CITY OF
SARATOGA SPRINGS
BUILDING DEPARTMENT
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2012 UTAH ENERGY CONSERVATION CODE AMENDMENTS

July 1st 2014 - 2012 International Energy Conservation Code (IECC) with Utah State Amendments become effective. (Adoption was delayed until Dept. of Energy (DOE) produced a new version of Rescheck specifically modified for the Utah Amendments.)

RESIDENTIAL BUILDING. For this code, includes detached one- and two-family dwellings and multiple single-family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane.

Three Compliance options for Residential

R401.2 Compliance.

Projects shall comply with Sections identified as **"mandatory" and** with either sections identified as **"prescriptive"** or the **performance** approach in Section R405.

Prescriptive
(Table R402.1.1 Insulation and Fenestration requirements by component, and all other Prescriptive requirements in IECC.)

Total UA
(trade-offs, REScheck:Utah 2012)

Performance
(Based on an energy analysis of the building. Example: RESNET)

MANDATORY (required for all three compliance options)

R401.3 Certificate (Mandatory).

R402.4 Air leakage (Mandatory).

The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.4.

R402.4.1 Building thermal envelope. The building thermal envelope shall comply with Sections R402.4.1.1 **OR** R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.

R402.4.1.1 Installation.
The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where allowed by the Building Official, the Builder may certify compliance to components criteria for items which may not be inspected during regularly scheduled inspections.

R402.4.1.2 Testing.
The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Testing shall be conducted by an approved party. The following parties shall be approved to conduct testing: parties certified by BPI or RESNET or licensed contractors who have completed training provided by blower door test equipment manufacturers or other comparable training. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

R402.5 Maximum fenestration *U*-factor and SHGC (Mandatory).

R403.1 Controls (Mandatory) R403.1.1 Programmable thermostat.

R403.1.2 Heat pump supplementary heat (Mandatory)

R403.2 Ducts
R403.2.2 Sealing (Mandatory).
Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with either the International Mechanical Code or International Residential Code, as applicable.

Duct tightness test REQUIRED:
Required if the air handler or more than 50% of the duct (measured by length) are located outside of building thermal envelope. Shall be verified by a either of the following:
1. Postconstruction test: Total leakage shall be less than or equal to 10 cfm (113.3 L/min) per 100 square feet (9.29 m2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.
2. Rough-in test: Total leakage shall be less than or equal to 10 cfm (113.3 L/min) per 100 square feet (9.29 m2) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure. All registers shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 7.5 cfm (85 L/min) per 100 square feet (9.29 m2) of conditioned floor area.

Duct tightness test NOT REQUIRED:
Exception to testing duct tightness:
The total leakage test is not required for systems with all air handlers and at least 50% of all ducts (measured by length) located entirely within the building thermal envelope.

R403.2.3 Building cavities (Mandatory).
Building framing cavities shall not be used as ducts.

R403.3 Mechanical system piping insulation (Mandatory).
Mechanical system piping capable of carrying fluids above 105°F (41°C) or below 55°F (13°C) shall be insulated to a minimum of R-3.

R403.4.1 Circulating hot water systems (Mandatory).

R403.5 Mechanical ventilation (Mandatory)

R403.6 Equipment Sizing (Mandatory).
Heating and cooling equipment shall be sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other *approved* heating and cooling calculation methodologies.

R403.7 Systems serving multiple dwelling units (Mandatory)

R403.8 Snow melt system controls (Mandatory).

R403.9 Pools and inground permanently installed spas

TABLE R402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR[b]	SKYLIGHT[b] *U*-FACTOR	GLAZED FENESTRATION SHGC[b, c]	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	.65	.65	.40	30	20 **15** 5[h]	5	19	0	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	.35	.60	NR	38	**19 or 13+5**	13	30[g]	**10/13**	10, 2 ft	**10/13**
6	.35	.60	NR	49	**19 or 13+5**	15	30[g]	**10/13**	10, 4 ft	**10/13**
7 and 8	0.32	0.55	NR	49	20+5 or 13+10[h]	19/21	38[g]	15/19	10, 4 ft	15/19

TABLE R402.4.1.1
AIR BARRIER AND INSULATION INSTALLATION

COMPONENT	CRITERIA[a]
Air barrier and thermal barrier	A continuous air barrier shall be installed in the building envelope. Exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed. Air-permeable insulation shall not be used as a sealing material.
Ceiling/attic	The air barrier in any dropped ceiling/soffit shall be aligned with the insulation and any gaps in the air barrier sealed. Access openings, drop down stair or knee wall doors to unconditioned attic spaces shall be sealed.
Walls	Corners and headers shall be insulated and the junction of the foundation and sill plate shall be sealed. The junction of the top plate and top of exterior walls shall be sealed. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier. Knee walls shall be sealed.
Windows, skylights and doors	The space between window/door jambs and framing and skylights and framing shall be sealed.
Rim joists	Rim joists shall be insulated and include the air barrier.
Floors (including above-garage and cantilevered floors)	Insulation shall be installed to maintain permanent contact with underside of subfloor decking. The air barrier shall be installed at any exposed edge of insulation.
Crawl space walls	Where provided in lieu of floor insulation, insulation shall be permanently attached to the crawlspace walls. Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped.
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space shall be sealed.
Narrow cavities	Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity space.
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be air tight, IC rated, and sealed to the drywall.
Plumbing and wiring	Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring.
Shower/tub on exterior wall	Exterior walls adjacent to showers and tubs shall be insulated and the air barrier installed separating them from the showers and tubs.
Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical or communication boxes or air sealed boxes shall be installed.
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the sub-floor or drywall.
Fireplace	An air barrier shall be installed on fireplace walls. Fireplaces shall have gasketed doors.

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.