# CHAPTER 1 - CONSERVATION AND EFFICIENCY: BUILDING ENVELOPE



## 501.01 MINIMUM BUILDING ENVELOPE PERFORMANCE REQUIREMENTS

Silver Sa'fa

### INTENT

**Reduce the energy consumption in buildings and also reduce load on air conditioning equipment by improving the performance of building envelope.**

### REQUIREMENT

For all new air conditioned buildings, the average thermal transmittance (also referred as U-value) and shading coefficient (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 include the external walls, roofs, and floors (where one side of the floor is exposed to ambient conditions) must not exceed the following values:

**Table 501.01 (1): Heat Transfer Coefficient 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 501.01 (2): 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) |