Specifying Successful Ceramic & Stone Tiles Installations

Beyond TCA and ANSI
This program is registered with the AIA/CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product. Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Thank you for joining us!
Who Am I?

Jim Whitfield FCSI, CCPR, CTC, LEED AP
Technical Manager Parex USA

(CSI) Construction Specifications Institute
   President Elect SW Region
   Education Committee member
   Fellows Teller Committee
   Former President Pikes Peak Chapter (2)

(MMSA) Materials, Methods, Standards Association
   President
   Voting ANSI, ASTM & ISO representative

(TCNA) Tile Council of North America
   Board Member
   Membrane Committee
   Mortars and Grouts Committee

(NTCA) National Tile Contractors Association
   Technical Committee Member
   Standards & Methods
Course Objectives

- Understand Tile Setting Materials & Application Methods
- Review Industry Standards & Resources
  - TCNA - Tile Council of North America
  - ANSI - American National Standards Institute
- Understand Specialty Products used for Tile & Stone Installations
Tile & Stone Installation Materials

Grout: Sanded, Polymer Modified

Adhesive: Thin Set

Substrate: Mortar Bed

Substrate: Waterproof Membrane

Substrate: Mortar Bed, Pre-Slope

Substrate: Concrete or Wood Structure
• **Thin Set (or Thin-Bed)**
  - Most popular method, used when tiles are smaller format tile
  - Thickness is very uniform, floor substrate is relatively flat and level
  - Can be applied 3/32” – 1/4” (nominal) thick after beat in
• **Medium Bed**
  - In process of being recognized by TCNA
  - Medium Bed mortars can be troweled thicker than traditional thin set mortars
  - Allows thick-set attributes to be used for thin set applications
  - Can be applied 1/8” – 3/4” thick after beat in
  - Used for large format tiles, inconsistent thickness dimensional stone, slight substrate irregularity
Setting Methods

- Mortar Bed
- Thick-Set
- Thick-Bed
- MUD BED
Industry Standards

- **TCNA** (Tile Council of North America)
  - TCA Handbook for Ceramic Tile Installation

- **ANSI** (American National Standards Institute)
  - Specifications for Ceramic Tile
  - Specifications for the Installation of Ceramic Tile
  - Specification for Installation Materials for Ceramic Tile
QUESTION

What is TCNA?
ANSWER

Tile

Council of

North

America
Industry Standards

ANSI’s & ISO’s standards, ASTM’s test methods and TCA’s *Handbook* are developed through industry consensus & open committees.
Industry Standards

TCA Handbook

- Committee meets every 2 years
- Similar rules as ANSI
- Published annually for over 45 years
- Committee adopted
  - 14 new methods in 2002
  - 15 new methods in 2004
  - 7 new methods in 2007
  - 1 new method in 2009
- 2011 will bring a major renovation to the TCNA Handbook
Industry Standards

- **Tile Council of America Handbook 2010**
  - Relationship to ANSI
  - 96 Installation methods
  - New methods
  - Changes

[Image of the TCNA 2009 Handbook]
Both the TCNA handbook & ANSI Standards are voluntary standards.

There is no compliance requirement, BUT…

They are heavily followed by the courts!
TCNA: What’s Included?

- **Installation Materials**
  - Setting materials
  - Grouting materials
  - Backer boards
  - Waterproofing & crack isolation membranes
  - Special installation guidelines

- **Installation Guides**
- **Installation Methods**
  - Floors, exterior & interior
  - Walls, exterior & interior
  - Ceilings and soffits
  - Bathtubs & shower walls & receptors
  - Countertops
  - Swimming pools
  - Radiant heated floors
  - Renovations
  - Steam rooms, refrigerated rooms, fountains
  - Movement Joints
TCA Handbook for Ceramic Tile Installation
Method F113-07 Dry-Set Mortar or Latex-Portland Cement Mortar

Recommended Uses:
• on plane, clean concrete.
• on slab-on-grade construction where no bending stresses occur.
• see page 17 NOTE for exterior uses.
• see CAUTION at bottom of page

Limitations:
• method F111 is the preferred method over precast concrete floor systems, post-tensioned concrete floor systems, and other floors subject to movement or deflection

