

CTU Online Anytime Module 1.10 – Planning for Movement

Key Takeaways

The number one cause for tile assembly failure is lack of and improperly installed movement joints.

Per TCNA EJ171, “Perimeter and field movement joints within a tile installation are essential and required.”

- Movement joints are needed because:
 - Buildings move
 - Concrete creeps and sags over time
 - Wood floor assemblies deflect
 - All materials experience thermal cycling as temperatures change
- Concrete slabs also have movement joints
 - Isolation joints around columns to accommodate vertical movement
 - Control joints/saw cuts for shrinkage
 - Expansion joints for slab and structural movement
 - Cold joints created in between concrete pours
- Thermal cycling of tile systems
 - Tile in sunlight gets hot and expands, putting grout joints under compression
 - Silicone-filled soft movement joints can help accommodate movement
 - 24” Porcelain tile can expand up to 0.3mm in length
- TCNA EJ171 details on movement joints include:
 - Exterior joints must be placed every 8-12 ft
 - Interior joints can be spaced a maximum of every 25 ft
 - Joints are required at all changes of plane
 - Never cover or abridge true expansion joints
 - Perimeter joints are a must to reduce failures
- It is the architect and engineer’s responsibility to design the movement joint patterns
 - Exterior joint widths – based on frequency of joint placement and temperature change
 - TCNA handbook gives complete view of all data sets necessary for architect and engineer to design movement joints (tile coefficient of linear expansion vs. temp changes)

- Joints should be filled with silicone sealant that conforms to C920. Sealant requirements:
 - Non-sag sealant for vertical applications
 - Exterior rated Class 25 for 25% expansion and contraction
 - Rated for use under pedestrian and vehicular traffic roads (Class T)
 - Custom Building Products' Commercial 100% Silicone Sealant is a suitable product and comes in 40 colors to match all CUSTOM grouts