

2021 Energy Code Plan Review Checklist -Residential

Project Information Sheet

Plan Review/Permit # _____

Date _____

Project Address _____

Project Contact Info Name _____ Phone _____
email _____

Building Type Single Family Detached _____ Duplex _____ Townhome _____
(3 stories or less) Multi-Family Apartment _____ Condominium _____
New Construction _____ Addition _____ Renovation _____

Compliance Approach Prescriptive _____ UA Trade Off _____ Performance _____ ERI _____

Efficiency Pkg option chosen Envelope _____ HVAC _____ Duct _____ Air Sealing _____ Ventilation _____

Compliance Software Used _____
(i.e. REM/Rate, Ecotrope, REScheck, etc)

Plan Reviewer Contact Info Name _____ Phone _____
email _____

Jurisdiction Name _____

County _____ Climate Zone _____

Substantiating Data _____ Mechanical Load Calculations
_____ Duct design
_____ Air sealing details

Compliance Path documentation

_____ UA Trade Off - need REScheck or equivalent
_____ Performance - need From Plans Rating Analysis
_____ Energy Rating Index (ERI) need report with score
_____ Prescriptive - Show R values and U factors on plan
_____ R408 Efficiency Pkg option- proof code minimum exceeded for option chosen
_____ Other: Please describe _____

Plan Review and Project Comments:

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Thermal Envelope Compliance				IECC Code Sections to Reference (For IRC, replace R4 with N11 at each section number)
Insulation: (Table 402.1.2 / 402.1.3 / 402.2.6 or UA Trade-off, Performance or ERI) <i>Every component in the table has a code section that goes with it that gives additional direction</i>				
Vapor Barrier:	Per IRC 702.7 _____	Per IBC 1404.3 _____		(R402.1.1)
Slab Edge:				(R402.2.9)
	R- _____	Heated Slab <u>Y / N</u>	Insulation Depth _____ ft	
	<u>Y / N</u>	Traded off?	Perimeter length to be insulated _____ ft (linear)	
	N/A due to Heavy termite infestation (ok per code official only)			
Crawl Space:				(R402.2.10)
Conditioned:	Wall R-Value _____	R- _____	Cavity and/or Continuous _____	
	(Vapor Barrier covering soil and <u>No</u> outside air openings)			
Unconditioned:	Ceiling R-Value _____	R- _____		
	(Outside air openings, no conditioned air)			
Basement: conditioned	Unconditioned basements must be thermally isolated from remainder of home			(R402.2.8)
R- _____	Cavity and/or Continuous	Basement Walls (excluding above grade walk out/garden levels)		
<u>Y / N</u>	Insulation installed from top of basement wall down 10' or to floor, whichever is less			(R402.2.8.1)
Exterior Walls:				(R402.2.5/R402.2.6)
R- _____	Cavity and/or Continuous	Wood / Steel / Mass / Other		
R- _____	Cavity and/or Continuous	Wood / Steel / Mass / Other		
R- _____	Cavity and/or Continuous	Wood / Steel / Mass / Other		
Ceiling:				(R402.2.1/R402.2.2)
R- _____	Cavity / Continuous	Raised Heel Trusses <u>Y / N</u>		
R- _____	Cavity / Continuous	Ceiling with Attic? <u>Y / N</u>		
R- _____	Attic Access Door/Hatch	Notes: _____		(R402.2.4)
<u>Y / N</u>	Eave Baffles			(R402.2.3)
Floors over Unconditioned Space or outside air:				(R402.2.7)
R- _____	Insulation Location Option	<u>1</u> <u>2</u> <u>3</u>	floor location _____	
R- _____	Insulation Location Option	<u>1</u> <u>2</u> <u>3</u>	floor location _____	
Sunrooms & heated garages:				(R402.2.12)
	Thermally Isolated? <u>Y / N</u>	Conditioned <u>Y / N</u>		
Roof R-Value _____	(Min R19 in CZ 0-4, Min R 24 in CZ 5-8 where thermally isolated)			
Wall R-Value _____	(Min R13 all climate zones where thermally isolated)			
Fenestration:	(Table 402.1.2 / 402.1.3 or UA Trade-off or Performance)			
Windows	U- _____	SHGC- _____	Area weighted U-factor used <u>Y / N</u>	(R402.3.1)
	U- _____	SHGC- _____	Dynamic Glazing Used <u>Y / N</u>	(R402.3.2)
	U- _____	SHGC- _____	15 sq ft glazing exemption used <u>Y / N</u>	(R402.3.3)
Doors	U- _____		24 sq foot door exemption used <u>Y / N</u>	(R402.3.4)
	U- _____			
Skylights	U- _____	SHGC- _____		
Sunroom or	U- _____	SHGC- _____	fenestration	(R402.3.5)
heated garage	U- _____	SHGC- _____	skylight	
	Max U-factor using UA or Performance trade-offs does not exceed required amount in R402.5 <u>Y / N</u>			(R402.5)

