFRC 400 that do not exceed code limits.                           |                         |                         | □ Does Not □ Not Observable □ Not Applicable |  |
| 402.4.5<br>[FR16] <sup>2</sup>            | IC-rated recessed lighting fixtures sealed at housing/interior finish   |                         |                         | □Complies<br>□Does Not                       |  |
|   | and labeled to indicate ≤2.0 cfm<br>leakage at 75 Pa.   |                         |                         | □Not Observable □Not Applicable              |  |
| 403.3.1<br>[FR12] <sup>1</sup>            | Supply and return ducts in attics insulated >= R-8 where duct is >= 3 inches in diameter and >=   |                         |                         | □Complies □Does Not                          | Requirement will be met.                         |
|   | R-6 where < 3 inches. Supply and return ducts in other portions of the building insulated >= R-6 for diameter >= 3 inches and R-4.2 for < 3 inches in diameter. |                         |                         | □Not Observable □Not Applicable              |  |
| 403.3.5<br>[FR15] <sup>3</sup>            | Building cavities are not used as ducts or plenums.   |                         |                         | ☐Complies ☐Does Not                          | Requirement will be met.                         |
| •   |   |                         |                         | □Not Observable □Not Applicable              | 1<br>1<br>1<br>1                                 |
| 403.4<br>[FR17] <sup>2</sup>              | HVAC piping conveying fluids above 105 °F or chilled fluids   | R                       | R                       | □Complies<br>□Does Not                       | <b>Exception:</b> Requirement is not applicable. |
| •   | below 55 ${}^{Q}F$ are insulated to $\geq R$ -3.  |                         | <br>                    | □Not Observable □Not Applicable              |  |
| 403.4.1<br>[FR24] <sup>1</sup>            | Protection of insulation on HVAC piping.  |                         |                         | ☐Complies ☐Does Not                          | <b>Exception:</b> Requirement is not applicable. |
| •   |   |                         |                         | □Not Observable □Not Applicable              |  |
| 403.5.3<br>[FR18] <sup>2</sup>            | Hot water pipes are insulated to ≥R-3.  | R                       | R                       | ☐Complies ☐Does Not                          | Requirement will be met.                         |
| •   |   |                         | 1<br>                   | □Not Observable □Not Applicable              |  |
| 403.6<br>[FR19] <sup>2</sup>              | Automatic or gravity dampers are installed on all outdoor air   |                         |                         | ☐Complies ☐Does Not                          | ;<br>1<br>1<br>1<br>1                            |
|   | intakes and exhausts.   |                         |                         | □Not Observable □Not Applicable              |  |

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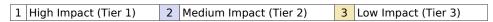
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1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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| Section<br>#<br>& Req.ID                              | Insulation Inspection  | Plans Verified<br>Value    | Field Verified<br>Value    | Complies?   | Comments/Assumptions                             |
|---|--|----------------------------|----------------------------|---|--|
| 303.1<br>[IN13] <sup>2</sup>                          | All installed insulation is labeled or the installed R-values provided.  |                            |                            | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable |  |
| 402.1.1,<br>402.2.5,<br>402.2.6<br>[IN3] <sup>1</sup> | Wall insulation R-value. If this is a mass wall with at least ½ of the wall insulation on the wall exterior, the exterior insulation requirement applies (FR10). | R<br>Wood<br>Mass<br>Steel | R<br>Wood<br>Mass<br>Steel | □Complies □Does Not □Not Observable □Not Applicable | See the Envelope Assemblies<br>table for values. |
| 303.2<br>[IN4] <sup>1</sup>                           | Wall insulation is installed per manufacturer's instructions.  |                            |                            | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable |  |



