# SECTION 093013

# Crossville Tile Laminam Product / TEC® Lifetime Large Porcelain Panel Installation Warranty

<http://media.hbfuller.com/documents/WARR_TEC_Laminam_Warranty_R0917.pdf>

Crossville, Inc., Laminam 3+ Gauged Porcelain Tiles Panels, Interior/Exterior Walls Crossville, Inc., Laminam 5.6 Gauged Porcelain Tiles Panels, Interior Floors

**TEC®** 3N1, Ultimate 6 Plus mortars; Power Grout and AccuColor EFX Epoxy Grout; Hydraflex waterproofing/crack isolation membrane, Multipurpose Primer and listed self-leveling underlayments/patches and skim coat products.

# PART 1 GENERAL

* 1. **SUMMARY**

##### A. Gauged Porcelain Tile/ Panels

1. Surface Preparation
2. Waterproofing and Crack Isolation Membrane System
3. Setting Mortar
4. Grout and Accessories
	1. **REFERENCES**
5. ANSI A108 Series/A118 Series - American National Standards for Installation of Ceramic Tile.
6. TCNA (HB) - Handbook for Ceramic, Glass and Stone Tile Installation; Tile Council of North America.
7. ISO 13007 - International Standards Organization; classification for Grout and Adhesives.
8. ANSI A137.3 – American National Standard Specifications for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs
9. ANSI A108.19 Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar
	1. **SUBMITTALS**

A. Submit under provisions of Section 01 30 00.

B. Submit manufacturer’s product literature and product specifications for each product.

C. Submit manufacturer’s technical data for each product specified indicating compliance with all applicable standards.

D. Submit sets of physical samples for products specified herein.

* 1. Samples for Selection: Submit one (1) sample 50mm x 175mm (2 " x 7") of each type of Laminam 3+ and/or 5.6 thin porcelain tile showing color. 250mm x 500mm (10 " x 20") are also available as needed **(NOTE: Due to large size of these panels, shipping and packaging of full-size samples is not practical)**
	2. Grout color samples of each color and type. Prepare samples in specified dimensions using the same tools and techniques intended in actual work (including grout sealer application if specified). Manufacturer’s paper charts and plastic channels are to be used for initial color selection only and are not acceptable submittal samples.
	3. Interior and Exterior Installation Instructions: Tile and Tile Setting Manufacturer's current Gauged Porcelain Tile Technical Manual / Guidelines.
	4. Care and Maintenance: Crossville Inc.’s “How to Care” Brochure

E. Certifications: Submit manufacturer’s letter of compliance that tile product meets or exceeds ANSI A137.3, including Master Grade Certificate showing name of architect(s), owner and the name/location of project.

**1.04 QUALITY ASSURANCE**

1. Manufacturer’s Qualifications:
2. Obtain each type and color of Laminam 3+ and/or 5.6 from Crossville Inc. or its distributor
3. Single source tile setting manufacturer: Waterproofing and crack isolation membrane system, setting materials grout materials and sealant shall be provided by a TEC/HB Fuller Construction Products.
4. Installer Qualifications: The use of trained professional contractors for the installation of these thin porcelain tiles is required. In addition, the installer must also have obtained completion of Crossville Sponsored Training provided by Crossville Inc., a Crossville distributor, or other thin-tile specific training authorized/approved by one of the organizations listed below.
5. Installer certified by Advanced Certification for Tile Installers (ACT) program for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs. www.tilecertifications.com
6. Installer completion of a comprehensive installation program provided by the manufacturer of gauged porcelain tiles or gauged porcelain tile panels/slabs.
7. Installer completion of a comprehensive installation program provided by the manufacturer of setting materials for gauged porcelain tiles or gauged porcelain tile panels/slabs.
8. Other approved certification or installation programs (CTEF- Certified Tile Installer Program; TCAA – Trowel of Excellence; IMI – International Masonry Institute; NTCA Five Star Contractor Program; Journeyman Tile Setter Apprenticeship Programs)
9. Informative Note: Requirements for installer qualifications shall be listed in the Tiling specification section, PART 1, QUALITY ASSURANCE. Documentation of compliance with required installer qualification criteria shall be required in the Tiling specification section, PART 1, INFORMATION SUBMITTALS.
10. Crossville maintains a list of installers that have completed Laminam training. A list by zip code is available on our website at: https://crossvilleinc.com/solutions/laminam-contractors/

D. Upon completion of the work of this section, deliver to the owner 5% minimum additional panels of each type, color, pattern and size used in the work, as well as extra stock of adhesives, mortars, grouts and other installation materials for the owner's use in replacement and maintenance. Extra stock is to be from same production run or batch as original tile and installation materials.

