



# NATIONAL TERRAZZO & MOSAIC ASSOCIATION

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(Formerly TB#111)

## CRACK DETAILING & JOINT TREATMENTS FOR EPOXY TERRAZZO

Thin-set epoxy was traditionally placed directly onto a prepared structural concrete slab. The crack resistance of the terrazzo was based primarily on two functions. First, the epoxy terrazzo formulations were extremely high in tensile strength and second, they did not contain excess water that leads to shrinkage cracks or volume change during the curing process.

Epoxy formulators introduced flexible epoxy membranes that are installed at a nominal 40 mils. Thickness and engineered for high tensile strength and high elongation, relative to the epoxy binder matrix. These membranes have become industry standard for crack detailing and, in some cases, full slab coverage prior to the installation of the thin-set epoxy terrazzo.

## CONCRETE JOINTING: SETTLEMENT & CRACK CONTROL

Concrete has been the standard flooring substrate in the commercial construction industry for many years. The concrete industry has developed many industry guidelines and recommendations to minimize cracking.

While there have been many improvements in mix designs, placement techniques and industry standards, the concrete industry has not perfected the placement of slabs without cracks.

Cracks in concrete are a result of any number of issues, including volume change during the curing process, load deflection, settlement cracks and cracks induced from thermal stresses, which are typically due to non-climate-controlled environments during the construction process. While shrinkage cracks, which account for most concrete cracking, become static once the volume change from curing is complete, any crack has the potential to become a dynamic, moving crack under thermal and load movement stresses. To accommodate dynamic loading, slabs should be designed for maximum deflection of  $L/360$ . Cracks should be filled with low modulus epoxy. Not flexible epoxy membrane.

***Tile/stone type divider strips are not to be used in either  
cement or epoxy terrazzo installations.***

## DISCLAIMER

The details contained herein provide general information to use as a starting point for detailing site conditions that frequently occur on epoxy terrazzo projects.

They represent generally accepted practices of terrazzo contractors and suppliers across the United States under typical circumstances. These details do not replace the direction or advice of an architect or engineer regarding a specific project or for specific project conditions. Architect or engineer must specify movement joints and show location and details on drawings.

It is not the intent of this guide to make movement joint recommendations for a specific project. For your project(s), you should consider contacting an NTMA Contractor Member in your area to discuss details that may be most applicable for a given circumstance/location.

To mitigate cracking and curling in concrete at epoxy terrazzo areas follow recommendations in ACI 36OR-10.

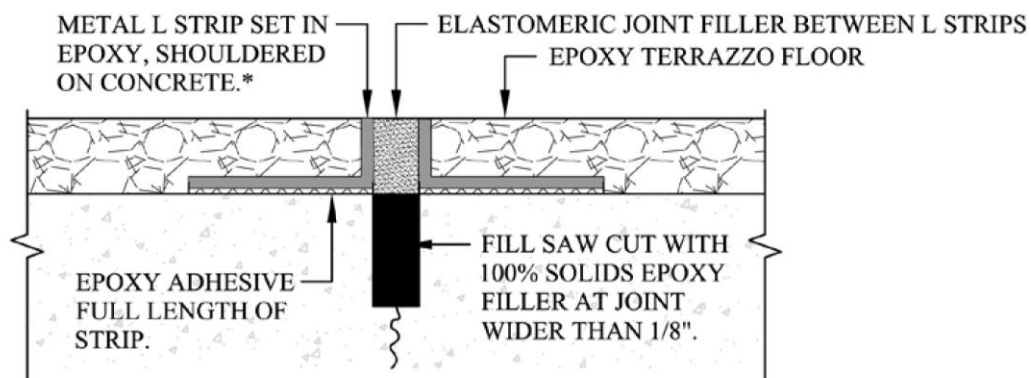
Terrazzo divider strips must precisely follow the concrete joint – even if crooked, to mitigate cracking in the terrazzo system.

Terrazzo divider strips are not flattening or leveling devices. They must adhere tightly to the concrete.

Tooled edges on concrete joints are not to be used at areas to receive epoxy terrazzo.

### **Detail 1. Contraction Joint (also called saw cuts/control joints)**

The term “Contraction Joint” is taken from ACI 302 document to maintain consistent nomenclature with the concrete and engineering industry.