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| Section<br>#<br>& Req.ID  | Final Inspection Provisions   | Plans Verified<br>Value    | Field Verified<br>Value    | Complies?   | Comments/Assumptions   |
|---|---|----------------------------|----------------------------|---|--|
| 402.1.1,<br>402.2.1,<br>402.2.2,<br>402.2.6<br>[FI1] <sup>1</sup> | Ceiling insulation R-value.   | R<br>Wood<br>Steel         | R<br>Wood  Steel           | □Complies □Does Not □Not Observable □Not Applicable | See the Envelope Assemblies<br>table for values.                                   |
| 303.1.1.1,<br>303.2<br>[FI2] <sup>1</sup>                         | Ceiling insulation installed per<br>manufacturer's instructions.<br>Blown insulation marked every<br>300 ft <sup>2</sup> .  |                            |                            | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable |  |
| 402.2.3<br>[FI22] <sup>2</sup>                                    | Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.  |                            |                            | □Complies □Does Not □Not Observable □Not Applicable |  |
| 402.2.4<br>[FI3] <sup>1</sup>                                     | Attic access hatch and door insulation ≥R-value of the adjacent assembly.   | R                          | R                          | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable |  |
| 402.4.1.2<br>[FI17] <sup>1</sup>                                  | Blower door test @ 50 Pa. <=5 ach in Climate Zones 1-2, and <=3 ach in Climate Zones 3-8.   | ACH 50 =                   | ACH 50 =                   | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable |  |
| 403.3.4<br>[FI4] <sup>1</sup>                                     | Duct tightness test result of <=4 cfm/100 ft2 across the system or <=3 cfm/100 ft2 without air handler @ 25 Pa. For rough-in tests, verification may need to occur during Framing Inspection.   | cfm/100<br>ft <sup>2</sup> | cfm/100                    | □Complies □Does Not □Not Observable □Not Applicable | <b>Exception:</b> All ducts and air handlers are located within conditioned space. |
| 403.3.3<br>[FI27] <sup>1</sup>                                    | Ducts are pressure tested to determine air leakage with either: Rough-in test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the system including the manufacturer's air handler enclosure if installed at time of test. Postconstruction test: Total leakage measured with a pressure differential of 0.1 inch w.g. across the entire system including the manufacturer's air handler enclosure. | cfm/100<br>ft <sup>2</sup> | cfm/100<br>ft <sup>2</sup> | □Complies □Does Not □Not Observable □Not Applicable | <b>Exception:</b> All ducts and air handlers are located within conditioned space. |
| 403.3.2.1<br>[FI24] <sup>1</sup>                                  | Air handler leakage designated by manufacturer at <=2% of design air flow.  |                            |                            | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met.   |
| 403.1.1<br>[FI9] <sup>2</sup>                                     | Programmable thermostats installed for control of primary heating and cooling systems and initially set by manufacturer to code specifications.   |                            |                            | □Complies □Does Not □Not Observable □Not Applicable | Requirement will be met.   |
| 403.1.2<br>[FI10] <sup>2</sup>                                    | Heat pump thermostat installed on heat pumps.   |                            |                            | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met.   |
| 403.5.1<br>[FI11] <sup>2</sup>                                    | Circulating service hot water systems have automatic or accessible manual controls.   |                            |                            | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met.   |
|   | 1 High Impact (Tier   | 1) 2 Medium                | Impact (Tier 2)            | 3 Low Impact (Ti                                    | ier 3)   |

