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

Table (7) 501.01 - Glazing performance criteria for roof glazing area greater than 10% of total roof are

Thermal Transmittance (Summer U-value) in W/m^2K	1.9 (max)
Shading Coefficient (SC)	0.25 (max)
Light Transmittance	0.3 (min)

501.02 Thermal Bridges

1. For all new air-conditioned buildings, thermal bridges must either be eliminated or efficiently insulated to reduce the amount of heat transfer. Thermal bridging may occur at connection points between concrete or steel beams, external walls and columns and around doors and windows.
2. For all villas, thermal bridges can be avoided by increasing the efficiency of building envelope. The average thermal transmittance (U-value) for the building envelope must not exceed 0.40 W/m^2K.

501.03 Air Conditioning Design Parameters

1. For all new air-conditioned buildings, heat load must be calculated in accordance with the following design parameters.

A. Outdoor Condition of the Building

Table (1) 501.03 - Air-conditioning Design Parameters (Outdoor Condition)

Dry bulb temperature	46° C (115° F)
Wet bulb temperature	29° C (85° F)
Dubai City location latitude	(North Latitude) 25° N
Extent of variation in the temperature on the day of design (Outdoor Daily Range) 13.8° C (25° F)	13.8° C (25° F)

B. Indoor Condition of the Building

Table (1) 501.03 (1) - Air-conditioning Design Parameters (Indoor Condition)

Dry bulb temperature	24° C (75° F)
Relative humidity	50 +/- 5%

The heat transfer coefficients used in the calculations for roofs, walls and glazed areas must be the actual design coefficients or as set out in Regulation 501.01 Minimum Envelope Performance Requirements.

When diversity factors to be used in heat load calculations are not known, the coefficients indicated in the latest edition of ASHRAE Fundamentals guide can be used.

C. The safety factor applied must be no greater than:

Table (1) 501.03 - Air-conditioning Design Parameters (Safety Factor)

Sensible Heat	10%
Latent Heat	5%

Heat load calculations must be carried out for each air-conditioned space, considering peak load incidence in that space. The calculations must be carried out using software registered with Dubai Municipality.

(2) All new air-conditioned buildings shall be provided with a fresh air system. The system must ensure that the building is provided with treated fresh air for at least 95% of the year. The design temperatures that needs to be considered, are as follows:

1. Dry bulb temperature of 34° C (93° F) 2. Wet bulb temperature of 32° C (89° F)

501.04 Air Loss from Entrance and Exits

For all new air-conditioned buildings, loss of conditioned air in regularly used air-conditioned entrance lobbies, must be mitigated by use of efficient barrier system.

501.05 Air Leakage

All new air conditioned buildings with a cooling load of 1 MW or greater must be tested to demonstrate that air leakage does not exceed 10 $m^3/hr/m^2$ into or out of the building, at an applied pressure difference of 50 Pa.

Testing must be carried out in accordance with the methodology approved by Dubai Municipality (DM).

For golden and platinum Sa'fa, whatever the required cooling load, air leakage test shall be conducted by following the previously specified values.

501.06 Shade Effect Calculations

For all new buildings other than villas, the impact of external shade factors on the building's thermal load must be calculated.

502 Chapter 2

Building Systems

502.01 Energy Efficiency - HVAC Equipment and Systems

For all new air-conditioned buildings, heating, ventilating and air conditioning equipment and systems must comply with the minimum energy efficiency requirements and test procedures approved by Emirates Authority for Standardization & Metrology (ESMA), as indicated: