Tile installation over Spancrete®

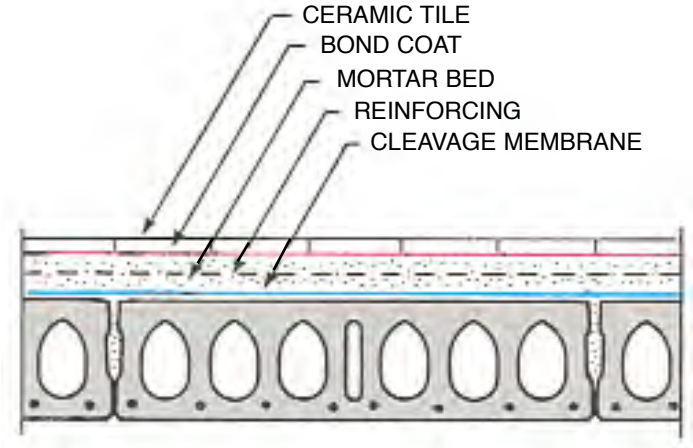
Many floor coverings are used in conjunction with a Spancrete floor system. Tile presents the most challenge to the designer and installer. The installation details and methods determine the success and satisfaction with the finished product.

As is true with all structural floor systems, Spancrete will deflect under load. This is also the case with other precast, prestressed hollowcore floor systems, with or without concrete topping, as well as post-tensioned, cast-in-place floor systems. In precast, prestressed and cast-in-place post-tensioned floors, the prestressing forces cause axial creep of the concrete resulting in a shortening effect. Being prestressed, these systems will also experience some camber growth after installation.

Tile of any composition cannot tolerate the movements experienced in a structural floor system if the tile is forced to undergo the same movements. For example, deflection is downward curvature. Tile forced into such curvature can buckle up from the floor surface in a midspan region or can crack or tear near supports. Camber growth is curvature in the opposite direction from deflection. Tile forced into this curvature can crack or tear near midspan or buckle up near supports. Cycling of deflection and camber, combined with axial shortening in a prestressed structural system, can create havoc in the tile system if it is forced to experience these movements.

The Tile Council of America has recognized these effects and prepared installation details which isolate tile from structural movements resulting in compatibility of the inherent behavior characteristics of the structure with the performance demands of the tile. These details are found in the TCA "Handbook for Ceramic Tile Installation". Detail F111 is for "structural floors subject to bending and deflection" and includes a cleavage membrane which allows the tile to act independently of the structure.

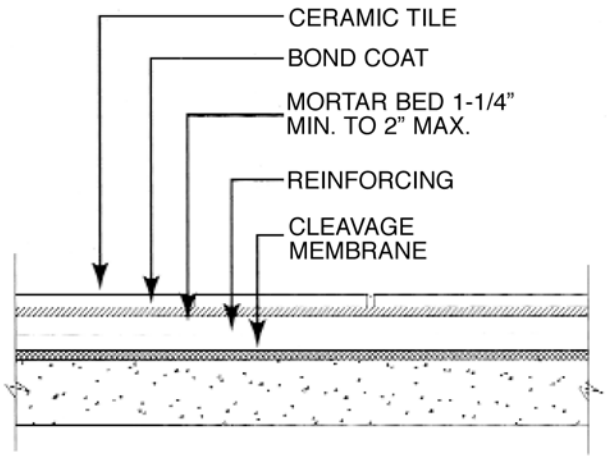
Problem installations are typically related to the installation details rather than to movement of the structure. Using the TCA recommendations should result in a successful installation over Spancrete.



The formula for successful installation of ceramic tile over Spancrete

Using the right materials and procedures, ceramic tile can be installed successfully over Spancrete. This section illustrates the system recommended by the Tile Council of America. With a cleavage membrane and a layer of reinforced mortar applied over the Spancrete, deflection or camber growth will not damage the tile.

Cement Mortar Cleavage Membrane
F111-99



Recommended Uses:
- over structural floors subject to bending and deflection.

Requirements:
- reinforcing mesh mandatory.
- mortar bed thickness to be uniform, 1-1/4" min. to 2" max.
- mortar beds in excess of 2" thick shall be detailed by the architect.

Materials:
- mortar bed, reinforcing and cleavage membrane — ANSI A108.1A
- bond coat—portland cement paste on a mortar bed that is still workable, or dry-set mortar or latex-portland cement mortar on a cured bed.
- grout—ANSI A118.6, specify type.

Preparation by Other Trades:
- slab depression to be accurate with steel trowel finish.
- slope, when required, to be in subfloor.
- max. variation in the slab —1/4" in 10'-0" from the required plane.
- where radiant heating pipes are laid over the slab, screed fill flush to top of pipes before placing a membrane and reinforced mortar bed.

Expansion Joint (architect must specify expansion joints and show location and details on drawings):
- expansion joints — mandatory according to Method EJ171.

Installation Specifications:
- tile — ANSI A108.1A, .1B or .1C.
- grout — ANSI A108.10.

•Excerpt from: "Handbook for Ceramic Tile Installation", Full text is available from:
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