

Building E Brighton Recovery Center Project

**Energy Code: 2015 IECC** 

Location: Salt Lake County, Utah

Construction Type: **Multi-family** Project Type: **Alteration** 

Orientation: Bldg. faces 0 deg. from North

Climate Zone: 5 (5999 HDD)

Permit Date: Permit Number:

Construction Site: 4931 S 900 E

Salt Lake County, Utah

Owner/Agent:

Designer/Contractor: Spectrum Engineering Inc. Salt Lake City, Utah

2017-03-06

Compliance: Passes using prescriptive requirements for alteration projects

## **Envelope Assemblies**

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	U-Factor	UA
Ceiling: Flat or Scissor Truss Exemption: Framing cavity filled with insulation					
Wall: Wood Frame, 16in. o.c. Orientation: Unspecified Exemption: Framing cavity filled with insulation					
Window: Metal, Thermal Break, Double Pane Orientation: Unspecified Exemption: Glazing replacement in existing sash or frame.					
Door: Glass Orientation: Unspecified Exemption: Glazing replacement in existing sash or frame.					
Floor: Unheated Slab-On-Grade Insulation depth: 2.0'	320		10.0	0.767	245

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 5.5.0 and to comply with the mandatory requirements listed in the REScheck Inspection Checklist.

Benjamin J. Schlup - Project Engineer

Name - Title

## TABLE N1102.1.2 (R402.1.2) INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT®

CLIMATE ZONE	FENESTRATION U-FACTOR <sup>b</sup>	SKYLIGHT <sup>b</sup> <i>U</i> -FACTOR	GLAZED FENESTRATION SHGC <sup>b, ©</sup>	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT° WALL R-VALUE	SLAB <sup>d</sup> R-VALUE & DEPTH	CRAWL SPACE° WALL R-VALUE
5 and Marine 4	0.32	0.55	NR	49	20 or 13 + 5 <sup>h</sup>	13/17	$30^{g}$	15/19	10, 2 ft	15/19

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Requirements: 94.0% 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 # & Req.ID	Pre-Inspection/Plan Review	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
103.1, 103.2 [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	Requirement will be met.
103.1, 103.2, 403.7 [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.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
302.1, 403.7 [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:** 

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

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

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Section # & Req.ID	Framing / Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
402.1.1, 402.3.1, 402.3.3, 402.3.6, 402.5	Glazing U-factor (area-weighted average).	U	U	□Complies □Does Not □Not Observable □Not Applicable	See the Envelope Assemblies table for values.
[FR2] <sup>1</sup>			 		
303.1.3 [FR4] <sup>1</sup>	U-factors of fenestration products are determined in accordance with the NFRC test procedure or			☐Complies ☐Does Not	
•	taken from the default table.			□Not Observable □Not Applicable	 
402.4.1.1 [FR23] <sup>1</sup>	Air barrier and thermal barrier installed per manufacturer's instructions.			□Complies □Does Not	Requirement will be met.
•	instructions.			□Not Observable □Not Applicable	
402.4.3 [FR20] <sup>1</sup>	Fenestration that is not site built is listed and labeled as meeting AAMA /WDMA/CSA 101/I.S.2/A440			□Complies □Does Not	Requirement will be met.
<b>②</b>	or has infiltration rates per NFRC 400 that do not exceed code limits.			□Not Observable □Not Applicable	
402.4.5 [FR16] <sup>2</sup>	IC-rated recessed lighting fixtures sealed at housing/interior finish			□Complies □Does Not	<b>Exception:</b> Requirement is not applicable.
	and labeled to indicate ≤2.0 cfm leakage at 75 Pa.			□Not Observable □Not Applicable	
403.2.1 [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.
<b>(2)</b>	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	
403.3.3.5 [FR15] <sup>3</sup>	Building cavities are not used as ducts or plenums.			□Complies □Does Not	Requirement will be met.
•				□Not Observable □Not Applicable	
403.4 [FR17] <sup>2</sup>	HVAC piping conveying fluids above 105 °F or chilled fluids	R	R	□Complies □Does Not	<b>Exception:</b> Requirement is not applicable.
<b>(</b>	below $55 ^{\circ}F$ are insulated to $\geq R$ -3.		 	□Not Observable □Not Applicable	
403.4.1 [FR24] <sup>1</sup>	Protection of insulation on HVAC piping.			□Complies □Does Not	<b>Exception:</b> Requirement is not applicable.
<b>(2)</b>				□Not Observable □Not Applicable	
403.5.3 [FR18] <sup>2</sup>	Hot water pipes are insulated to ≥R-3.	R	R	□Complies □Does Not	Requirement will be met.
•			 	□Not Observable □Not Applicable	
403.6 [FR19] <sup>2</sup>	Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.			□Complies □Does Not	Requirement will be met.
	ilitakes aliu exildusts.			□Not Observable □Not Applicable	

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Section # & Req.ID	Insulation Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
303.1 [IN13] <sup>2</sup>	All installed insulation is labeled or the installed R-values provided.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
402.1.1, 402.2.5, 402.2.6 [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 Wood Mass Steel	R Wood Mass Steel	□Complies □Does Not □Not Observable □Not Applicable	See the Envelope Assemblies table for values.
303.2 [IN4] <sup>1</sup>	Wall insulation is installed per manufacturer's instructions.			☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Section #	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
& Req.ID  402.1.1, 402.2.1, 402.2.2, 402.2.6 [FI1] <sup>1</sup>	Ceiling insulation R-value.	R Wood Steel	R Wood Steel	□Complies □Does Not □Not Observable □Not Applicable	See the Envelope Assemblies table for values.
303.1.1.1, 303.2 [FI2] <sup>1</sup>	Ceiling insulation installed per manufacturer's instructions. Blown insulation marked every 300 ft <sup>2</sup> .			□Complies □Does Not □Not Observable	Requirement will be met.
402.2.3 [FI22] <sup>2</sup>	Vented attics with air permeable insulation include baffle adjacent to soffit and eave vents that extends over insulation.			□Not Applicable □Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
402.2.4 [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	Requirement will be met.
402.4.1.2 [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	Requirement will be met.
403.2.3 [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 ft <sup>2</sup>	cfm/100 ft²	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
403.3.2 [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 ft <sup>2</sup>	cfm/100 ft <sup>2</sup>	□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
403.3.2.1 [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 [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 [FI10] <sup>2</sup>	Heat pump thermostat installed on heat pumps.			□Complies □Does Not □Not Observable □Not Applicable	<b>Exception:</b> Requirement is not applicable.
403.5.1 [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	er 3)

Section # & Req.ID	Final Inspection Provisions	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
403.6.1	All mechanical ventilation system fans not part of tested and listed HVAC equipment meet efficacy and air flow limits.			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
	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	Requirement will be met.
[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 $104^{\circ}F$ .			□Complies □Does Not □Not Observable □Not Applicable	Requirement will be met.
403.5.4 [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	<b>Exception:</b> Requirement is not applicable.
	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.
404.1.1 [FI23] <sup>3</sup>	Fuel gas lighting systems have no continuous pilot light.			□Complies □Does Not □Not Observable □Not Applicable	<b>Exception:</b> Requirement is not applicable.
	1 High Impact (Tier	1) 2 Medium	Impact (Tier 2)	3 Low Impact (Ti	er 3)

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

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