



Fig 304.05(1): Annual Sun Path Diagram in Dubai

## APPLICABILITY

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

## IMPLEMENTATION

For the orientation option, calculate the total area of glazing on each façade and confirm that the north façade has at least 50% of the total area of glazing. Predominantly, North orientation percentage can be calculated by using Dubai Municipality Glazed Elements - Fenestration Performance Requirements table.

Unprotected glazing in Dubai is not recommended and where practical, it is always preferable to use external shading or reduce the amount of glazing facing the sun.

Low Emissivity glass (or Low-e glass) is another way to improve overall performance of window and reduce the cooling and lighting costs of the building. Low E coatings will minimise the amount of ultraviolet and infrared light that can pass through glass without compromising the amount of visible light that is transmitted. Low-e reduces the amount of solar energy from entering the building.

Tinted glass and internal blinds which are directly exposed to solar radiation absorb large amounts of heat which is then transferred into the building by conduction and convection. This results in additional cooling loads but the greatest negative effect is that it increases the internal surface temperature of the windows. This increases the mean radiant temperature of the room, making occupants feel uncomfortable, even when the air temperature is within comfortable levels. With external shading, direct solar radiation is intercepted before it reaches the glass. Also, external shading will remove the restriction for glazing orientation i.e. glazing can be used in any orientation.

Where external shading can be integrated into the design in the form of balconies, canopies and other façade structures, further design efficiencies can be achieved. Smaller the vertical and horizontal shadow angles, better the shading effect. However, careful design will also have to balance effective shading with other façade design requirements such as the need for views and daylight.