501

Chapter 1

Conservation and Efficiency: Building Envelope

501.01 Minimum Building Envelope Performance Requirements

For all new air-conditioned buildings, the average thermal transmittance (also referred as u-value) and shading co-efficient (SC) values for the exterior building elements, must not exceed the values indicated in the below tables. The light transmittance values for the glazed elements should be greater than or equal to the values indicated in the below tables.

A. External Walls, Roofs, and Floors:

The average thermal transmittance (U-value) for building elements that includes the external walls, roofs, and floors (where one side of the floor is exposed to ambient conditions) must not exceed the following values:

Table (1) 501.01 - Heat Transfer co-efficient for Roof, External Wall and Exposed Floor

	For Silver Sa'fa (W/m^2K)	For Golden and Platinum Sa'fa (W/m^2K)
Roof	0.3	0.3
External Wall and Exposed Floor	0.57	0.42

For the floor area that is in contact with the ground, the insulation should only be applied for 1m, from the perimeter of the building.

Glazed elements having back-insulated panels must be treated as walls and must meet the performance requirement for walls.

B. Glazed Elements - Fenestration:

1. If window to external wall ratio is less than 40%, then the glazing elements must meet the following performance criteria:

Table (2) 501.01 - Glazing performance criteria for window to external wall ratio less than 40%

	For Silver Sa'fa	For Golden and Platinum Sa'fa
Thermal Transmittance (Summer U-value) in W/m^2K	2.1 (max)	1.9 (max)
Shading Coefficient (SC)	0.4 (max)	0.32 (max)
Light Transmittance	0.25 (min)	0.25 (min)

2. If window to external wall ratio is between 40% and 60%, then the glazing elements must meet the following performance criteria:

Table (3) 501.01 - Glazing performance criteria for window to external wall ratio between 40% and 60%

	For Silver Sa'fa	For Golden and Platinum Sa'fa
Thermal Transmittance (Summer U-value) in W/m^2K	1.9 (max)	1.9 (max)
Shading Coefficient (SC)	0.32 (max)	0.25 (max)
Light Transmittance	0.1 (min)	0.1 (min)

3. If window to external wall ratio is greater than 60%, then the glazing elements must meet the following performance criteria:

Table (4) 501.01 - Glazing performance criteria for window to external wall ratio greater than 60%

	For Silver Sa'fa	For Golden and Platinum Sa'fa
Thermal Transmittance (Summer U-value) in W/m^2K	1.9 (max)	1.7 (max)
Shading Coefficient (SC)	0.25 (max)	0.25 (max)
Light Transmittance	0.1 (min)	0.1 (min)

4. For shopfronts and showrooms, other than those at ground floor level, glazing elements must meet the following performance criteria:

Table (5) 501.01 - Glazing performance criteria for shopfronts and showrooms, except ground floor

Thermal Transmittance (Summer U-value) in W/m^2K	1.9 (max)
Shading Coefficient (SC)	0.76 (max)

5. For glazing elements, if the glazing area on the roof is 10% or lower than the total roof area, the following performance criteria must be met:

Table (6) 501.01 - Glazing performance criteria for roof glazing area less than 10% of total roof area

Thermal Transmittance (Summer U-value) in W/m^2K	1.9 (max)
Shading Coefficient (SC)	0.32 (max)
Light Transmittance	0.4 (min)