CHAPTER 1 - CONSERVATION AND EFFICIENCY: BUILDING ENVELOPE

501.06 SHADE EFFECT CALCULATIONS

Silver Sa'fa

INTENT

Use of external shading structures to reduce building heat gain and cooling requirements.

REQUIREMENT

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

SIGNIFICANCE

Shading is one of the passive design strategies utilised to make a building energy efficient. Shading devices aid in reducing building heat gain and cooling requirements while improving occupant's visual comfort by controlling glare. Shading devices can also enhance building facades making them aesthetically unique.

Providing shading for external windows is one of the most commonly adopted strategies to reduce solar heat gain inside the building. Other strategies include provision of awnings, roof overhangs, shutters, solar screens etc. Optimisation of equipment selection and reduction in energy consumption can be achieved by including the external shade factors while calculating the heat load for a building. If shading elements are not included for the heat load calculations, the building would be overdesigned and operate inefficiently.

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 most effective way to reduce the direct solar heat gain in any building is to intercept it before it reaches to glazing system by the use of external shading elements (fig. 501.06(1)). The addition of an external shading element like an overhang or fin can reduce the amount of solar radiation that reaches a window.