- 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:
   i. Dry bulb temperature of 34° C (93° F)
   ii. Wet bulb temperature of 32° C (89° F)

SIGNIFICANCE

Ventilation and air conditioning are vital for the thermal comfort and energy efficiency in a building. The design of the air conditioning and ventilation depends on the cooling (or heating) required. As climatic conditions play a significant role in the design of air conditioning, it is important to consider optimum design parameters while designing.

Heat load calculations must consider the climatic conditions of Dubai and the design parameters stated in this regulation. Applying these design parameter values ensure the building is designed efficiently while reducing energy consumption. It also ensures oversising of equipment is minimised thereby reducing capital expenditure. All this results in enhanced occupant's thermal comfort, while providing greater energy savings and efficient system performance.

APPLICABILITY

This regulation is applicable to all building types. Refer to Table 101.07(1) in Section One - Administration for detailed applicability levels.

IMPLEMENTATION

The values of the parameters stated in this regulation are consistent with Dubai Municipality Administrative Resolution No. (66) of 2003. Applying these values would ensure that air conditioning equipment is not over-designed or under-designed, while ensuring the goal of thermal comfort and energy conservation is achieved. To maintain the required thermal comfort and to achieve the energy conservation, this regulation specifies the outdoor and indoor design parameters that considers peak climatic condition.

The expected heat load for each building space must be calculated using DM approved software and must be submitted to Dubai Municipality as part of the building permitting process. The results should indicate the input values considered, either as an input report or as a screenshot from the approved software (fig. 501.03(1)). Input values for other parameters like envelope thermal properties, indoor design temperature etc., should also be provided.

The heat load calculations must be computed for all air conditioning spaces in the building at peak load condition. Safety factors stated in this regulation should also be considered in the heat load calculations. If higher safety factors are selected by the project team, this would lead to overdesign and increase in equipment sizing, which should be avoided.

While computing the heat load, if the wall and roof sections are not yet calculated, then maximum thermal properties as stated in *Regulation 501.01: Minimum Envelope Performance Requirements*, may be considered for the heat load calculation.