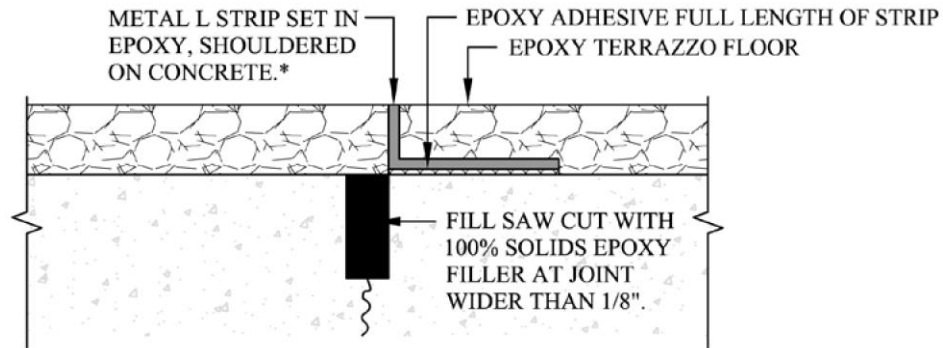
Scale: Full Scale

\*Care should be taken by concrete contractor to provide a straight joint, placed in coordination with design teams consideration of final grid pattern. Square edges encouraged, tooled edges discouraged.

\*\*This detail must be used for radiant heated floors.

### Detail 2. Optional Joint Detail for Contraction Joints

This detail provides the designer the option of installing a low profile 16-gauge divider strip, in lieu of the filled back strip in detail 1. This detail provides limited movement compared to detail 1.

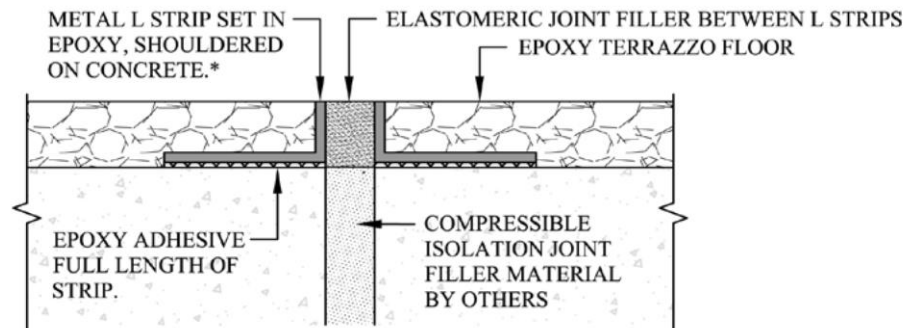


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\*Care should be taken by concrete contractor to provide a straight joint, placed in coordination with design teams consideration of final grid pattern. Square edges encouraged, tooled edges discouraged.

### Detail 3. Isolation Joint

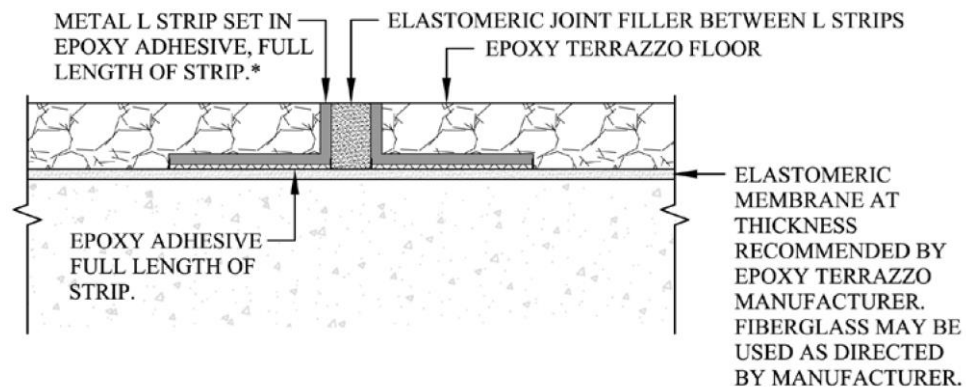
Flexible epoxy membranes are engineered to accommodate movement in the horizontal plane. They are not engineered to accommodate movement in the vertical plane, because of vertical shear due to substrate settlement or excessive deflection. Slabs to receive terrazzo flooring should accommodate Isolation Joints where the slab is separated from the load bearing columns or walls for this specific purpose.



