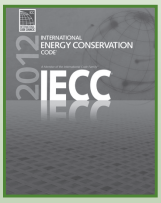


2012 INTERNATIONAL ENERGY CONSERVATION CODE® PLAN REVIEW RECORD

Plan Review # _____
Date: _____
Valuation: _____
Fee: _____

JURISDICTION: _____
(City, County, Township, etc.)

BUILDING LOCATION: _____
(Street address)

BUILDING DESCRIPTION: _____

_____

REVIEWED BY: _____

Numerals indicated in parenthesis are applicable code sections of the 2012 *International Energy Conservation Code (IECC)*. The plan review accomplished as indicated in this record is limited to those code sections specifically identified herein. This record references commonly applicable code sections with due regard for the amount and type of detailed information which is typically found on construction documents relative to energy considerations. It does not reference all code provisions which may be applicable to specific buildings. This record is designed to be used only by those who are knowledgeable and capable of exercising competent judgement in evaluating construction documents for code compliance.

CORRECTION LIST

No.	DESCRIPTION	Code Section

INTERNATIONAL CODE COUNCIL, INC.
PHONE 1-888-ICC-SAFE • WWW.ICCSAFE.ORG

ISBN 978-1-60983-263-6
Item No. 0802PR12

CORRECTION LIST (cont’d.)

No.	DESCRIPTION	Code Section

CORRECTION LIST (cont'd.)		
No.	DESCRIPTION	Code Section

PLAN REVIEW FORM NOTES: The IECC Plan Review Record is a checklist used to evaluate energy-related features of detached one- and two- family dwellings, all other Group R-2, R-4 or townhouse buildings three stories or less in height and commercial buildings. Included is the evaluation of building envelope design for adequate thermal resistance and low air leakage and the design and selection of mechanical, electrical and service water heating systems, and equipment which will promote the effective use of energy in building construction.

The form is structured by providing a general overview of the building envelope, followed by a section-by-section checklist. **Letter designations used in this form: "C" prior to the section refers to the Commercial Provisions. "R" prior to the section refers to the Residential Provisions. "CE" designates that the provisons are primarily maintained by the Commercial Energy Code Development Committee. "RE" designates that the provisons are primarily maintained by the Residential Energy Code Development Committee.**

THE BUILDING ENVELOPE

To establish compliance with the building envelope provisions of the IECC, proposed insulation levels for ceiling, wall, floor and foundation components which constitute the building envelope must be specified on the construction documents. The following table can be used to help determine how a given building envelope component should be entered in the IECC Plan Review Record.

CEILING COMPONENTS	
Ceilings	Flat ceiling Cathedral or vaulted ceilings Dormer roofs Bay window roofs Overhead portions of an interior stairway to an attic Attic hatches (more than 30 degrees from vertical, otherwise classified as walls) A-frames (8 feet above finished floor of top story)
Floors over outside air	Floors of overhangs (such as the floor above a recessed entryway or carport) Floor cantilevers Floors of an elevated home
Fenestration	Skylight and roof window assemblies
WALL COMPONENTS	
Walls	Opaque portions of above-grade walls Basement walls and kneewalls less than 50 percent below grade Peripheral edges of floors Gable end walls bounding conditioned space Dormer walls Roof or attic kneewalls Through-wall chimneys Walls of an interior stairway to an unconditioned basement Walls enclosing a mansard roof Skylight shafts
Fenestration	Windows, including basement windows (glass and non-glass glazing materials) Sliding glass doors Glass block Opaque doors, glazed doors and combination opaque/glazed doors
FLOOR AND FOUNDATION COMPONENTS	
Floors over unconditioned space	Floors over an unconditioned crawl space, basement, garage, or similar unconditioned space
Basement walls	Opaque portions of individual basement walls 50 percent or more below grade and basement kneewalls where the basement kneewall is 50 percent or more below grade. NOTE: The above-grade portion of the wall is considered a part of the basement wall where the total wall is 50 percent or more below grade
Slab edge	Perimeter edges of slab-on-grade floors
Crawl space walls	Walls of crawl spaces below uninsulated floors

