بلدية دبي
DUBAI MUNICIPALITY

AL SA'FAT
Dubai Green Building System
السعفات
نظـام دبـي للمبـانـي الخضـراء

APPLICABILITY

This regulation is applicable to all building types. Refer to Table 101.07(2) in Section One - Administration for detailed applicability levels.

IMPLEMENTATION

Energy saving targets should be set early in the design process. This would allow project teams to analyse various energy efficient strategies, integrate these strategies seamlessly with building systems and achieve the targeted energy savings goals.

Some of the strategies that could be considered are:

Enhance the u-values for roof and wall more than those required as per Al Sa'fat regulations. U-values and shading coefficient values for glass facades also can be further enhanced. Building materials and insulation having lower thermal conductivity can also be considered. This ensures building can achieve better energy savings. Smart windows that alter based on solar radiation and daylight levels can be integrated to reduce the energy consumption.

Further reduce the Lighting Power Density (LPD) values for interior and exterior light fixtures than those required for Al Sa'fat regulations. LED light fixtures can be incorporated to reduce the overall LPD values for the building. Incorporating intelligent lighting control systems with sensor and timers in the building design can also maximise the energy savings.

Smart HVAC controls that use sensors integrated with building automation system can optimise the building performance based on occupancy levels or conditions. Integrating the controls with variable speed motors / drives can also further reduce energy consumption in the buildings.

Increasing the usage of renewable energy source to provide energy to the building also helps in reducing the energy consumption. Building integrated renewable technologies can be integrated into the project design. If the proposed design includes excessive on-site renewable energy when compared to Silver Sa'fa requirements, same can be subtracted from the proposed building energy consumption to show additional savings.

The most effective way to optimise the energy efficiency is to use an integrated, whole building approach i.e. energy modelling. It is more flexible and is a tailored way to assess the interactive effects of efficient techniques.

Project team using an energy simulation program must develop model of the building (fig. 505.03 (1)) in compliance with Silver Sa'fa requirements. This model shall serve as the base-case model and shall be used to compare with design features of the building. The reference building must be equal in shape, size and operational patterns to the proposed building.

The identified techniques to increase the building energy performance shall then be incorporated into the reference energy model. The building shape, size, operational patterns weather data and other modelling parameters must be maintained same for both base model and reference building. Both energy models should include all end-use load components like: lighting, cooling, heat rejection pumps, fans, service water heating, and receptacle and process loads. Receptacle and process loads must be modelled identically in both cases. When proposed strategies apply to less than the whole building, only parameters related to the systems should be modified.

$$\text{Performance improvement} = 100 \times \frac{(^*\text{Baseline building performance} - \text{Proposed building performance})}{^*\text{Baseline building performance}}$$

*Baseline building performance – performance of building designed with Silver Sa'fa regulations

ENERGY EFFICIENCY