RES*check* Software Version 4.4.3

Compliance Certificate

Project Title: Falcone Residence

Energy Code:	**2012 IECC**
Location:	**North Ogden, Utah**
Construction Type:	**Single Family**
Glazing Area Percentage:	**19%**
Heating Degree Days:	**5557**
Climate Zone:	**5**

Construction Site:

7947 East Heartwood Drive
Eden, UT

Owner/Agent:

Cristiana Falcone
Rome, Italy, UT

Designer/Contractor:

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Salt Lake City, UT 84102
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Compliance: **Passes using UA trade-off**

Compliance: **7.5% Better Than Code** Maximum UA: **918** Your UA: **849**

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.

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Glazing or Door U-Factor	UA
Basement Floor: Slab-On-Grade:Heated Insulation depth: 6.0'	134		11.0		91
Main Floors over Crawl Space: All-Wood Joist/Truss:Over Unconditioned Space	1006	30.0	0.0		33
Basement Walls: Solid Concrete or Masonry:Interior Insulation	1332	13.0	0.0		107
Window 1: Metal Frame with Thermal Break:Double Pane with Low-E	20			0.290	6
Door 1: Solid	22			0.060	1
Main Floor Walls: Wood Frame, 16" o.c.	2691	32.0	0.0		86
Window 2: Metal Frame with Thermal Break:Double Pane with Low-E	293			0.290	85
Door 2: Solid	23			0.060	1
Door 3: Glass	554			0.290	161
Upper Floor Walls: Wood Frame, 16" o.c.	2223	32.0	0.0		89
Window 3: Metal Frame with Thermal Break:Double Pane with Low-E	308			0.290	89
Door 4: Glass	23			0.290	7
Roof: Flat Ceiling or Scissor Truss	3433	44.0	0.0		93

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 2012 IECC requirements in RES*check* Version 4.4.3 and to comply with the mandatory requirements listed in the RES*check* Inspection Checklist.

Name - Title | Signature | Date

RES*check* Software Version 4.4.3
Inspection Checklist

Energy Code:	**2012 IECC**
Location:	**North Ogden, Utah**
Construction Type:	**Single Family**
Glazing Area Percentage:	**19%**
Heating Degree Days:	**5557**
Climate Zone:	**5**

Ceilings:

❑ Roof: Flat Ceiling or Scissor Truss, R-44.0 cavity insulation

Comments: _____

Where air permeable insulation exists in vented attics, a baffle (of solid material) is installed adjacent to soffit and eave vents. Baffles maintain an opening equal or greater than the size of the vent. The baffle extends over the top of the attic insulation.

Above-Grade Walls:

❑ Basement Walls: Solid Concrete or Masonry:Interior Insulation, R-13.0 cavity insulation

Comments: _____

❑ Main Floor Walls: Wood Frame, 16" o.c., R-32.0 cavity insulation

Comments: _____

❑ Upper Floor Walls: Wood Frame, 16" o.c., R-32.0 cavity insulation

Comments: _____

Windows:

❑ Window 1: Metal Frame with Thermal Break:Double Pane with Low-E, U-factor: 0.290

For windows without labeled U-factors, describe features:

#Panes ____ Frame Type _____ Thermal Break? ____ Yes ____ No

Comments: _____

❑ Window 2: Metal Frame with Thermal Break:Double Pane with Low-E, U-factor: 0.290

For windows without labeled U-factors, describe features:

#Panes ____ Frame Type _____ Thermal Break? ____ Yes ____ No

Comments: _____

❑ Window 3: Metal Frame with Thermal Break:Double Pane with Low-E, U-factor: 0.290

For windows without labeled U-factors, describe features:

#Panes ____ Frame Type _____ Thermal Break? ____ Yes ____ No

Comments: _____

Doors:

❑ Door 1: Solid, U-factor: 0.060

Comments: _____

❑ Door 2: Solid, U-factor: 0.060

Comments: _____

❑ Door 3: Glass, U-factor: 0.290

Comments: _____

❑ Door 4: Glass, U-factor: 0.290

Comments: _____

Floors:

❑ Basement Floor: Slab-On-Grade:Heated, 6.0' insulation depth, R-11.0 continuous insulation

Comments:

Slab insulation extends down from the top of the slab to at least 6.0 ft. OR down to at least the bottom of the slab then horizontally for a total distance of 6.0 ft.

❑ Main Floors over Crawl Space: All-Wood Joist/Truss:Over Unconditioned Space, R-30.0 cavity insulation

Comments:

Floor insulation is installed in permanent contact with the underside of the subfloor decking.

Air Leakage:

❑ Building envelope air tightness complies by a post rough-in blower door test result of less than 3 ACH at 50 pascals.

❑ Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.

❑ Wood-burning fireplaces shall have tight-fitting flue dampers and outdoor combustion air.

Air Barrier, Sealing, and Insulation Installation Criteria:

❑ A continuous air barrier is installed in the building envelope including rim joists and exposed edges of insulation. Breaks or joints in the air barrier are sealed. Air permeable insulation is not used as a sealing material.

❑ Junction of foundation and wall sill plates, wall top plate and top of wall, sill plate and rim-band, and rim band and subfloor are sealed. Corners, headers, and rim joists making up the thermal envelope are insulated.

❑ Insulation in floors (including above garage and cantilevered floors) is installed to maintain permanent contact with underside of subfloor decking. Exterior insulation for framed walls is in substantial contact and continuous alignment with the air barrier. Crawl space wall insulation installed in lieu of floor insulation is permanently attached to crawlspace walls. Inspection of log walls is in accordance with the provisions of ICC-400.

❑ Spaces between fenestration jambs and framing and skylights and framing are sealed. Batts in narrow cavities are cut to fit; or narrow cavities are filled with insulation that readily fills the available cavity space.

❑ Exposed earth in unvented crawl spaces is covered with Class I vapor retarder with overlapping joints taped.

❑ Air sealing is installed between the garage and conditioned spaces.

❑ Exterior walls adjacent to showers and tubs are insulated and have air barrier separating the wall from the shower and tubs.

❑ Access openings, drop down stairs or knee wall doors to unconditioned attic spaces are insulated and sealed.

❑ Recessed light fixtures installed in the building thermal envelope are IC rated, airtight labeled at air leakage rate <= 2.0 cfm, and sealed to the drywall with gasket or caulk.

❑ Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned space are air sealed.

❑ Plumbing and Wiring: Insulation is placed between the exterior of the wall assembly and pipes. Batt insulation is cut and fitted around wiring and plumbing, or for insulation that on installation readily conforms to available space such insulation shall fill all space between wall and piping/wiring.

❑ Air barrier extends behind electrical or communication boxes or, air sealed type boxes are installed.

❑ HVAC register boots that penetrate building thermal envelope are sealed to subfloor or drywall.

❑ Fireplace walls have air barrier and closure doors are gasketed.

Sunrooms:

❑ Sunrooms that are NOT thermally isolated from the building envelope meet the requirements applicable to the building envelope.

Materials Identification and Installation:

❑ Materials and equipment are installed in accordance with the manufacturer's installation instructions.

❑ Materials and equipment are identified so that compliance can be determined.

❑ Manufacturer manuals for all installed heating and cooling equipment and service water heating equipment have been provided.

❑ Insulation R-values and glazing U-factors are clearly marked on the building plans or specifications.

Duct Insulation:

❑ Supply ducts in attics are insulated to a minimum of R-8. All other ducts in unconditioned spaces or outside the building envelope are insulated to at least R-6.

Duct Construction and Testing:

❑ Building framing cavities are not used as ducts or plenums.

❑ All joints and seams of air ducts, air handlers, and filter boxes are substantially airtight by means of tapes, mastics, liquid sealants, gasketing or other approved closure systems. Tapes, mastics, and fasteners are rated UL 181A or UL 181B and are labeled according to the duct construction. Metal duct connections with equipment and/or fittings are mechanically fastened. Crimp joints for round metal ducts have a contact lap of at least 1 1/2 inches and are fastened with a minimum of three equally spaced sheet-metal screws.
Exceptions:

Joint and seams covered with air-impermeable spray foam.

Where a partially inaccessible duct connection exists, mechanical fasteners can be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.

Continuously welded and locking-type longitudinal joints and seams on ducts operating at less than 2 in. w.g. (500 Pa).

- ❑ Air handlers have a manufacturer's designation of air leakage of no more than 2 percent of design flow rate.
- ❑ Duct tightness test has been performed and meets one of the following test criteria:

(1) Postconstruction total leakage test (including air handler enclosure): Less than or equal to 4 cfm per 100 ft2 of conditioned floor area.

(2) Rough-in total leakage test with air handler installed: Less than or equal to 4 cfm per 100 ft2 of conditioned floor area.

(3) Rough-in total leakage test without air handler installed: Less than or equal to 3 cfm per 100 ft2 of conditioned floor area.

