

Overview of 2007 IECC Code Changes

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Residential Major Changes

- Recessed Lighting
- Vapor Retarders
- Duct Insulation

Building Envelope: Air Sealing

Recessed Lighting Fixtures

Options:

- ❑ Gone - IC-Rated and enclosed in a sealed assembly
- ❑ IC-Rated and meeting ASTM E 283 ≤ 2.0 CFM leakage
- ❑ Gone - Non IC-Rated and located in a sealed assembly with $\frac{1}{2}$ " clearance from combustible assemblies and 3" from insulation



Vapor Retarders

- **402.5 Vapor retarders.** Class I or II vapor retarders are required on the interior side of frame walls in Zones 5, 6, 7, 8 and Marine 4.
- Vapor Retarder Classes:
 - Class I: 0.1 perm or Less
 - Class I: Sheet polyethylene, non-perforated aluminum foil
 - Class II: $0.1 < \text{perm} \leq 1.0$
 - Class II: Kraft faced fiberglass batts or low perm paint (paint with $0.1 < \text{perm} \leq 1.0$)
 - Class III: $1.0 < \text{perm} \leq 10$
 - Class III: Latex or enamel paint

Vapor Retarders

402.5.1 Class III vapor retarders. Class III vapor retarders shall be permitted where any one of the conditions in Table 402.5.1 are met.

TABLE 402.5.1
CLASS III VAPOR RETARDERS

Zone	Class III vapor retarders permitted for:
Marine 4	Vented cladding over OSB Vented cladding over Plywood Vented cladding over Fiberboard Vented cladding over Gypsum Insulated sheathing with R-value \geq R2.5 over 2x4 wall Insulated sheathing with R-value \geq R3.75 over 2x6 wall
5	Vented cladding over OSB Vented cladding over Plywood Vented cladding over Fiberboard Vented cladding over Gypsum Insulated sheathing with R-value \geq R5 over 2x4 wall Insulated sheathing with R-value \geq R7.5 over 2x6 wall
6	Vented cladding over Fiberboard Vented cladding over Gypsum Insulated sheathing with R-value \geq R7.5 over 2x4 wall Insulated sheathing with R-value \geq R11.25 over 2x6 wall
7 and 8	Insulated sheathing with R-value \geq R10 over 2x4 wall Insulated sheathing with R-value \geq R15 over 2x6 wall

Duct Insulation Requirements

Heating and Cooling Equipment

- Duct Insulation
 - Supply ducts in attics R-8
 - All other ducts an R-6
 - Ducts inside the building thermal envelope are exempt



Commercial Major Changes

- U-factor Alternative Table
- Skylight Efficiency Requirements
- Economizers
- Daylighting Controls

U-factor Alternative Table for Building Envelope

TABLE 502.1.2
BUILDING ENVELOPE REQUIREMENTS - OPAQUE ELEMENT, MAXIMUM U-FACTORS

CLIMATE ZONE	1	2	3	4 except Marine <i>d</i>	5 and Marine <i>d</i>	6	7	8
Roof								
Insulation entirely above deck	U-0.063	U-0.063	U-0.063	U-0.063	U-0.048	U-0.048	U-0.039	U-0.039
Metal buildings (with R-5 thermal block)	U-0.052	U-0.065	U-0.065	U-0.065	U-0.065	U-0.065	U-0.052	U-0.052
Attic and other	U-0.034	U-0.034	U-0.034	U-0.034	U-0.034	U-0.034	U-0.027	U-0.027
Walls, Above Grade								
Mass	U-0.580	U-0.580	U-0.151	U-0.151	U-0.123	U-0.104	U-0.090	U-0.080
Metal building	U-0.113	U-0.113	U-0.113	U-0.113	U-0.057	U-0.057	U-0.057	U-0.057
Metal framed	U-0.124	U-0.124	U-0.124	U-0.124	U-0.084	U-0.084	U-0.064	U-0.064
Wood framed and other	U-0.089	U-0.089	U-0.089	U-0.089	U-0.089	U-0.089	U-0.089	U-0.051
Walls, Below grade								
Below grade wall	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-1.140	C-0.119	C-0.119
Floors								
Mass	U-0.322	U-0.123	U-0.123	U-0.076	U-0.076	U-0.076	U-0.055	U-0.055
Joist/Framing	U-0.350	U-0.052	U-0.052	U-0.052	U-0.052	U-0.038	U-0.038	U-0.038
Slab-on-Grade Floors								
Unheated Slabs	F-0.730	F-0.730	F-0.730	F-0.730	F-0.730	F-0.730	F-0.730	F-0.540
Heated Slabs	F-1.020	F-1.020	F-1.020	F-1.020	F-0.950	F-0.840	F-0.840	F-0.780

Skylight Efficiency Requirements

TABLE 502.3
BUILDING ENVELOPE REQUIREMENTS: FENESTRATION

CLIMATE ZONE	1	2	3	4 Except Marine	5 and Marine 4	6	7	8
Vertical Fenestration (40% maximum of above-grade wall)								
U-Factor								
Framing materials other than metal with or without metal reinforcement or cladding								
U-Factor	1.20	0.75	0.65	0.40	0.35	0.35	0.35	0.35
Metal framing with or without thermal break								
Curtain Wall/Storefront								
U-Factor	1.0	0.70	0.60	0.50	0.45	0.45	0.45	0.45
Entrance Door U-Factor								
U-Factor	1.20	1.10	0.90	0.85	0.80	0.80	0.80	0.80
All Other U-Factor ^a								
U-Factor	1.20	0.75	0.65	0.55	0.55	0.55	0.50	0.50
SHGC-All Frame Types								
SHGC: PF < 0.25								
SHGC	0.25	0.25	0.25	0.40	0.40	0.40	NR	NR
SHGC: 0.25 ≤ PF < 0.5								
SHGC	0.33	0.33	0.33	NR	NR	NR	NR	NR
SHGC: PF ≥ 0.5								
SHGC	0.40	0.40	0.40	NR	NR	NR	NR	NR
Skylights (3% maximum)								
U-Factor								
U-Factor	0.75	0.75	0.65	0.60	0.60	0.60	0.60	0.60
SHGC								
SHGC	0.35	0.35	0.35	0.40	0.40	0.40	NR	NR

Economizer Requirements

TABLE 503.3.1(1)
ECONOMIZER REQUIREMENTS

CLIMATE ZONES	ECONOMIZER REQUIREMENT
1A, 1B, 2A, 7, 8	No Requirement
2B, 3A, 3B, 3C, 4A, 4B, 4C, 5A, 5B, 5C, 6A, 6B	Economizers on All Cooling Systems $\geq 54,000 \text{ Btu/h}^a$

For SI: 1 British thermal unit per hour = 0.293 W.

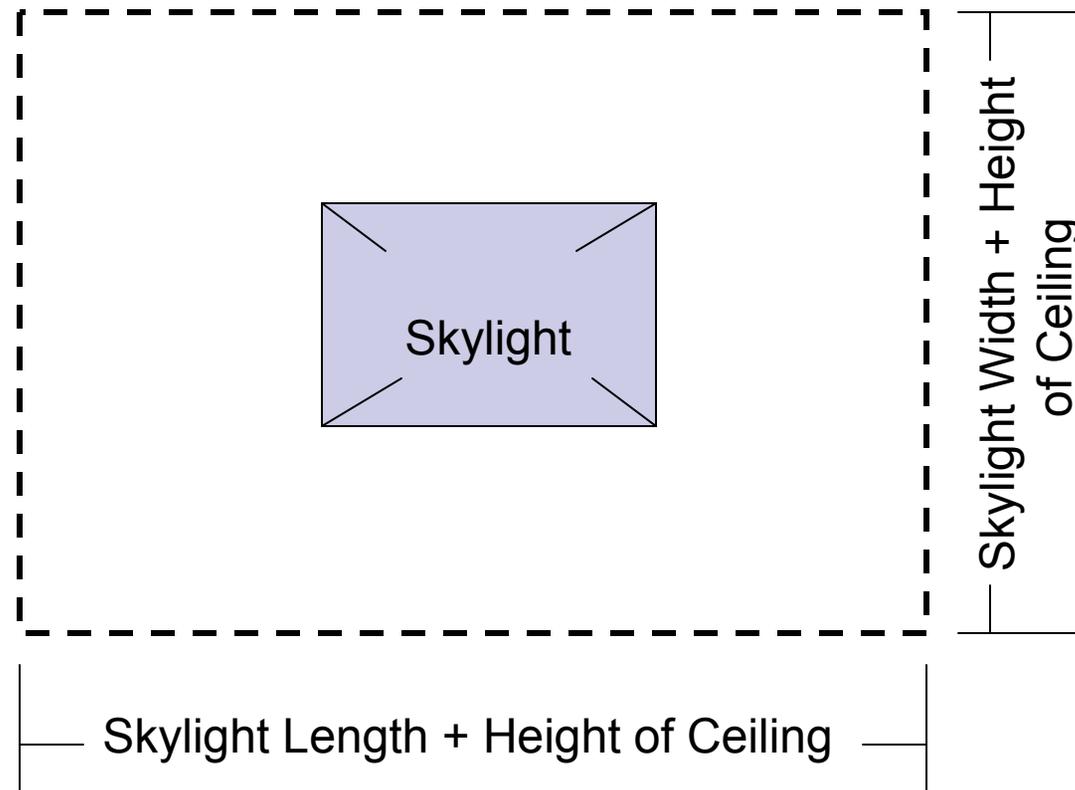
- a. The total capacity of all systems without economizers shall not exceed 480,000 Btu/h per building, or 20% of its air economizer capacity, whichever is greater.

Daylighting Requirements

- **DAYLIGHT ZONE DEFINITION:**

- **Under skylights:** The area under skylights whose horizontal dimension, in each direction, is equal to the skylight dimension in that direction plus either the floor to ceiling height or the dimension to a ceiling height opaque partition, or one-half the distance to adjacent skylights or vertical fenestration, whichever is least.
- **2. Adjacent to vertical fenestration:** The area adjacent to vertical fenestration which receives daylight through the fenestration. For purposes of this definition and unless more detailed analysis is provided, the daylight zone depth is assumed to extend into the space a distance of 15 feet or to the nearest ceiling height opaque partition, whichever is less. The daylight zone width is assumed to be the width of the window plus two feet on each side, or the window width plus the distance to an opaque partition, or the window width plus one-half the distance to adjacent skylight or vertical fenestration, whichever is least.

Daylighting Requirements



Daylighting Requirements