ADMINISTRATION AND ENFORCEMENT (CHAPTER 1 CE, RE)

SCOPE AND GENERAL REQUIREMENTS (C101, C103, R101, R103)

RESIDENTIAL BUILDINGS
(C101.2, C202, R101.2, R202)

Detached one- or two-family dwelling _____

Group R-2, R-3, R-4 or townhouse; (three stories or less in height) _____

COMMERCIAL BUILDINGS
(C101.2, C202, R101.2, R202)

Prescriptive practice *(C401.2 Item 2, C402-C405, C406.2, C406.3, C406.4)* _____

Total Building Performance *(C401.2 Item 3, C407)* _____

ANSI/ASHRAE/IESNA 90.1 *(C401.2 Item 1)* _____

APPLICABILITY *(C101.4, C101.5, R101.4, R101.5)*

Low energy buildings *(C101.5.2, R101.5.2)*

Peak energy use < 3.4 Btu/h·ft^2 (1.0 W/ft^2) Yes/No

Unconditioned Yes/No

SUBSTANTIATING DATA
(C102, C103, C303, R102, R103, R303)

Certificate (Mandatory) *(R401.3)* _____

Materials, systems, equipment *(C303, R303)* _____

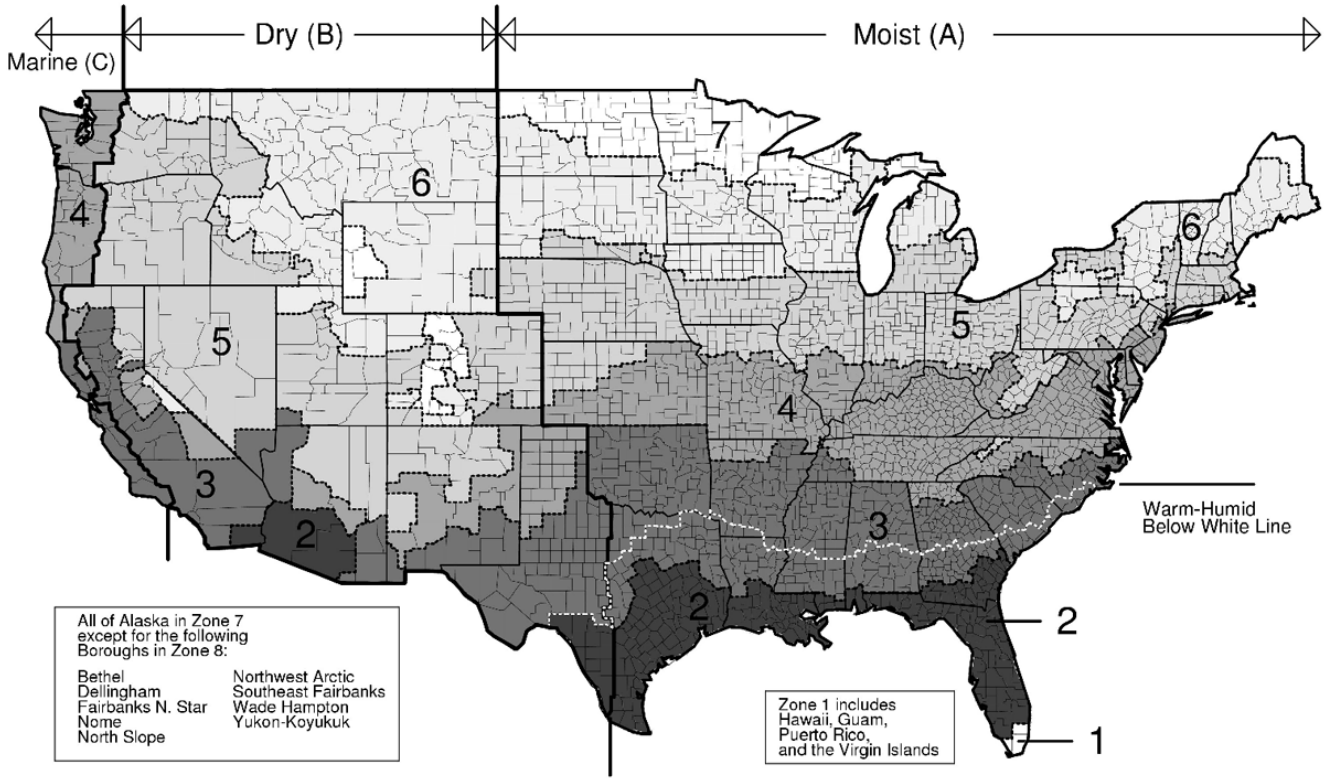
Fenestration product rating *(C303.1.3, R303.1.3)* _____

