

Pikes Peak REGIONAL Building Department

2024 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) RESIDENTIAL INSULATION CERTIFICATE

This certificate is based on the 2024 International Energy Conservation Code (IECC). This certificate is applicable to One- and Two- family Dwellings as well as Townhouses, R2, R-3 and R-4 buildings three stories or less in height. *This certificate is required to be submitted as part of the plan review package.*

ADDRESS OR MASTER #:

GARAGE IS: **HEATED** **UNHEATED** **N/A**

INSPECTION REQUIREMENTS

Section R402.5 of the IECC requires the thermal envelope to be sealed to limit air leakage. The IECC requires the thermal envelope to be visually inspected and tested to demonstrate compliance with building envelope tightness requirements. Selection of the method of inspection shall occur when the Building Frame inspection is scheduled. Below is a summary of inspection options.

1. Third party visual inspection and testing with documentation required at time of final inspection.
2. RBD visual inspection and third party testing with documentation required at time of final inspection.

NOTE: *The Simulated Building Performance and Energy Rating Index options require third party inspections.*

METHOD OF ENERGY CODE COMPLIANCE (Climate Zone 5):

The IECC provides various options for compliance with minimum standards. Check the box to indicate the method of compliance and proceed to indicated form section. If additional documentation is required, it must accompany this form.

Insulation and fenestration criteria (IECC R402.1.2) See Section 1	Component performance alternative or REScheck (IECC R402.1.5) See Section 3	Simulated Building Performance or REScheck (IECC R405) See Section 5
R-value alternative (IECC R402.1.3) See Section 2	Heated sunroom or garage (IECC 402.2.13 and R402.4.5) See Section 4	Energy Rating Index Compliance Alternative (IECC R406) See Section 6
R-value computation (IECC R402.1.4) See Section 2		

SECTION 1 INSULATION AND FENESTRATION CRITERIA (Table R402.1.2)

Door and Window U-Factor	Skylight U-Factor	Ceiling U-Value	Wood Frame Wall U-Value	Mass Wall U-Value	Floor U-Value	Basement Wall U-Value	Slab R-Value/Depth	Crawlspace Wall U-Value
0.30	0.50	0.026	0.045	0.082	0.033	0.050	R10ci/2.5 ft	0.055

_____ Wall U-Factor (wood frame or mass) _____ Floor U-Factor _____ Slab perimeter R-value
 _____ Ceiling U-Factor _____ Basement Wall U-Factor _____ Glazing U-Factor
 _____ Crawlspace Wall U-Factor _____ Door(s) U-Factor

SECTION 2 R VALUE ALTERNATIVE OR R VALUE COMPUTATION (Table R402.1.3)

Door and Window U-Factor	Skylight U-Factor	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value/Depth	Crawlspace Wall R-Value
0.30	0.50	49	30 or 20+5ci or 13+10ci or 20ci	13/17	30 or 19+7.5ci or 20ci	19 or 15ci or 13+5ci	10ci/2.5 ft	19 or 15ci or 13+5ci

_____ Wall R-Value (wood frame or mass) _____ Floor R-Value _____ Slab perimeter R-Value
 _____ Ceiling R-Value _____ Basement Wall R-Value _____ Glazing U-Factor
 _____ Crawlspace Wall R-Value _____ Door(s) U-Factor

SECTION 3 COMPONENT PERFORMANCE ALTERNATIVE OR RESCHECK (IECC R402.1.5)

This method requires additional documentation to prove compliance. Include calculations showing the total building thermal envelope thermal conductance is less than or equal to the thermal conductance using factors in Table R402.1.2. The total thermal conductance shall be determined using IECC Equation 4-1. This can either be manual calculations, or calculation using the Department of Energy REScheck software.

_____ Wall R/U-Value (wood frame or mass) _____ Floor R/U-Value _____ Slab perimeter R/U-Value
 _____ Ceiling R/U-Value _____ Basement Wall R/U-Value _____ Glazing U-Factor
 _____ Crawlspace Wall R/U-Value _____ Door(s) U-Factor

SECTION 4 HEATED SUNROOM OR GARAGE (IECC R402.2.13 / R402.4.5)

This section applies to sunrooms and heated garages only. Roof and wall insulation is allowed to be reduced due to these areas not being considered living spaces.

Door and Window U-Factor	Skylight U-Factor	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value/Depth	Crawlspace Wall R-Value
0.45	0.70	24	13	13	30 or 19+7.5ci or 20ci	19 or 15ci or 13+5ci	10ci/2.5 ft	19 or 15ci or 13+5ci

_____ Wall R-Value (wood frame or mass) _____ Floor R-Value _____ Slab perimeter R-Value
 _____ Ceiling R-Value _____ Basement Wall R-Value _____ Glazing U-Factor
 _____ Crawlspace Wall R-Value _____ Door(s) U-Factor

SECTION 5 SIMULATED BUILDING PERFORMANCE OR RESCHECK (IECC R405)

