Globally Proven Construction Solutions

Deflection

TDS-1011

Every tile or stone installation will only be as good as the surface over which it is installed. Tile and stone are very rigid materials and do not accommodate movement well. They may potentially break or delaminate from the substrate if it bends excessively under load. No movement should be visible. Every installation needs to have a firm, stable surface over which to be applied. With that in mind, one of the most important things to consider is allowable deflection. Surfaces must be structurally sound, stable and rigid enough to support ceramic/stone tile, thin brick and similar finishes.

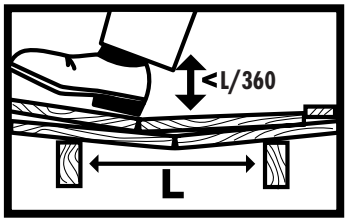
Substrate deflection under all live, dead and impact loads, including concentrated loads, must not exceed L/360 for thin bed ceramic tile and thin brick installations and L/720 for all thin bed stone and exterior framed and sheeted installations.

The tile industry has adopted the following position on the issue of deflection:

The owner shall communicate in writing to the project design professional and general contractor the intended use of the tile installation. This will enable the project design professional and general contractor to make necessary allowances for expected live loads, concentrated loads, impact loads, and dead loads including weight of the tile and setting bed. The tiling contractor shall not be responsible for any substrate not compliant with rigidity requirements unless the tiling contractor designed and constructed the substrate. The tiling contractor should be advised by the Architect or Builder of any substrate rigidity deficiencies prior to the commencement of the tile installation.

How can we determine what this deflection value actually is? To calculate the maximum allowable movement, divide the number of units in the length of the span by the maximum allowable deflection value (deflection value for the type of installation).

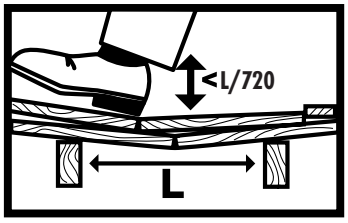
For Example:



For the installation of thin bed brick and ceramic tile installations using LATICRETE or LATAPOXY® installation materials deflection should not exceed L/360.
To calculate, divide the number of units in the length of the span by 360.

For example:

L = The length of the span
If the span is 288 millimeters, then; 288mm ÷ 360 = 0.8 mm of allowable deflection under total anticipated load.



For the installation of either stone, agglomerate and all exterior framed facades using LATICRETE or LATAPOXY installation materials deflection should not exceed L/720.
To calculate, divide the number of units in the length of the span by 720.

For example:

L = The length of the span
If the span is 288 millimeters then; 288mm ÷ 720 = 0.4mm of allowable deflection under total anticipated load.

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