Insulation product rating *(C303.1.4, R303.1.4)* _____

Foundation insulation *(C303.2.1, R303.2.1)* _____

Information on construction documents *(C103.2, R103.2)* _____

NOTE: The review of IRC buildings as applicable in Section 101.2 of the 2012 *International Building Code* is beyond the scope of this plan review record except as specifically permitted by the 2012 *International Residential Code*.



Climate Zone _____

FIGURE C301.1, R301.1
CLIMATE ZONES

COMMERCIAL PROVISIONS

BUILDING SYSTEM REQUIREMENTS (CHAPTER 4 CE)

BUILDING ENVELOPE (C402)

INSULATION REQUIREMENTS

Insulation criteria *(C402.1, C402.1.1, Table C402.2)* _____

U-factor alternative *(C402.1, C402.1.2, Table C402.1.2)* _____

Roof assembly *(C402.2.1)* Type _____ Required *R*-value _____ Compliance _____

Roof solar reflectance and thermal emittance *(C402.2.1.1, Table C402.2.1.1)* _____

Above-grade walls *(C402.2.3)* Type _____ Required *R*-value _____ Compliance _____

Below-grade walls *(C402.2.4)* Required *R*-value _____ Compliance _____

Floors *(C402.2.5)* Type _____ Required *R*-value _____ Compliance _____

Slab-on-grade floors *(C402.2.6)* Type _____ Required *R*-value _____ Compliance _____

Opaque doors *(C402.2.7)* Type _____ Required *U*-factor/*R*-value _____ Compliance _____

FENESTRATION

Vertical fenestration area *(C402.3.1)* Amount _____ Compliance _____

Skylight area *(C402.3.1)* Amount _____ Compliance _____

Increased vertical fenestration area *(C402.3.1.1)* _____

Increased skylight area *(C402.3.1.2)* _____

Minimum skylight fenestration area *(C402.3.2)* Amount _____ Compliance _____

Lighting controls *(C402.3.2.1, C405.2.2.3.3)* _____

Haze factor *(C402.3.2.2)* _____

Vertical fenestration *(C402.3.3, Table C402.3)* *U*-factor _____ SHGC _____ Compliance _____

Skylights *(C402.3.3, Table C402.3)* *U*-factor _____ SHGC _____ Compliance _____

Window projection factor *(C402.3.3)* _____

SHGC adjustment *(C402.3.3.1, Table C402.3.3.1)* _____

Increased vertical fenestration SHGC *(C402.3.3.2)* _____

Increased skylight SHGC *(C402.3.3.3)* _____

Increased skylight *U*-factor *(C402.3.3.4)* _____

Dynamic glazing *(C402.3.3.5)* _____

Area-weighted *U*-factor *(C402.3.4)* _____

AIR LEAKAGE (MANDATORY)

Air barriers *(C402.4.1, C402.4.1.1, C402.4.1.2, C402.4.2)* _____

Air leakage of fenestration *(C402.4.3, Table C402.4.3)* _____

Doors and access openings *(C402.4.4)* _____

Air intakes, exhaust openings *(C402.4.5)* _____

Loading docks *(C402.4.6)* _____

Vestibules *(C402.4.7)* _____

Recessed lighting *(C402.4.8)* _____

MECHANICAL SYSTEMS (C403)

APPLICABLE TO ALL HVAC EQUIPMENT AND SYSTEMS (MANDATORY)