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Thermal Envelope Compliance

(Code Section References in Parenthesis)

Air barrier and insulation installation: Table R402.4.1.1

Additional
Prescriptive
Requirements

Air Leakage:

The following items have been verified on plans per **TABLE R402.4.1.1**

(R402.4)

✓	Component	Air Barrier Criteria	Insulation Install Criteria	✓
	General	Continuous air barrier in building envelope	no air permeable insulation for sealing	
	General	breaks or joints in air barrier sealed	-	
	Ceiling/Attic	air barrier in dropped ceiling aligns w/insulation	insulation aligns with air barrier	
	Ceiling/Attic	access to unconditioned attics are sealed	-	
	Walls	junction of foundation and sill plate sealed	corners/headers insulated	
	Walls	junction of top plate and top of ext. wall sealed	insulation in contact with air barrier	
	Walls	knee walls sealed	insulation aligns with air barrier	
	Windows/doors	spaces around windows, doors, skylights sealed	-	
	Rim Joists	Rim joists include exterior air barrier	insulation stays in contact with rim board	
	Rim Joists	Rim board to sill plate & rim to sub floor sealed	-	
	Floors	air barrier installed at exposed edge of insulation	insulation installed to one of 3 options	
	basement/crawl	unvented crawl has vapor barrier on soil	crawl space wall insulation per R402.2.10	
	basement/crawl	air seal penetrations in concrete walls/slabs	Foundation wall insulation per R402.2.8.1	
	basement/crawl	vapor retarders not used as air barriers on walls	Slab insulation per R402.2.10	
	Shafts/penetrations	sealed to allow expansion & contraction	insulation tightly fitted around utilities	
	Shafts/penetrations	Utility penetrations caulked, gasketed, sealed	-	
	Narrow cavities	if 1" or less and unable to insulate, must seal	cut to fit batts or fill cavities w/ insulation	
	garage separation	air seal between garage and conditioned spaces	insulated assemblies per R303 & R402.2.7	
	Recessed lights	if installed in envelope, must be sealed	IC rated, buried or surround w/Insulation	
	plumbing/wiring	all holes in air barrier must be sealed	surround w/insulation or see Table	
	shower/tub	air barrier required behind tubs/showers on exterior walls	Exterior walls behind tubs/showers insulated	
	electric/phone box	air barrier behind boxes or use sealed boxes	-	
	HVAC register boots	boots penetrating envelope - sealed to surface they penetrate	-	
	concealed sprinklers	sealed per manufacturer's specs. No caulking	-	

(Table R402.4.1.1)

Testing:

(R402.4.1.2)

ACH/50 or CFM/sq ft/DUEA ANSI/RESNET/ICC 380 or ASTM E779 or ASTM E1827

(R402.4.1.3)

Y / N

Third Party Testing Required

3rd party verifier

Y / N

Heated garage

To be verified to Table R402.4.1.1 by:

Whole House Mechanical Ventilation and local/spot ventilation per IRC M1505 or IMC 403

Wood-burning fireplaces have tight fitting flue dampers or doors and outdoor combustion air

Windows, skylights, sliding glass doors, and swinging doors meet air leakage requirements

Rooms containing fuel-burning appliances in Climate zones 3-8 meet air leakage requirements