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| Section<br>#<br>& Req.ID       | Final Inspection Provisions  | Plans Verified<br>Value | Field Verified<br>Value | Complies?   | Comments/Assumptions                             |
|--------------------------------|--|-------------------------|-------------------------|---|--|
| 403.6.1<br>[FI25] <sup>2</sup> | All mechanical ventilation system<br>fans not part of tested and listed<br>HVAC equipment meet efficacy<br>and air flow limits.  |                         |                         | □Complies □Does Not □Not Observable □Not Applicable | Requirement will be met.                         |
| [FI26] <sup>2</sup>            | Hot water boilers supplying heat through one- or two-pipe heating systems have outdoor setback control to lower boiler water temperature based on outdoor temperature.   |                         |                         | □Complies □Does Not □Not Observable □Not Applicable | <b>Exception:</b> Requirement is not applicable. |
| [FI28] <sup>2</sup>            | Heated water circulation systems have a circulation pump. The system return pipe is a dedicated return pipe or a cold water supply pipe. Gravity and thermossyphon circulation systems are not present. Controls for circulating hot water system pumps start the pump with signal for hot water demand within the occupancy. Controls automatically turn off the pump when water is in circulation loop is at set-point temperature and no demand for hot water exists. |                         |                         | □Complies □Does Not □Not Observable □Not Applicable | Requirement will be met.                         |
| [FI29] <sup>2</sup>            | Electric heat trace systems comply with IEEE 515.1 or UL 515. Controls automatically adjust the energy input to the heat tracing to maintain the desired water temperature in the piping.  |                         |                         | □Complies □Does Not □Not Observable □Not Applicable | <b>Exception:</b> Requirement is not applicable. |
| [FI30] <sup>2</sup>            | Water distribution systems that have recirculation pumps that pump water from a heated water supply pipe back to the heated water source through a cold water supply pipe have a demand recirculation water system. Pumps have controls that manage operation of the pump and limit the temperature of the water entering the cold water piping to 104°F.  |                         |                         | □Complies □Does Not □Not Observable □Not Applicable | Requirement will be met.                         |
| 403.5.4<br>[FI31] <sup>2</sup> | Drain water heat recovery units tested in accordance with CSA B55.1. Potable water-side pressure loss of drain water heat recovery units < 3 psi for individual units connected to one or two showers. Potable water-side pressure loss of drain water heat recovery units < 2 psi for individual units connected to three or more showers.  |                         |                         | □Complies □Does Not □Not Observable □Not Applicable |  |
| [FI6] <sup>1</sup>             | 75% of lamps in permanent fixtures or 75% of permanent fixtures have high efficacy lamps. Does not apply to low-voltage lighting.  |                         |                         | □Complies □Does Not □Not Observable □Not Applicable | Requirement will be met.                         |
|                                | Fuel gas lighting systems have no continuous pilot light.  |                         |                         | □Complies □Does Not □Not Observable □Not Applicable | Requirement will be met.                         |
|                                | 1 High Impact (Tier  | 1) 2 Medium             | Impact (Tier 2)         | 3 Low Impact (Ti                                    | er 3)  |

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| Section<br>#<br>& Req.ID     | Final Inspection Provisions                           | Plans Verified<br>Value | Field Verified<br>Value | Complies?                       | Comments/Assumptions     |
|------------------------------|---|-------------------------|-------------------------|---------------------------------|--------------------------|
| 401.3<br>[FI7] <sup>2</sup>  | Compliance certificate posted.                        |                         |                         | □Complies<br>□Does Not          |                          |
|                              |   |                         |                         | □Not Observable □Not Applicable | 1<br>1<br>1<br>1<br>1    |
| 303.3<br>[FI18] <sup>3</sup> | Manufacturer manuals for mechanical and water heating |                         |                         | □Complies<br>□Does Not          | Requirement will be met. |
|                              | systems have been provided.                           |                         |                         | □Not Observable □Not Applicable | 1<br>1<br>1<br>1<br>1    |



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| Insulation Rating                | R-Value |  |
|----------------------------------|---------|--|
| Above-Grade Wall                 | 19.00   |  |
| Below-Grade Wall                 | 0.00    |  |
| Floor                            | 30.00   |  |
| Ceiling / Roof                   | 38.00   |  |
| Ductwork (unconditioned spaces): |         |  |

| Glass & Door Rating | U-Factor | SHGC |
|---------------------|----------|------|
| Window              | 0.30     |      |
| Door                | 0.20     |      |

| Heating & Cooling Equipment | Efficiency |
|-----------------------------|------------|
| Heating System:             |            |
| Cooling System:             |            |

Water Heater:

Name: \_\_\_\_\_ Date:

Comments