- Design conditions *(C302)* _____
- Load calculations *(C403.2.1)* _____
- Equipment and system sizing *(C403.2.2)* _____
- Equipment performance *[C403.2.3, Tables C403.2.3(1) - (9)]* _____
  - Water cooled chilling *(C403.2.3.1)* _____
  - Positive displacement chilling *(C403.2.3.2)* _____
- Temperature/humidity control *(C403.2.4.1)* _____
  - Heat pump control *(C403.2.4.1.1)* _____
- Set point overlap *(C403.2.4.2)* _____
- Off-hour controls *(C403.2.4.3)* _____
  - Thermostatic setback *(C403.2.4.3.1)* _____
  - Automatic setback/shutdown *(C403.2.4.3.2)* _____
  - Automatic start *(C403.2.4.3.3)* _____
- Shutoff damper controls *(C403.2.4.4)* _____
- Snow melt system controls *(C403.2.4.5)* _____
- Demand controlled ventilation *(C403.2.5.1)* _____
- Energy recovery ventilation systems *(C403.2.6)* _____
- System completion/commissioning *(C403.2.9, C408.2)* _____
- Air system design and control *(C403.2.10)* _____
- Allowable fan floor horsepower *[C403.2.10.1, Table C403.2.10.1(1)]* _____
- Motor nameplate horsepower *[C403.2.10.2, Table C403.2.10.1(2)]* _____
- Heating outside a building *(C403.2.11)* _____

DUCT AND PIPING SYSTEMS (MANDATORY)

- Duct insulation/sealing *(C403.2.7)* _____
- Duct construction *(C403.2.7.1)* _____
  - Low-pressure duct systems *(C403.2.7.1.1)* _____
  - Medium-pressure duct systems *(C403.2.7.1.2)* _____
  - High-pressure duct systems *(C403.2.7.1.3)* _____
- Piping insulation *(C403.2.8, Table C403.2.8)* _____
  - Protection *(C403.2.8.1)* _____

SIMPLE HVAC SYSTEMS

The mechanical systems are unitary or packaged HVAC systems listed in Tables C403.2.3(1) - C403.2.3(8). The complex HVAC system requirements do not apply.

- Economizers *(C403.3.1)* _____
  - Design capacity *(C403.3.1.1.1)* _____
  - Control signal *(C403.3.1.1.2)* _____
  - High-limit shutoff *(C403.3.1.1.3)* _____
  - Excess outdoor air *(C403.3.1.1.4)* _____
- Hydronic system controls *(C403.3.2)* _____

COMPLEX HVAC SYSTEMS

The mechanical system is a complex HVAC system not covered in Section C403.3. The simple HVAC system requirements do not apply.

- Economizers *(C403.4.1)* _____
  - Design capacity *(C403.4.1.1)* _____
  - Maximum pressure drop *(C403.4.1.2)* _____
  - Economizer control *(C403.4.1.3)* _____
  - Economizer heating system *(C403.4.1.4)* _____
- VAV fan control *(C403.4.2)* _____
  - Static presssure sensor *(C403.4.2.1)* _____
  - Set points *(C403.4.2.2)* _____
- Hydronic system controls *(C403.4.3)* _____
- Heat rejection equipment fan controls *(C403.4.4)* _____
- Multiple zone systems *(C403.4.5)* _____
  - Single duct VAV *(C403.4.5.1)* _____
  - Dual duct and mixing VAV *(C403.4.5.2)* _____
  - Single fan dual duct and mixing VAV, economizers *(C403.4.5.3)* _____
  - Supply-air temperature reset controls *(C403.4.5.4)* _____
- Heat recovery for service water heating *(C403.4.6)* _____
- Hot gas bypass limitation *(C403.4.7)* _____

SERVICE WATER HEATING SYSTEMS (C404) (MANDATORY)