Preparation by Other Trades:
• slab—steel trowel and fine broom finish free of curing compounds. (When used, mechanical scarifying is necessary.)
• slope, when required, to be in sub-floor
• max. variation in the slab—1/4" in 10'-0" from the required plane

Movement Joint
(Architect must specify type of joint and show location and details on drawings)
• follow EJ171, page 68, for slab-on-grade installations
• above-grade structural slabs require: exterior joint spacing; perimeter joints are mandatory

Materials:
• mortar—use ANSI A118.1 or A118.4 for slab-on-grade installations; use only a manufacturer's designated mortar for above-grade structural slabs
• grout—use ANSI A118.3, A118.6, A118.7, or A118.8 for slab-on-grade installations; use only a manufacturer's designated grout for above-grade structural slabs

Installation Specifications:
• tile—ANSI A108.5
• grout—ANSI A108.10

• method F113 may be suitable for above-grade structural slab installations when specific mortar and grout products recommended by the manufacturer are specified. Not all modified mortar and grout products are suitable for this application.
• deflection not to exceed 1/360 of span for above-grade structural slabs.
• slab to be well cured, dimensionally stable, and free of cracks, waxy or oily films, and curing compounds.
• bond coat 3/32" min.

Examples:

TCNA Method: EXAMPLE
QUESTION

What is wrong with this picture?

A. Nothing, it is an interior skateboard ramp
B. Nothing, just trying to dry the wet thin set
C. Not sure, I just wanted tight grout joints
D. Expansion joints, who needs expansion joints?
EXPANSION JOINTS

Interior Joints changed from 24 ft – 36 ft to 20 ft – 25 ft
Exterior joints changes from 12 ft – 16 ft to 8 ft – 12 ft

Architect, builder or design professional must specify movement joints and show their location and details on drawings
IMPORTANT EDITORIAL CHANGES

New definition for maximum allowable **deflection** for substrates installed by other trades
NEW DEFLECTION LANGUAGE

Floor systems, including the framing system and sub-floor panels, over which the tile will be installed using the appropriate TCA method shall be in conformance with the IRC for residential applications, the IBC for commercial applications, or applicable building codes.

OLD DEFLECTION LANGUAGE

Ceramic tile installations require the floor areas over which tile is to be applied to have a deflection not greater than L/360 of the span when measured under a 300 lb. concentrated load (see ASTM C627).
NEW DEFLECTION LANGUAGE  Continued

Note:

The owner should communicate in writing to the project design professional and general contractor the intended use of the tile installation, in order to enable the project design professional and general contractor to make necessary allowances for the expected live load, concentrated loads, impact loads, and dead loads including weight of the tile and setting bed.

The tile installer shall not be responsible for problems resulting from any floor framing or sub-floor installation not compliant with applicable building codes, unless the tile installer or tile contractor designs and installs the floor framing or sub-floor.
TCNA 2011: Major Changes

- Major Changes in 2011 TCNA Handbook
  - The addition of ISO designations to ANSI A118.1 & A118.4 Material Standards
  - New Environmental Conditions (Wet Areas)
  - Revisions to TCNA Steam Room details
  - New, separate TCNA Installation Handbook for Dimensional Stone Tile
  - Weighted Assemblies
• Major Changes in 2011 TCNA Handbook

  – The addition of ISO designations to ANSI A118.1 & A118.4 Material Standards
  – New Environmental Conditions (Wet Areas)
  – Revisions to TCNA Steam Room details
  – New, separate TCNA Installation Handbook for Dimensional Stone Tile
  – Weighted Assemblies
Major Changes in 2011 TCNA Handbook

Tiles with all edges shorter than 15.” Maximum allowable variation is ¼” in 10‘ from the required plane and no more than 1/16” variation in 12” from any high points in the surface.

