R301.1 Utah Climate Zones by County

<table>
<thead>
<tr>
<th>Climate Zone and Subtype</th>
<th>3 - B</th>
<th>5 - B</th>
<th>6 - B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crawl Space Wall R-value*</td>
<td>5/13</td>
<td>15/19*</td>
<td>15/19*</td>
</tr>
<tr>
<td>Fenestration U-factor*</td>
<td>0.35</td>
<td>0.32</td>
<td>0.32</td>
</tr>
<tr>
<td>Skylight U-factor*</td>
<td>0.55</td>
<td>0.55</td>
<td>0.55</td>
</tr>
<tr>
<td>Glazed SHGC Fenestration*</td>
<td>0.25</td>
<td>NR</td>
<td>NR</td>
</tr>
<tr>
<td>Ceiling R-value</td>
<td>38</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Wood Frame Wall R-value*</td>
<td>20 or 13+5</td>
<td>20 or 13+5</td>
<td>20+5 or 13+10</td>
</tr>
</tbody>
</table>

R402.2.4 Access Hatches and Doors
- Must be weather stripped.
- Attic hatch must have insulation of required R-value attached to the panel.
- Insulation dam required around access opening.
- Vertical access doors must meet fenestration requirements - Table R402.1.2.

R402.4 Air Leakage
- The components of the Building Thermal Envelope as listed in Table R402.1.1 shall be installed in accordance with the manufacturer's instructions.

R402.4.1 Building Thermal Envelope
- Comply with all items in Table R402.4.1.1 OR Slower Door Test per R402.4.1.2.

1st Option
R402.4.1.1 Air Barrier and Insulation Installation and Inspection per Table R402.4.1.1.

Table R402.4.1.1 Summary
- Insulation and air barriers installed in accordance with manufacturer's instructions.
- Continuous air barrier installed at the building thermal envelope.
All gaps and voids sealed between conditioned and un-conditioned spaces.
Air-permeable insulation (fiberglass, rock-wool, cellulose) is not used for air sealing.
Closed-cell foam is the only insulation that also serves as an air barrier.
Dropped ceilings/soffits, shafts and chases shall be capped with an air barrier lid and sealed (attic insulation does not drop down into soffits).
Walls shall be framed to allow insulation in corners and in headers.
Wall insulation shall be enclosed on 6 sides. Includes an air barrier, backsides of knee-walls.
Wall batt insulation shall be cut neatly to fit wall cavities and around all pipes, wiring and boxes in cavity (recommend blown insulation).
Rim joist insulation shall include a sealed air barrier on the inside face of insulation, or closed cell spray foam.
Recessed can lights, boxes and HVAC boots penetrating the thermal envelope shall be sealed.
Exterior walls adjacent to fireplaces, tubs, showers shall include an inside surface air barrier.
Air sealing shall be provided between the garage and conditioned spaces.
Floor insulation in contact with underside of floor or topside of sheathing/lid below.
Air barrier underside of cantilevers.

2nd Option

**Blower Door Testing and Third-Party Verification**

- ≤ 5 ACH50
- ≤ 3.5 ACH50 beginning Jan. 1, 2019
- ≤ 3.0 ACH50 beginning Jan. 1, 2021
- Testing by BPI or RESNET certified parties or licensed contractors with approved training.

**Unvented attic and unvented enclosed rafter assemblies (NOT in the IECC)**
Air-impermeable, closed cell spray foam or rigid foam board, must be installed on the cold side of the roof assembly for condensation controlable R806.5.

**Fireplaces**
Light-fitting dampers and outdoor combustion air (wood-burning only); sted and labeled doors, UL 127 or UL 07.

**Rooms Containing Fuel Burning Appliances**
Where open combustion air ducts serve open combustion, fuel burning appliances:
- The open duct and appliance shall be enclosed in a sealed and insulated room, isolated from inside the thermal envelope.
- Combustion air duct passing through conditioned space shall be insulated to a minimum R-8.
- Exceptions: Direct vent appliance, fireplaces and stoves installed per code.

**Recessed Lighting**
- IC-rated and labeled, air leakage rate 2 cfm max.
- Gasketed or caulked at the ceiling.

**Maximum Fenestration U-factor and SHGC**
Area-weighted average maximum U-factor for total UA - alternative or simulated performance approach:
- ≤ 0.48 for CZ 5B
- ≤ 0.40 for CZ 6B
Area-weighted average maximum SHGC for total UA - alternative or simulated performance approach:
- ≤ 0.50 for CZ 5B

**Duct Insulation**
Outside thermal envelope, both return and supply.
- Ducts in attic - R-8
- Ducts in other areas - R-6

**Duct Sealing and Testing**
Ducts, air handlers and filter boxes sealed per IRC/IMC AND tested if air handler is outside the thermal envelope, or at least 35% of duct is outside thermal envelope.
- 25% outside the envelope - Jan. 1, 2019
- 20% outside the envelope - Jan. 1, 2021
- Testing by BPI or RESNET certified parties or licensed contractors, approved training.

**Duct Leakage**
Rough-in or post-construction testing
- ≤ 8 cfm/100 sf, with air handler
- ≤ 7 cfm/100 sf, Jan. 1, 2019
- ≤ 6 cfm/100 sf, Jan. 1, 2021*
- ≤ 6 cfm/100 sf, w/o air handler*

**Building Cavities**
Shall not be used as ducts or plenums.

**Mechanical System Piping Insulation**
Carrying fluids > 105°F or < 55°F, insulate to R-3 min.

**Circulating and Demand Hot Water Systems**
- Automatic controls - time or demand sensing
- Demand recirculation system maximum return temperature - 104°F.

**Hot Water Pipe Insulation**
R-3 (some exceptions)

**Mechanical Ventilation**
Per IRC 303.4 and M1507 with automatic or gravity dampers on outdoor air intake and/or exhaust. If ≤ 3 ACH 50, must be mechanically ventilated.

**Equipment Sizing**
Per ACCA Manual S, based on loads calculated per ACCA Manual J. Ducts per ACCA Manual D.

**Snowmelt Controls**
Mandatory controls: Auto shutoff; no moisture, pavement T > 50°F and air T > 40°F.

**Pools and In-Ground Spas**
Readily accessible shutoff switches for heaters (R403.10.2) and timers for pumps and heaters (R403.10.3), AND vapor-retardant covers for all pools (R403.10.4) and pool cover if heated (see exceptions).

**Lighting**
A minimum of 75% of permanently installed fixtures must have high-efficiency lamps.
- Compact fluorescent lamps (CFL), tubes T8 or smaller, or LED (Low Voltage exempt)

**Simulated Performance Alternative**
Third Party Computer modeling, showing proposed home is more efficient than standard reference design home.

**Energy Rating Index (ERI) Compliance Alternative**
Third Party HERS rater uses modeling to generate an ERI or HERS score, equal to or lower than the required score for the applicable Climate Zone.
- Climate Zone 3 - 65
- Climate Zone 5 - 69
- Climate Zone 6 - 68

*Produced by Brent Urenbach, Salt Lake County Planning and Development Services with funding from the Utah Governor's Office of Energy Development, Dominion Energy and Rocky Mountain Power.*