SWH equipment efficiency *(C404.2, Table C404.2)* _____

Temperature controls *(C404.3)* _____

Heat traps *(C404.4)* _____

Piping insulation *(C404.5)* _____

Hot water system controls *(C404.6)* _____

Swimming pools/spas *(C404.7)* _____

Heaters *(C404.7.1)* _____

Time switches *(C404.7.2)* _____

Covers *(C404.7.3)* _____

ELECTRICAL POWER AND LIGHTING SYSTEMS (C405) (MANDATORY)

LIGHTING CONTROLS

Interior lighting controls *(C405.2.1.1)* _____

Light reduction controls *(C405.2.1.2)* _____

Automatic time switch control *(C405.2.2.1)* _____

Occupancy sensors *(C405.2.2.2)* _____

Daylight zone control *(C405.2.2.3)* _____

Manual daylighting *(C405.2.2.3.1)* _____

Automatic daylighting *(C405.2.2.3.2)* _____

Multi-level lighting *(C405.2.2.3.3)* _____

Specific application controls *(C405.2.3)* _____

Exterior lighting controls *(C405.2.4)* _____

Tandem wiring *(C405.3)* _____

Exit signs *(C405.4)* _____

Interior lighting power *(C405.5)* PASS/FAIL

Exterior lighting efficacy *(C405.6.1)* _____

Exterior lighting power *(C405.6.2)* PASS/FAIL

Lighting zone *[Table C405.6.2(1)]* _____

Separate metering *(C405.7)* _____

NOTES

Interior Lighting Power Allowances
Building Area Method [Table C405.5.2(1)]

Building Area Type	Lighting Power Allowance (w/ft^2)	Floor Area of Building Type (ft^2)	Lighting Power × Area of Building Type	Actual Watts
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Space-by-Space Method [Table C405.5.2(2)]

Space Type	Lighting Power Allowance (w/ft^2)	Floor Area of Space (ft^2)	Lighting Power × Floor Area of Space	Actual Watts
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Exterior Building Lighting Power (C405.6.2)

Tradeable Surfaces	Area of Tradeable Surface	Tradeable Surface Allowance	Area × Allowance	Actual Watts
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Nontradeable Surfaces	Area of Nontradeable Surface	Nontradeable Surface Allowance	Area × Allowance	Actual Watts
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

ADDITIONAL EFFICIENCY (C406)

Efficient HVAC *(C406.2)* _____

Efficient lighting *(C406.3)* _____

Renewable energy *(C406.4)* _____

TOTAL BUILDING PERFORMANCE (C407)

Performance-based *(C407.3)* _____

Documentation *(C407.4)* _____

Calculations *(C407.5)* _____

Calculation software *(C407.6)* _____

SYSTEM COMMISSIONING (C408)

Mechanical systems *(C408.2)* _____

- Commissioning plan *(C408.2.1)* _____
- Adjusting and balancing *(C408.2.2)* _____
  - Air systems *(C408.2.2.1)* _____
  - Hydronic systems *(C408.2.2.2)* _____
- Functional performance *(C408.2.3)* _____
  - Equipment *(C408.2.3.1)* _____
  - Controls *(C408.2.3.2)* _____
  - Economizers *(C408.2.3.3)* _____
  - Preliminary report *(C408.2.4)* _____
  - Documentation *(C408.2.5)* _____

Lighting systems *(C408.3)* _____

- Functional testing *(C408.3.1)* _____

NOTES

RESIDENTIAL PROVISIONS

BUILDING SYSTEM REQUIREMENTS (CHAPTER 4 RE)

BUILDING ENVELOPE (R402)

INSULATION REQUIREMENTS

Compliance method *(R402.1.1, R402.1.3, Table R402.1.1, Table R402.1.3, R402.1.4)* _____

Ceilings with attic spaces *(R402.2.1)* _____

Ceilings without attic spaces *(R402.2.2)* _____

Eave baffle *(R402.2.3)* _____

Access hatches and doors *(R402.2.4)* _____

Mass walls *(R402.2.5)* _____

Steel frame ceilings, walls and floors *(R402.2.6, Table R402.1.3, Table R402.2.6)* _____