Tiles with at least one edge 15” or longer in length maximum allowable variation is 1/8” in 10’ with no more than 1/16” in 24” from the high points.
## ISO Classifications Adhesives Only

<table>
<thead>
<tr>
<th>Types</th>
<th>Classes</th>
<th>Special Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C - Cementitious</strong></td>
<td>1 - Normal</td>
<td>F - Fast Setting</td>
</tr>
<tr>
<td>(thin set mortars)</td>
<td>2 - Improved</td>
<td>T - Slip Resistance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E - Extended Open Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S1 - Deformability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S2 - Highly Deformable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P1 - Plywood adhesion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P2 - Improved Plywood Adhesion</td>
</tr>
<tr>
<td><strong>D - Dispersion</strong></td>
<td>1 - Normal</td>
<td>F - Fast Drying</td>
</tr>
<tr>
<td>(mastic)</td>
<td>2 - Improved</td>
<td>T - Slip Resistance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E - Extended Open Time</td>
</tr>
<tr>
<td><strong>R - Reaction resin</strong></td>
<td>1 - Normal</td>
<td>T - Slip Resistance</td>
</tr>
<tr>
<td>(Epoxies)</td>
<td>2 - Improved</td>
<td></td>
</tr>
</tbody>
</table>
## TCNA 2011: Major Changes

<table>
<thead>
<tr>
<th>Number Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cementitous Thinsets</strong></td>
<td></td>
</tr>
<tr>
<td>C 1</td>
<td>Normal cementitious adhesive</td>
</tr>
<tr>
<td>C 1 F</td>
<td>Fast setting cementitious adhesive</td>
</tr>
<tr>
<td>C 1 T</td>
<td>Normal cementitious adhesive with slip resistance</td>
</tr>
<tr>
<td>C 1 FT</td>
<td>Fast setting cementitious adhesive with slip resistance</td>
</tr>
<tr>
<td>C 2</td>
<td>Cementitious adhesive with improved characteristics</td>
</tr>
<tr>
<td>C 2 E</td>
<td>Cementitious adhesive with improved characteristics and extended open time</td>
</tr>
<tr>
<td>C 2 F</td>
<td>Fast setting cementitious adhesive with improved characteristics</td>
</tr>
<tr>
<td>C 2 T</td>
<td>Cementitious adhesive with improved characteristics and slip resistance</td>
</tr>
<tr>
<td>C 2 TE</td>
<td>Cementitious adhesive with improved characteristics, slip resistance and extended open time</td>
</tr>
<tr>
<td>C 2 FT</td>
<td>Fast setting cementitious adhesive with improved characteristics and slip resistance</td>
</tr>
<tr>
<td><strong>Dispersion Mastics</strong></td>
<td></td>
</tr>
<tr>
<td>D 1</td>
<td>Normal dispersion adhesive</td>
</tr>
<tr>
<td>D 1 T</td>
<td>Normal dispersion adhesive with slip resistance</td>
</tr>
<tr>
<td>D 2 T</td>
<td>Dispersion adhesive with improved characteristics with slip resistance</td>
</tr>
<tr>
<td>D 2 TE</td>
<td>Dispersion adhesive with improved characteristics, slip resistance and extended open time</td>
</tr>
<tr>
<td><strong>Reaction Resin Epoxy</strong></td>
<td></td>
</tr>
<tr>
<td>R 1</td>
<td>Normal reaction resin adhesive</td>
</tr>
<tr>
<td>R 1 T</td>
<td>Normal reaction resin adhesive with slip resistance</td>
</tr>
<tr>
<td>R 2</td>
<td>Reaction resin adhesive with improved characteristics</td>
</tr>
<tr>
<td>R 2 T</td>
<td>Reaction resin adhesive with improved characteristics and slip resistance</td>
</tr>
</tbody>
</table>
TCNA 2011: Major Changes

- MERKRETE and ISO

ISO example for internal use only, not for external use. ISO testing in process

A118.1 - (C1) (TE)  700 PremiumSet

A118.3 (R2) Chemical Resistant, Water  ProEpoxy Mortar and Grout

Cleanable Tile Setting and Grouting
Epoxy and Water Cleanable
Tile-Setting Epoxy Adhesive

A118.4 - (C2)(P1) 705 ProSet Plus
A118.4 - (C2)TE 7d10 Dustless
A118.4 (C2)(P1)(S1) 720 MarblePro
A118.4 (C2)(P2)(S2) 735 Premiumflex
A118.4 (C2)(P2)(S2) 740 Fracture Guard Thinset
A118.4 (C2)(P2)(S2) F 750 RS Thin-Set
A118.4 (C2) (S2) 801 SelfCure Thinset
A118.4 (C2) (S2) 200 Krete liquid & 211 Krete powder
A118.4 (C2) (S2) 820 Merlite

