

Introduction

If you are considering TDDs for your building, consider some key indicators of performance before purchasing. Dr. Abdelaziz Laouadi, Research Officer at the National Research Council Canada, explains that the following four indicators are the most important factors in a TDD's performance.

<http://www.buildings.com/article-details/articleid/20885/title/pipe-in-natural-light-with-tubular-daylighting-devices>

1) Visible (or Light) Transmittance (VT)

Higher VT ratings will ultimately be better, with typical VT values of current products ranging from 0.15 to 0.55.

2) Spacing to mounting height ratio (SR)

The higher the SR, the better to minimize the capital cost of TDDs. However, the SR should not infringe on the applicable building fire code requirement for skylight spacing. For ideally diffusing TDDs, the SR varies from 1 to 1.5 to provide acceptable illuminance uniformity on horizontal work planes.

3. U-factor

Lower U-factors (inverse of thermal resistance) will more effectively reduce heat loss in climates that require more heating. Multi-plane collectors work best when insulation is placed at roof level in commercial buildings. Typically, U-factors (in Btu/h•ft²•degrees F.) range from 1.39 (R-0.72) to 0.37 (R-2.7).

4. Solar Heat Gain Coefficient (SHGC)

For climates that require a lot of heating, TDDs should have a medium to high SHGC. But most TDDs have a medium to low SHGC (<0.45).



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