Floors *(R402.2.7)* _____

Basement walls *(R402.2.8)* _____

Slab-on-grade floors *(R402.2.9, Table R402.1.1)* _____

Crawl space walls *(R402.2.10)* _____

Masonry veneer *(R402.2.11)* _____

Sunroom *(R402.2.12)* _____

FENESTRATION

Glazed fenestration SHGC *(Table R402.1.1)* Required ____ Proposed_____

Weighted average *U*-factor *(R402.3.1)* _____

Weighted average SHGC *(R402.3.2)* _____

Glazed fenestration exemption *(R402.3.3)* _____

Opaque door exemption *(R402.3.4)* _____

Sunroom *(R402.3.5)* _____

Replacement *(R402.3.6)* _____

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

AIR LEAKAGE (MANDATORY)

Thermal envelope installation *(R402.4.1.1, Table R402.4.1.1)* _____

Thermal envelope testing *(R402.4.1.2)* _____

Fireplaces *(R402.4.2)* _____

Fenestration *(R402.4.3)* _____

Recessed lighting *(R402.4.4)* _____

NOTES

MECHANICAL/SERVICE WATER HEATING SYSTEMS (R403)

Controls (Mandatory) *(R403.1)* _____

Programmable thermostat *(R403.1.1)* _____

Heat pump supplementary heat (Mandatory) *(R403.1.2)* _____

Ducts *(R403.2)* _____

Insulation *(R403.2.1)* _____

Sealing (Mandatory) *(R403.2.2, R403.2.2.1)* _____

Building cavities (Mandatory) *(R403.2.3)* _____

Mechanical piping insulation (Mandatory) *(R403.3)* _____

Protection *(R403.3.1)* _____

Service hot water *(R403.4)* _____

Circulating system (Mandatory) *(R403.4.1)* _____

Hot water pipe insulation *(R403.4.2)* _____

Mechanical ventilation (Mandatory) *(R403.5)* _____

Whole-house *(R403.5.1, Table R403.5.1)* _____

Equipment sizing (Mandatory) *(R403.6)* _____

Multiple dwelling units (Mandatory) *(R403.7, C403, C404)* _____

Snow melt (Mandatory) *(R403.8)* _____

Pools/spas (Mandatory) *(R403.9)* _____

Heaters *(R403.9.1)* _____

Time switches *(R403.9.2)* _____

Covers *(R403.9.3)* _____

ELECTRICAL POWER AND LIGHTING SYSTEMS (R404) (MANDATORY)

LIGHTING EQUIPMENT

High-efficiency lamps *(R404.1)* _____

Fuel gas lighting *(R404.1.1)* _____

SIMULATED PERFORMANCE ALTERNATIVE (R405)

Compliance _____

NOTES

ENVELOPE DESIGN WORKSHEET FOR RESIDENTIAL BUILDINGS

COMPONENT DESIGN (R402.1.1) AND *U*-FACTOR ALTERNATIVE (R402.1.3)

[TO BE COMPLETED WHERE ONE OF THE CORRESPONDING RESIDENTIAL ENVELOPE COMPLIANCE ALTERNATIVES ABOVE IS USED FOR COMPLIANCE ASSESSMENT]

PROPOSED	REQUIRED[a, c]

Climate Zone *(R301.1)*

Climate Zone *(R301.1)*

***R*-value[b]**

Description	Insulation Depth		Proposed *R*-value/*U*-factor
Ceilings	NA		*R*-
Wood Frame Walls	NA		*R*-
Mass Walls	NA		*R*-
Floors Over Unconditioned Space	NA		*R*-
Basement Walls	NA		*R*-
Slab Edge	Unheated	ft.	*R*-
	Heated	ft.	*R*-
Crawl Space Walls		ft.	*R*-

Minimum Required *R*-value[b]/*U*-factor *(R402.1.1, R402.1.3)*		
R-		
R-		
R-		
R-		
R-		
Slab	ft.	*R*-
	ft.	*R*-
Crawl	ft.	*R*-

***U*-factor[b]**

Description	Proposed *U*-factor
Fenestration (includes opaque doors)	*U*-
Skylight	*U*-

Maximum *U*-factor[b] *(R402.1.1, R402.1.3)*
U-
U-

Compliance

The proposed building has been designed to meet the envelope requirements of the IECC.