When combined with 150 Acrylic admixture:

A118.4 (C1) 700 PremiumSet

A136.1 (D1)T Organic Adhesives for Installation of 136 Surestik
A136.1 (D2)T Ceramic Tile
TCNA 2011: Major Changes

FLOORS, INTERIOR
Concrete Subfloor
Pour Gypsum Underlayments, Bonded

Limitations:
- not for below-ground installation.
- not for use over above-ground structural slabs and other floors subject to movement and/or deflection. See Method F200A.
- not for use where moisture vapor emission rate exceeds gypsum underlayment manufacturer’s limitations.

Requirements:
- proper curing/drying of gypsum underlayments prior to application of tile is critical for proper performance. Consult the underlayment manufacturer for specific instructions.
- requires use of crack isolation and/or waterproofing and/or uncoupling membrane.
- check with membrane manufacturer for suitability for applicable conditions. Not all membranes are suitable for steam, high temperature, and/or chemical exposure, exterior use, use over above-ground structural slabs, use over pourable underlayments, use with radiant heat, use over concrete with excessive moisture vapor emissions and/or alkalinity. Membrane may also affect service rating.
- specifier shall indicate if complete waterproofing is required, including if/how membrane connects to drain assembly and if base flashing is required.
- membrane must meet ANSI A118.10 for limited water exposure areas (Res2, Com2). Consult underlayment manufacturer for requirements.

Materials (architect to specify mortar and grout for intended use and tile selected):
- ceramic tile—ANSI A137.1.
- grout—A118.3, A118.6, A118.7, A118.8, CG1, CG2A, CG2W, CG2WA, or RG.
- mortar bond coat—A118.4, C2, C1S1, C2S1, C1S2, or C2S2. When an uncoupling membrane is used, check with membrane and setting materials manufacturer for recommendations.

Notes:
- slab to be well cured, dimensionally stable, and free of unremediated structural cracks, waxy or oily films, and curing compounds.
- poured gypsum underlayment thickness and application varies. Consult the manufacturer for specific recommendations.
- surfaces must be prepared and primed according to the underlayment manufacturer’s instructions.
- poured gypsum underlayment—installed only by a manufacturer approved applicator in accordance with manufacturer’s recommendations.

Movement Joint (architect must specify type of joint and show location and details on drawings):
- movement joints—mandatory in accordance with Method EJ171, page 75.

Installation Specifications:
- tile—ANSI A108.5.
- grout—ANSI A108.6, A108.9, or A108.10.
- crack isolation membrane—ANSI A108.17.
- uncoupling membrane—follow manufacturer’s recommendations.

Notes:
- some manufacturers require special primers prior to the application of the setting materials or membranes. Follow manufacturer’s directions.
**Environment Classifications:**
Res1 – Residential Dry
Res2 – Residential Limited Water Exposure
Res3 – Residential Wet
Res4 – Residential High Humidity, Heavy Moisture Exposure
Res5 – Residential High Temperature (≥125°F)*
Res6 – Residential Exterior
Com1 – Commercial Dry
Com2 – Commercial Limited Water Exposure
Com3 – Commercial Wet
Com4 – Commercial High Humidity, Heavy Moisture Exposure
Com5 – Commercial High Temperature (≥125°F)*
Com6 – Commercial Exterior
Res1 – Residential Dry – Examples: Residential interior wall, floor and ceiling/soffit applications and decorative areas

Res2 – Residential Limited Water Exposure – Examples: Residential bathroom floors, mudroom floor, countertops, backsplash, and laundry room

Res3 – Residential Wet – Examples: Residential shower receptor wall and tub enclosures

Res4 – Residential High Humidity, Heavy Moisture Exposure – Examples: Steam showers, steam rooms, enclosed pool area walls

Res5 – Residential High Temperature ($\geq 125^\circ F$) – Examples: Residential saunas, furnace or boiler areas

Res6 – Residential Exterior – Examples: Exterior walls, soffits, balconies
TCNA 2011: Major Changes

**Com1 – Commercial Dry** – Examples: Commercial interior wall, floor and ceiling/soffit applications, and decorative areas