Scale: Full Scale

\*Care should be taken by concrete contractor to provide a straight joint, placed in coordination with design teams consideration of final grid pattern. Square edges encouraged, tooled edges discouraged.

#### Detail 4. Terrazzo Control Jointing Over Full Elastomeric Membrane



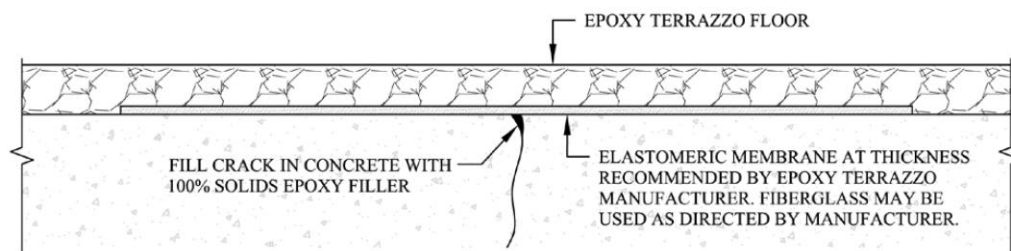
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The use of divider strips (L strips) should be considered in areas where floor temperature changes may occur.

Such as glass walls and/or sky lights if joints are to be used, the design teams must determine spacing.

For spacing contact local manufacture or contractor.

#### Detail 5. Random Crack Detail: For Cracks over 1/16" Width before Surface Preparation



Scale: Full Scale

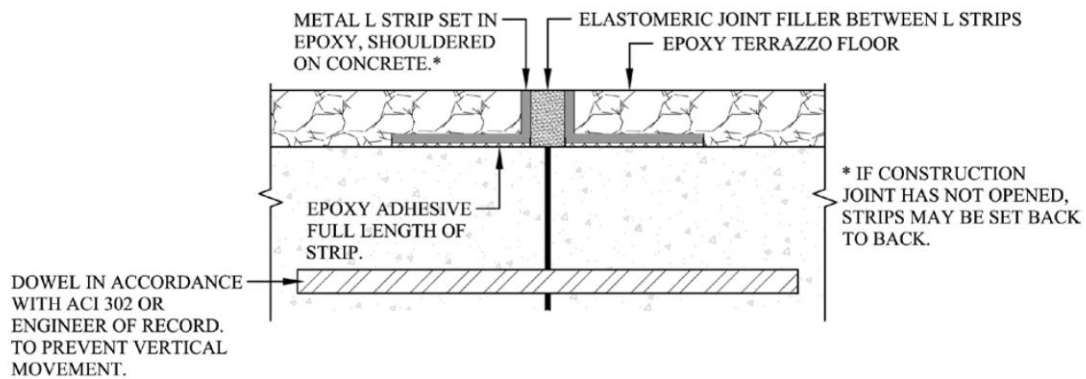
Treatment of cracks is in anticipation of horizontal movement.

Vertical movement will reflect through epoxy terrazzo.

Moving cracks may reflect through terrazzo, often seen under critical lighting as micro-crease or mini-mole trail, even though no actual fissure

has opened, the membrane has performed as intended. If the joint is straight, you can place strip (control joint) over the crack, but no overhang.

## Detail 6. Construction Joint (Next Day Pour Where Joint Has Eased Shoulders or Has Opened)



Scale: Full Scale

See buried contraction joint. Refer to detail 3.

\*Care should be taken by concrete contractor to provide a straight joint, placed in coordination with design team's consideration of final grid pattern. Square edges encouraged. Tooled edges discouraged. Detail can be used to elevated slab where construction joints occur and at relative stress cracking over beams and column lines.

***Tile/stone type divider strips are not to be used in either cement or epoxy terrazzo installations.***

**General Disclaimer:** The information provided in the Technical Bulletin is for general informational purposes only. Each project and individual application are unique. All information is provided in good faith: However, NTMA makes no representations or warranties of any kind, express or implied, regarding the accuracy, adequacy, validity, reliability, or completeness of any information provided herein.