Compliance *(R402.1.1, R402.1.3)*

Yes/No

---

[a] For component designs (R402.1.1) and designs by *U*-factor alternative (R402.1.3), required *R*-values/*U*-factors shall be in accordance with the component requirements of Table R402.1.1 and the equivalent *U*-factor requirements of Table R402.1.3, respectively.

[b] $\left(R-\text{value}=\frac{1}{U-\text{factor}}\right)$

[c] For glazed fenestration and opaque door exemptions, see Section R402.3.

WEIGHTED AVERAGE WORKSHEET FOR RESIDENTIAL BUILDINGS

COMPONENT DESIGN (R402.1.1) AND *U*-FACTOR ALTERNATIVE (R402.1.3)

Envelope Assembly:____

Component Description	***R*-value**	***U*-factor (1 ÷ *R*-value)**	**Area**	***U*-factor x Area *(UA)***
			Total Area =	Total *UA* =

________________ ÷ ________________ = ________________
Total Area ÷ Total *UA* Area = Weighted Average *R*-value

________________ ÷ ________________ = ________________
Total *UA* ÷ Total Area = Weighted Average *U*-factor

Envelope Assembly:____

Component Description	***R*-value**	***U*-factor (1 ÷ *R*-value)**	**Area**	***U*-factor x Area *(UA)***
			Total Area =	Total *UA* =

________________ ÷ ________________ = ________________
Total Area ÷ Total *UA* Area = Weighted Average *R*-value

________________ ÷ ________________ = ________________
Total *UA* ÷ Total Area = Weighted Average *U*-factor

Envelope Assembly:____

Component Description	***R*-value**	***U*-factor (1 ÷ *R*-value)**	**Area**	***U*-factor x Area *(UA)***
			Total Area =	Total *UA* =

________________ ÷ ________________ = ________________
Total Area ÷ Total *UA* Area = Weighted Average *R*-value

________________ ÷ ________________ = ________________
Total *UA* ÷ Total Area = Weighted Average *U*-factor

(User Note: Copy this sheet as necessary for additional envelope assemblies)

ENVELOPE DESIGN WORKSHEET FOR RESIDENTIAL BUILDINGS
TOTAL UA ALTERNATIVE (R402.1.4)

[TO BE COMPLETED WHERE THE CORRESPONDING RESIDENTIAL ENVELOPE COMPLIANCE ALTERNATIVE ABOVE IS USED FOR COMPLIANCE ASSESSMENT]

PROPOSED	REQUIRED[a]

Climate Zone *(R301.1)* _____ | **Climate Zone** *(R301.1)* _____

Ceilings and Floors Over Outside Air

Description	Insulation *R*-value[b]	*U*-factor[b]	x Area	= *UA*
Ceilings			ft²	
			ft²	
Floors Over Outside Air			ft²	
		Ceilings: Total Area	ft²	

Required *U*-factor[b]	x Area	= *UA*
	ft²	

Skylights

Description	Insulation *R*-value[b]	*U*-factor[b]	x Area	= *UA*
Skylights	—		ft²	
	—		ft²	
		Skylights: Total Area	ft²	

Required *U*-factor[b]	x Area	= *UA*
	ft²	

Walls

Description	Insulation *R*-value[b]	*U*-factor[b]	x Area	= *UA*
Walls			ft²	
			ft²	
		Walls: Total Area	ft²	

Required *U*-factor[b]	x Area	= *UA*
	ft²	

Vertical Fenestration (Windows and Doors)

Description	Insulation *R*-value[b]	*U*-factor[b]	x Area	= *UA*
Windows	—		ft²	
	—		ft²	
Doors	—		ft²	
	—		ft²	
Sliding Glass Doors	—		ft²	
		Vertical Fenestration: Total Area	ft²	

