CHAPTER 4 - MICROCLIMATE AND OUTDOOR COMFORT

304.04 COLOURS ON THE OUTSIDE OF BUILDINGS

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INTENT

To reduce the internal temperature of buildings and associated cooling demand and to help reduce the overall Urban Heat Island effect.

REQUIREMENT

For all new buildings, at least 75% of the area for external walls, must have a minimum Light Reflectance Value (LRV) of 45%.

SIGNIFICANCE

Passive building design and material choices that avoid absorption of the sun's heat to promote thermal comfort and energy conservation, are traditional methods used by early inhabitants of Dubai, who constructed their homes and buildings from light coloured and white materials.

A large amount of heat can be reflected away from a building through the use of reflective exterior surfaces. The amount of energy absorbed and retained by a building is affected by surface colour. Light colours reflect a greater proportion of the solar energy whilst darker colours retain more solar energy resulting in the heating of the object and the surrounding air.

Light colours on outside of the buildings would encourage and preserve the rich heritage of the traditional building characteristic while at the same time help reduce energy use within the Emirate.

APPLICABILITY

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

IMPLEMENTATION

Final surface finishes applied to external walls of buildings must have a minimum Light Reflectance Value (LRV) of 45%. LRV is a measure of the total quantity of useable and visible light reflected by a surface in all directions on a scale from 0% to 100% as shown fig 304.04(1). Absolute black is assumed to be 0% and 100% represents perfectly reflective white. The blackest achievable wall finish has a LRV of approximately 5% and the whitest available finish approximately 85%.