This method requires additional documentation to prove compliance. Include the software compliance report and summarize the values below. *Available only to design professionals licensed in the State of Colorado or by qualified persons as approved by the Building Official.*

_____ Wall R-Value (wood frame or mass)	_____ Floor R-Value _____ Basement Wall R-Value _____ Crawlspace Wall R-Value	_____ Slab perimeter R-Value _____ Glazing U-Factor _____ Door(s) U-Factor
_____ Ceiling R-Value		

SECTION 6 ENERGY RATING INDEX COMPLIANCE ALTERNATIVE (IECC R406)

This method requires additional documentation to prove compliance. Include the software compliance report and summarize the values below. *Available only to design professionals licensed in the State of Colorado or by qualified persons as approved by the Building Official.*

_____ Wall R-Value (wood frame or mass)	_____ Floor R-Value _____ Basement Wall R-Value _____ Crawlspace Wall R-Value	_____ Slab perimeter R-Value _____ Glazing U-Factor _____ Door(s) U-Factor
_____ Ceiling R-Value		

ADDITIONAL ENERGY EFFICIENCY OPTIONS

The IECC requires additional energy efficiency credits be met, in addition to the other IECC requirements. Page 4 outlines all the energy efficiency measures available in this climate zone, where they are outlined in the IECC, and what each measure's credit value is. Put a check mark next to all energy efficiency measures to be utilized, a minimum of 2 different credits are required. Provide the sum of the credits below.

10 CREDITS REQUIRED (15 CREDITS FOR DWELLING UNITS >5000 SF OF LIVING SPACE ABOVE GRADE)

TOTAL PROPOSED CREDITS: _____

For MASTERS ONLY, if equipment options exist that would change the number of proposed credits, then outline those changes along with the corresponding measures and credits.

OUTLINE OF CREDIT VARIATIONS (MASTERS ONLY):

ADDITIONAL ENERGY EFFICIENCY OPTIONS (MUST CHOOSE AT LEAST TWO)

MEASURE NUMBER	MEASURE DESCRIPTION	CREDIT VALUE
R408.2.1.1(1)	≥ 2.5% Reduction in total TC	1
R408.2.1.1(2)	≥ 5% reduction in total TC	2
R408.2.1.1(3)	> 7.5% reduction in total TC	2
R408.2.1.1(4)	> 10% reduction in total TC	4
R408.2.1.1(5)	> 15% reduction in total TC	5
R408.2.1.1(6)	> 20% reduction in total TC	7
R408.2.1.1(7)	> 30% reduction in total TC	11
R408.2.1.2(1)	U-factor and SHGC for vertical fenestration per Table R408.2.1.2	1
R408.2.1.4	Reduced air leakage	3
R408.2.2(1)b	Ground source heat pump	15
R408.2.2(2)b	High Performance Cooling (Option 1)	1
R408.2.2(3)b	High Performance Cooling (Option 2)	1
R408.2.2(4)b	High Performance Gas furnace (Option 1)	6
R408.2.2(5)b	High Performance Gas furnace (Option 2)	5
R408.2.2(11)b	High Performance Gas furnace and cooling (Option 3)	6
R408.2.2(12) b	High Performance Gas furnace and cooling (Option 4)	7
R408.2.2(13)b	High Performance Gas furnace and heat pump (Option 2)	11
R408.2.2(14)b	High Performance Heat pump with electric resistance backup (Option 2)	12
R408.2.3(1)(a)d	Gas-fired storage water heaters (Option 1)	4
R408.2.3(1)(b)d	Gas-fired storage water heaters (Option 2)	5
R408.2.3(2)(a)d	Gas-fired instantaneous water heaters (Option 1)	5
R408.2.3(2)(b)d	Gas-fired instantaneous water heaters (Option 2)	6
R408.2.3(3)d	Electric water heaters (Option 1)	4
R408.2.3(4)d	Electric water heaters (Option 2)	4
R408.2.3(5)(a) d	Electric water heaters (Option 3)	5
R408.2.3(5)(b) d	Electric water heaters (Option 4)	5
R408.2.3(6)d	Electric water heaters (Option 5)	4
R408.2.3(7)(a)d	Solar hot water heating system (Option 1)	5
R408.2.3(7)(b) d	Solar hot water heating system (Option 2)	6
R408.2.3(8)c	Compact hot water distribution	2
R408.2.4(1)c	Ductless or hydronic thermal distribution	10
R408.2.4(2)c	100% of duct systems in conditioned space	9
R408.2.4(3)c	≥ 80% of ductwork inside conditioned space	7
R408.2.4(4) c	Reduced total duct system leakage	1
R408.2.5(1)c	ERV or HRV installed	3
R408.2.5(2)c	≤ 2.0 ACH50 with ERV or HRV installed	8
R408.2.5(4)c	≤ 1.5 ACH50 with ERV or HRV installed	10
R408.2.5(5)c	≤ 1.0 ACH50 with ERV or HRV installed	12
R408.2.6a	Energy efficient appliances	1
R408.2.7	On-site renewable energy measures	9
R408.2.8c	Demand responsive thermostat	1