Temperature Controls:

- ❑ Where the primary heating system is a forced air-furnace, at least one programmable thermostat is installed to control the primary heating system and has set-points initialized at 70 degree F for the heating cycle and 78 degree F for the cooling cycle.
- ❑ Heat pumps having supplementary electric-resistance heat have controls that prevent supplemental heat operation when the compressor can meet the heating load.

Heating and Cooling Equipment Sizing:

- ❑ Equipment is 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.
- ❑ For systems serving multiple dwelling units documentation has been submitted demonstrating compliance with 2012 IECC Commercial Building Mechanical and/or Service Water Heating (Sections C403 and C404).

Circulating Service Hot Water Systems:

- ❑ Systems include an automatic or accessible manual switch to turn off the circulating pump when the system is not in use.
- ❑ Pipes are insulated to R-3 when any one of the following apply:

(a) piping serves more than one dwelling unit,

(b) piping between water heater and kitchen or water heater and distribution manifold,

(c) piping outside conditioned space, buried, or located under a floor slab,

(d) supply and return piping in recirculation systems other than demand recirculation systems,

(e) piping is > 3/4 inch nominal diameter,

(f) piping runs >30 feet having 3/8 inch max diameter,

(g) piping runs >20 feet having 1/2 inch max diameter,

(h) piping runs >10 feet having 3/4 inch max diameter,

(i) piping runs >5 feet having max diameter within the run > 3/4 inch.

Heating and Cooling Piping Insulation:

- ❑ HVAC piping conveying fluids above 105 degrees F or chilled fluids below 55 degrees F are insulated to R-3.
- ❑ HVAC piping insulation exposed to outdoor elements is protected from damage and shielded from solar radiation.

Ventilation:

- ❑ Ventilation fans satisfy the following efficacy criteria:

(1) Range hoods and in-line fan: 2.8 cfm/watt.

(2) Bath-/utility room with rated cfm >= 10 > and <90: 1.4 cfm/watt.

(3) Bath-/utility room with rated minimum cfm >= 90: 2.8 cfm/watt.

Swimming Pools and In-ground Spas:

- ❑ Heaters have an readily accessible on-off switch.
- ❑ Heaters operating on natural gas or LPG have an electronic pilot light.
- ❑ Schedule-capable automatic on-off timer switches are installed on heaters and pumps.
  Exceptions:

  Where public health standards require continuous pump operation.

  Where pumps operate within solar- and/or waste-heat-recovery systems.
- ❑ Heated pools and spas have a vapor retardant cover.
  Exceptions:

  Covers are not required when 70% of the heating energy is from site-recovered energy or solar energy source.

Lighting Requirements:

- ❑ Within permanently installed fixtures, 75 percent contain only lamps that can be categorized as one of the following. Or, a minimum of 75 percent of all lamps within permanent fixtures can be categorized as one of the following:

(a) Compact fluorescent

(b) T-8 or smaller diameter linear fluorescent

(c) 40 lumens per watt for lamp wattage <= 15

(d) 50 lumens per watt for lamp wattage > 15 and <= 40

(e) 60 lumens per watt for lamp wattage > 40

Exceptions:

Low voltage lighting systems.

❑ Fuel gas lighting systems have electronic pilot lights.

Other Requirements:

❑ Snow- and ice-melting systems with energy supplied from the service to a building shall include automatic controls capable of shutting off the system when a) the pavement temperature is above 50 degrees F, b) no precipitation is falling, and c) the outdoor temperature is above 40 degrees F (a manual shutoff control is also permitted to satisfy requirement 'c').

Certificate:

❑ A permanent certificate is provided on or in the electrical distribution panel listing the predominant insulation R-values; window U-factors; type and efficiency of space-conditioning and water heating equipment; and results from any required duct system and building envelope air leakage testing. The certificate#does not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels.

NOTES TO FIELD: (Building Department Use Only)

2012 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Ceiling / Roof	44.00
Wall	32.00
Floor / Foundation	30.00
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	0.29	0.30
Door	0.29	0.20

Heating & Cooling Equipment	Efficiency
Heating System:_____	_____
Cooling System:_____	_____
Water Heater:_____	_____

Building Air Leakage and Duct Test Results	
Building Air Leakage Test Results	_____
Name of Air Leakage Tester	_____
Duct Tightness Test Results	_____
Name of Duct Tester	_____

Name: _____ **Date:** _____

Comments: