



TECHNICAL BULLETIN
Community Development & Planning, Building Inspections
TOPIC: 2009 IECC Commercial Prescriptive Envelope
Requirements
Effective May 24, 2012

A commercial building project must comply with the requirements in Sections 502 (Building Envelope Requirements), 503 (Building Mechanical Systems), 504 (Service Water Heating) and 505 (Electrical Power and Lighting Systems) of the 2009 International Energy Conservation Code. This Technical Bulletin provides the minimum R-factor, U-value and SHGC requirements for the Building Thermal Envelope for the various building components.

TABLE 502.2(1)
BUILDING ENVELOPE REQUIREMENTS - OPAQUE ASSEMBLIES

COMPONENT	ALL OTHER	GROUP R OCCUPANCIES
Roofs		
Insulation entirely above deck	R-20ci ¹	R-20ci ¹
Metal buildings - with R-5 thermal blocks	R-13 + R-13	R-19
Attic and other	R-38	R-38
Walls, Above Grade		
Mass	R-7.6ci ¹	R-9.5ci ¹
Metal building	R-19	R-19
Metal framed	R-13 + R-3.8ci ¹	R-13 + R-7.5ci ¹
Wood framed and other	R-13	R-13
Walls, Below Grade		
Below Grade Walls	NR	NR
Floors		
Mass	R-6.3ci ¹	R-8.3ci ¹
Joist/Framing (steel/wood)	R-19	R-30
Slab-on-Grade Floors		
Unheated slabs	NR	NR
Heated slabs	R-10 for 24 in. below	R-10 for 24 in. below
Opaque doors		
Swinging	U - 0.70	U - 0.70
Roll-up or sliding	U - 1.45	U - 1.45

¹ "ci" Means continuous insulation.

(R-13 + R-13) The first R -value is for faced fiberglass insulation batts draped over purlins. The second R -value is for unfaced fiberglass insulation batts installed parallel to the purlins. A minimum R-5 thermal spacer block is placed above the purlin/batt, and the roof deck is secured to the purlins.

(R-13 + R-3.8) (R-13 + R-7.5) The first R -value is for faced fiberglass insulation batts installed perpendicular and compressed between the metal wall panels and the steel framing. The second rated R -value is for continuous rigid insulation installed between the metal wall panel and steel framing, or on the interior of the steel framing.

**TABLE 502.3
BUILDING ENVELOPE REQUIREMENTS: FENESTRATION**

Vertical fenestration (40% maximum of above-grade wall)	
U-factor (maximum)	
Framing materials other than metal with or without metal reinforcement or cladding	
Maximum U-factor	0.65
Metal framing with or without thermal break	
Curtain wall/storefront U –factor	0.60
Entrance door U –factor	0.90
All other U –factor ^a	0.65
SHGC-all frame types (maximum)	
SHGC: PF < 0.25	0.25
SHGC: 0.25 ≤ PF < 0.5	0.33
SHGC: PF < 0.5	0.40
Skylights (maximum area is 3% of roof area)	
U -factor	0.65
SHGC	0.35

^a All others includes operable windows, fixed windows and non entrance doors.