**Com2 – Commercial Limited Water Exposure** – Examples: Dairies, breweries, kitchen walls, locker rooms

**Com3 – Commercial Wet** – Examples: Commercial gang showers, tub enclosures, laundries, showers

**Com4 – Commercial High Humidity, Heavy Moisture Exposure** – Examples: Steam showers, steam rooms, enclosed pool areas, natatoriums

**Com5 – Commercial High Temperature (≥125°F)** – Examples: Commercial saunas, furnace or boiler areas

**Com6 – Commercial Exterior** – Examples: Exterior walls
Industry Standards

Joint Stone Installation Document

- TCNA
- NTCA
- MIA
Industry Standards

ANSI Handbook
Specifications for the Installation of Ceramic Tile

- Revised every five years?
- Referred to in TCNA Handbook Methods
- Important
  - Specifications
  - Environmental Conditions
  - Coverage
- Types of ANSI Standards
  - A108: Installation Standards
  - A118 & A136: Material Specifications
  - A137: Specifications for Ceramic Tile
- Revisions 2007
  - 7 new methods & change in deflection criteria
What is ANSI?

A. It is what you get when your on your first date?

B. It is what you get when you have to present an Architectural program for the first time?

C. It is how you get when you quit smoking?

D. American National Standards Institute!
What is ANSI?

A. American National Standards Institute!
Think of TCNA and ANSI as…

◆ TCNA
  – The Details, Drawings and Methods of tile installations

◆ ANSI
  – The Specifications and Standards describing the various tile materials installation methods
Specifications for the Installation of Ceramic Tile

Common Standards

A108 – Installation Standards

.01 – General Requirements: Sub-surfaces and Preparations by Other Trades
.02 – General Requirements: Materials, Environmental, and Workmanship
.1A, .1B, or .1C – Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar, or, Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar
.4 – Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesives
.5 – Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar
.10 – Installation of Grout in Tilework
.11 – Interior Installation of Cementitious Backer Units
.12 – Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar
.13 – Installation of Load-Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone

continued
Specifications for the Installation of Ceramic Tile
Common Standards

A118 – Material Specifications
.1 – Specifications for Dry-Set Portland Cement Mortar
.4 – Specifications for Latex-Portland Cement Mortar
.6 – Specifications for Standard Cement Grouts for Tile Installation
.7 – Specifications for Polymer Modified Cement Grouts for Tile Installation
.9 – Specifications for Test Methods and Specifications for Cementitious Backer Units
.10 – Specifications for Load-Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone
.11 – Specifications for EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar
.12 – Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation

A136.1 – Specifications for Organic Adhesives for Installation of Ceramic Tile
Industry Standards

Glass Tile Recommendations
Glass Tile is Beautiful
Large Format Glass Tile Installation

The installation of individual 3”x3” or larger module (un-mounted) glass tile requires that the specific tile manufacturer recommendations be followed.
MOSAIC GLASS TILE INSTALLATION

- Glass mosaic tile (mounted) **smaller than 3”x3”** may be installed using the appropriate ANSI methods:
  - A108.14
  - A108.15, or
  - A108.16

**Check scope of use prior to specifying**
NEW STANDARDS FOR GLASS MOSAIC

• Installation of paper-faced glass mosaic tile
  – ANSI A108.14-2005

• Alternate Method: Installation of paper-faced glass mosaic tile
  – ANSI A108.15 -2005

• Installation of paper-faced, back-mounted, edge-mounted, or clear film face-mounted glass mosaic tile
  – ANSI A108.16 - 2005
Glass Tile Installations

- Glass tile manufacturers require specific setting materials.

- It is the responsibility of the specification writer and the installer to confirm with the glass tile and setting materials manufacturers the appropriate installation materials for various applications.
Color Changing Tile?