Recessed lighting in the envelop is sealed to limit air leakage per the requirements

Electrical and communication outlet boxes meet air leakage requirements

(R402.4.2)

(R402.4.3)

(R402.4.4)

(R402.4.5)

(R402.4.6)

Notes:

Mechanical System Compliance

(Code Section References in Parenthesis)

(R403)

Other

(R403.1.2)

(R403)

Other

System #2 Btuh _____ Efficiency _____

(R403.3)

(R403.3.3)

(R403.3.6)

(R403.3.7)

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System Compliance Continued

(Code Section References in Parenthesis)

OTHER

<input type="checkbox"/>	Hot water boiler temperature reset where applicable)	(R403.2)
<input type="checkbox"/>	Mechanical System Piping, R-3 where required , plus protection of insulation	(R403.4)
<input type="checkbox"/>	Heated water circulation systems have circulation pump	(R403.5.1.1)
<input type="checkbox"/>	Heated water circulation systems dedicated return pipe or cold water supply pipe	
<input type="checkbox"/>	controls for circulating HW system pumps automatically turn off pump at desired temp and no demand for hot water	
<input type="checkbox"/>	Controls limit temp of water entering cold water piping to no more than 104 degrees.	
<input type="checkbox"/>	Any demand recirc system controls start pump on a signal from a user or sensing flow	(R403.5.1.1.1)
<input type="checkbox"/>	Electric heat trace has controls to automatically adjust energy input to maintain the desired water temp in piping in accordance with times heated water is used in occupancy	(R403.5.1.2)
<input type="checkbox"/>	Hot water piping insulated to R3 where applicable per code section	(R403.5.2)
<input type="checkbox"/>	Where installed, drain water heat recovery units comply with CSA B55.2	(R403.5.3)
<input type="checkbox"/>	Mechanical Ventilation and Whole House Mechanical Ventilation	(R403.6)
	WHMV strategy: Exhaust____Supply____Balanced____ <u>System description:</u>	(IRC/IMC)
<input type="checkbox"/>	Automatic or Gravity dampers where required	(R403.6)
<input type="checkbox"/>	Heat or Energy recovery ventilation for Climate Zones 7 and 8	(R403.6.1)
<input type="checkbox"/>	WHMV Fan efficacy- does the fan used meet the efficacies in Table R403.6.2	(R403.6.2)
<input type="checkbox"/>	Mechanical ventilation systems shall be tested to verify flow rates (includes WHMV & Spot ventilation)	(R403.6.3)
<input type="checkbox"/>	Snow & Ice Melt controls shut off system when surface temp is over 50degrees or when outside temp is over 40 degrees	(R403.9)
Pools	<input type="checkbox"/> Ready access for on-off switches for pool heaters where required	(R403.10.1)
	<input type="checkbox"/> Automatic time switches for pool heaters where required	(R403.10.2)
	<input type="checkbox"/> Vapor retardant Pool cover for outdoor heated pools	(R403.10.3)
	<input type="checkbox"/> Portable spas comply with APSP 14	(R403.11)
	<input type="checkbox"/> Energy consumption of residential pools and permanent spas per APSP 15	(R403.12)
Lighting	<input type="checkbox"/> 100% of lamps in permanently installed fixtures are high efficacy	(R404.1)
	<input type="checkbox"/> Exterior lighting complies with commercial lighting section C405.4 (see exceptions)	(R404.1.1)
	<input type="checkbox"/> Fuel gas lighting does not have continuously burning pilot lights	(R404.1.2)
	<input type="checkbox"/> Permanently installed lighting fixtures have dimmers, occupant sensors, or other controls see exceptions	(R404.2)
	<input type="checkbox"/> Exterior lighting of greater than 30 watts has proper lighting controls	(R404.3)

Other notes: For buildings going Total Building Performance - be sure to check out Table R405.2 for a list of the mandatory items that they must comply with. These are the things that they cannot trade off. In old editions of the code you would see (mandatory) by a code section. Now it is just located in this table here in R405 for this path. For the ERI path, refer to Table R406.2.