Required *U*-factor[b]	x Area	= *UA*
	ft²	

Floors and Foundations

Description	Insulation Depth	Insulation *R*-value[b]	*U*-factor[b]	Area or x Perimeter	= *UA*
Floors Over Uncond. Space	NA	NA		ft²	
Basement Walls	NA	NA		ft²	
Unheated Slabs	ft.	—		ft²	
Heated Slabs	ft.	—		ft²	
Crawl Space Walls	ft.	—		ft²	
				ft²	
			Total Proposed *UA*[c]		

Required *U*-factor[b]	Area or x Perimeter	= *UA*
	ft²	
	ft²	
	ft²	
	ft²	
	ft²	
	ft²	
Total Required *UA*[c]		

a Required *U*-factors shall be in accordance with the equivalent *U*-factors from Table R402.1.3.

b $\left(R-\text{value} = \frac{1}{U-\text{factor}}\right)$

c In order to demonstrate compliance with the IECC, Total Proposed UA must be less than or equal to the Total Required *UA*.

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, e]	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	0.35	0.55	0.25	38	13	8/13	19	5/13[f]	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	0.32	0.55	NR	49	20 or 13+5[h]	13/17	30[g]	15/19	10, 2 ft	15/19
6	0.32	0.55	NR	49	20+5 or 13+10[h]	15/20	30[g]	15/19	10, 4 ft	15/19
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

For SI: 1 foot = 304.8 mm.

a. *R*-values are minimums. *U*-factors and SHGC are maximums. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the installed *R*-value of the insulation shall not be less than the *R*-value specified in the table.

b. The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.

c. "15/19" means R-15 continuous insulation on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home. "10/13" means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall.

d. R-5 shall be added to the required slab edge *R*-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Climate Zones 1 through 3 for heated slabs.

e. There are no SHGC requirements in the Marine Zone.

f. Basement wall insulation is not required in warm-humid locations as defined by Figure R301.1 and Table R301.1.

g. Or insulation sufficient to fill the framing cavity, R-19 minimum.

h. First value is cavity insulation, second is continuous insulation or insulated siding, so "13+5" means R-13 cavity insulation plus R-5 continuous insulation or insulated siding. If structural sheathing covers 40 percent or less of the exterior, continuous insulation *R*-value shall be permitted to be reduced by no more than R-3 in the locations where structural sheathing is used – to maintain a consistent total sheathing thickness.

i. The second *R*-value applies when more than half the insulation is on the interior of the mass wall.

TABLE R402.1.3
EQUIVALENT *U*-FACTORS[a]

CLIMATE ZONE	FENESTRATION *U*-FACTOR	SKYLIGHT *U*-FACTOR	CEILING *U*-FACTOR	FRAME WALL *U*-FACTOR	MASS WALL *U*-FACTOR[b]	FLOOR *U*-FACTOR	BASEMENT WALL *U*-FACTOR	CRAWL SPACE WALL *U*-FACTOR
1	0.50	0.75	0.035	0.082	0.197	0.064	0.360	0.477
2	0.40	0.65	0.030	0.082	0.165	0.064	0.360	0.477
3	0.35	0.55	0.030	0.057	0.098	0.047	0.091[c]	0.136
4 except Marine	0.35	0.55	0.026	0.057	0.098	0.047	0.059	0.065
5 and Marine 4	0.32	0.55	0.026	0.057	0.082	0.033	0.050	0.055
6	0.32	0.55	0.026	0.048	0.060	0.033	0.050	0.055
7 and 8	0.32	0.55	0.026	0.048	0.057	0.028	0.050	0.055

a. Nonfenestration *U*-factors shall be obtained from measurement, calculation or an approved source.

b. When more than half the insulation is on the interior, the mass wall *U*-factors shall be a maximum of 0.17 in Climate Zone 1, 0.14 in Climate Zone 2, 0.12 in Climate Zone 3, 0.087 in Climate Zone 4 except Marine, 0.065 in Climate Zone 5 and Marine 4, and 0.057 in Climate Zones 6 through 8.

c. Basement wall *U*-factor of 0.360 in warm-humid locations as defined by Figure R301.1 and Table R301.1.