- Pre-mixed grouts – Mastics, Urethanes
- ANSI Standards for Self Leveling Underlayments
- ANSI Standard for Sound Reduction Membrane
- Revisions to 118.12 Crack Isolation
- Medium Bed Definition TCNA / ANSI
- ISO designations being added to 118.1 and 118.4 thin set standards
- Glass tile standard for 3” and greater
- Uncoupling membrane ANSI Standard.
The Future

HUGE Tile

Proposed ANSI Changes LARGE Format Tile
The Future: Large Format Tile
The Future: ANSI A137.1

- Significant changes to
  - ANSI A137.1 Standard (Tile)
The Future: ANSI A137.1

- **Main changes**
  - **Porcelain Tile Specification**
    - Calibrated – within a certain standard
      - **Caliber Range**
        Min. -0.50% or -0.08 in. Max. 0.50% or 0.08 in.
      - **Warpage Diagonal**
        Min. -0.50% or -0.08 in. Max. 0.50% or 0.08 in.
    - Rectified – Edges are cut to be square
      - **Caliber Range**
        Min. -0.25% or -0.03 in. Max. 0.25% or 0.03 in.
      - **Warpage Diagonal**
        Min. -0.40% or -0.07 in. Max. 0.40% or 0.07 in.
Main changes

Porcelain tile specifications

Effects the 108 Installation Standard because of narrow grout joints.

Wording: “The grout joint must be three times the size of the tiles facial dimensional irregularity.”

1. Narrow grout joint provide less room for variation in the size of the tile.
2. Narrow grout joint provide less room for variation in layout due to irregular surfaces.
3. Narrow grout joints, lippage due to an uneven substrate is more apparent.
4. Narrow grout joints, lippage due to inherent tile warpage is more apparent.
Main changes

“the running bond offset will be a maximum of 33% unless otherwise specified by the tile manufacturer. If an offset greater than 33% is specified, Specifier and Owner must approve mock-up and lippage”.
Industry Standards

Resources

• Industry Standards mentioned previously
• Manufacturers’ websites
• Ceramic Tile Distributors Association (www.ctdahome.org)
• Ceramic Tile Industry & Resources (www.ceramic-tile.com)
• Ceramic Tile Institute of America, Inc. (www.ctioa.com)
• InfoTile – the Internet Tile Center (www.infotile.com)
• National Tile Contractors Association (www.tile-assn.com)
• Tile Council of North America (www.tileusa.com)
• Tile Contractors Association of America (www.tcaainc.org)
Specialty Products: Underlayments

• **Surface Prep**
  – Self-Leveling Underlayments
    ➢ Featheredge to 3/4"
    ➢ New construction and remodel
    ➢ TCA methods for electric radiant heat
    ➢ Concrete, plywood, and existing tile
    ➢ 4,500 psi. compressive strength
    ➢ Accepts all floor coverings

• **Limitations**
  – Not wearing surface
  – Interior only
Specialty Products: Membranes

- Crack Isolation
- Waterproofing
- Sound Reduction
Specialty Products: Membranes

- **Crack Isolation**
  - Elastomeric
  - Built-In Anti-Microbial
  - Gypsum Mortar Beds
  - Cracking
  - Bandage or Partial
    - TCA Method F125-05
  - Continuous Membrane
    - TCA Method F125A-05
  - Radiant Heat Slabs

- **Limitations**
  - 1/8” or less
FLOORS, INTERIOR

Crack Isolation Membrane

Recommended Uses:
• wherever crack isolation is required over existing in-plane cracks.
• see NOTE on page 17 for exterior uses.
• for protection against future in-plane cracking, full-coverage is recommended and must be additionally specified (F125A).

Limitations:
• deflection not to exceed 1/360 of span.
• not recommended for severe chemical exposure. Confirm with membrane manufacturer.
• for lateral (in-plane) movement only.

Requirements:
• design floor areas over which tile is to be applied to have deflection not greater than 1/360 of the span.
Make allowance for live load and impact as well as all dead load, including weight of the tile and setting bed.
• for existing cracks, soft joints may be required adjacent to cracks per manufacturer's instructions.
• specifier to identify areas of coverage.

Materials:
• crack isolation membrane—ANSI A118.12.
• latex-portland cement mortar—ANSI A118.4.
• grout—ANSI A118.3, A118.6, A118.7, or A118.8.
• sealant complying with ASTM C920.

Preparation by Other Trades:
• maximum variation in subfloor—1/4" in 10'-0" from the required plane.

Preparation by Tile Trade:
• crack isolation membrane—install to comply with manufacturer's directions.

Installation Specifications:
• tile—ANSI A108.5.
• crack isolation membrane—ANSI A108.17 or follow manufacturer’s recommendations.

Movement Joint (architect must specify type of joint and show location and details on drawings):
• movement joints—mandatory according to Method EJ171, page 68.
Specialty Products: Membranes
Specialty Products: Membranes

- **Waterproofing Membranes**
  - Elastomeric
  - Built-In Anti-Microbial
  - IAPMO, ICC-ES Code Approved
  - Interior & Exterior
  - Horizontal & Vertical
  - Trowel, roller or airless spray applied
  - Pools, fountains, spas, steam rooms

- **ANSI Standard**
  - ANSI 118.10
Specialty Products: Sound Reduction

Sound Reduction Systems

- Contributes to LEED Credit: Recycled content

- Excellent for
  - STC Rating (Sound Transmission Control)
    - e.g., room noise
  - IIC (Impact Insulation Class)
    - e.g., football, basketball
### Specialty Products: Sound Reduction

<table>
<thead>
<tr>
<th>Slab Type</th>
<th>IIC Rating Without Sound Shield</th>
<th>IIC Rating With Sound Shield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slab No Ceiling</td>
<td>28 32 34</td>
<td>39 43 45</td>
</tr>
<tr>
<td>Slab with Suspended Ceiling</td>
<td>42 46 48</td>
<td>53 57 59</td>
</tr>
<tr>
<td>Slab with Suspended Insulated Ceiling</td>
<td>46 50 52</td>
<td>57 61 63</td>
</tr>
</tbody>
</table>
Specialty Products: Mortars

**Dustless Thin Set**
- Improved Air Quality
- Enhanced productivity
- Improved job site atmospheric conditions
- Reduced liability
- Higher employee retention
  - Improved morale
  - Cleaner working conditions
- Potential ID Credit LEED
- Improved Safety & Risk Management

Video Clip
Specialty Products: Mortars

- I/240
- Latex Modified
- Freeze/Thaw stable
- Water-Resistant
- Interior & Exterior
- Cutback, existing vinyl tile, porcelain tile, exterior grade plywood (EGP) mortar
- Pre-Stress & Post-Tension
Specialty Products: Mortars

- **Fast Setting**
  - Grout in 2-3 hours
  - Foot traffic in 4 hours
  - Interior & Exterior
  - Concrete, EGP, existing tile, cutback
  - Impervious tile over low absorption
  - Waterproof, crack-isolation & sound reduction membranes
  - Cold installations
  - Colors: White & Gray
Specialty Products: Grouts

100% Solids Epoxy
- Setting Material
  - Green marble
  - Chemical (e.g., dairy, brewery, retail, commercial kitchens)
  - Very high strength
  - Fiberglass & other hard-to-bond substrates
  - Interior & Exterior
- Grout
  - Chemical resistance (i.e., acids, solvents & alkalis)
  - Absorption 0.003%
  - Color options
  - Cost & labor intensive
  - Increasing residential popularity

Limitations
- Few chemicals (methylene chloride)
Specialty Products: Grouts

- 100% Solids Epoxy
Cementitious Sanded & Non-Sanded Grouts
- 1/8” or less, non-sanded grout
- 1/8” or more, sanded grouts

Innovations
- Polymer modification
- Anti-microbial
  - Mold & mildew resistance
- Built in sealer
Thank You for Joining Us!

Jim Whitfield FCSI, CCPR, CTC, LEED AP
Technical Manager Parex USA

800-851-6303 Corporate toll free
719-339-1052 cellular

Jim.Whitfield@ParexUSA.com
www.merkrete.com
www.parexusa.com
Administrative

- Sign-In Sheet
- Evaluation Form

Certificate of Completion

THIS IS TO CERTIFY THAT

Stephen Cargile

PARTICIPATED IN
Specifying Successful Ceramic and Stone Tiles Installations; Beyond TCA and ANSI

December 13, 2007
JSA Architects
Jacksonville, FL.

1 AIA/CES LEARNING UNITS / HSW

Jim Whitfield FCSI, CCPR, CTC, LEED AP

Parax USA, Inc. - 4125 E. La Palma Ave. Suite 250 - Anaheim, CA 92807
www.marcrete.com