**1.05 PRE-INSTALLATION MEETING**

A. Conduct pre-installation meeting in accordance with Section 01310.

B. Convene one week prior to commencing work of this section

C. Require attendance of installation material manufacturer, tile supplier, tile setting manufacturer, tile installer and installers of related work.

D. Review installation procedures and coordination required with related work. Meeting agenda includes but is not limited to:

1. Surface preparation

2. Gauged Porcelain Tile installation procedure

3. Mortar and Grouting material and procedure

4. Cleaning products and maintenance

**1.06 DELIVERY, STORAGE, AND HANDLING**

1. Comply with requirements of Section 01650 and Section 01660.
2. Follow Crossville’s written guidelines for handling as well as ANSI A108.19 for interior installations. Incorporate all necessary tools as detailed in the following guidelines and Crossville’s Technical Manual / Guidelines (most current revision found at www.laminambycrossville.com)
3. Handling of the crate – recommend 44” forks to handle the flat crate or A-frame from the side. Important to have 44” forks so they extend all the way across the crate or A-frame to catch the back runner.
4. Shipments of the gauged porcelain tile crates or A-frames loaded with the narrow end of the crate or A-frame facing out will require a fork truck with a minimum of 84” forks and 5000 pound lift capacity.
5. To correctly lift and handle gauged porcelain tile panels using a forklift, position the forks at a distance of at least 3.3 feet (1 meter) from each other, perpendicular to the long side of the pallet and at the center of the pallet.
6. Gauged Porcelain tile panels to be stored both upright and horizontal. If tile panels are placed on top of each other, ensure that each tile panel is clean and that the surface that the tiles are resting on is flat. If tile panels are stored in their vertical position, rest them on their long side. This side must be protected by wood, cardboard, or Styrofoam Extruded Polystyrene panels.
7. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Inspection of material for any shipping damage should be done at time of delivery. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes and in accordance with written manufacturer’s recommendations.

**1.07 EXTRA MATERIALS STOCK**

A. Upon completion of the work of this section, deliver to the owner an appropriate amount of additional tile panels of each type, color, pattern and size used in the work, as well as extra stock of adhesives, mortars, grouts and other installation materials for the owner's use in replacement and maintenance. Extra stock is to be from same production run or batch as original tile and installation materials.

## 1.08 ENVIRONMENTAL REQUIREMENTS

1. Interior Applications: Do not begin installation until building is completely enclosed and HVAC system is operating and maintaining temperature and humidity conditions consistent with "after occupancy" conditions for a minimum of 2 weeks.
2. Maintain continuous and uniform building temperatures of not less than 10°C (50°F) during installation.
3. Ventilate spaces receiving tile in accordance with material manufacturer’s instructions.
4. The General Contractor shall provide access to electrical power and clean potable water in the area where the ceramic or stone tile is being installed.

**1.09 WARRANTY**

1. Comply with provisions of Section 01780.
2. The manufacturer of the tile setting materials shall warrant, when installed as a **complete system** as indicated in table below, for **(LIFETIME)** upon completion of the installation, when installed per manufacturer’s installation instructions:
3. Will maintain the bond between the Laminam by Crossville® gauged porcelain tiles/panels for interior walls and floors and approved substrate under normal use provided that the products was properly applied as a system within its applicable shelf life and in accordance with TEC/HB Fuller Construction Products’s written guidelines, Product Data Sheets found at www.tecspecialty.com in effect on the date of its

application and consistent with all applicable building codes and industry standards and guidelines, including the TCNA Handbook when applicable, and procedures for professional application to the extent they are consistent with HBF-CP’s written guidelines.



## PART 2 PRODUCTS

* 1. **MANUFACTURERS AND PRODUCTS**
1. **Ceramic Tile**

 1. Crossville, Inc.; 349 Sweeney Drive; Crossville, TN 38555; website: http://laminambycrossville.com.

 Laminam by Crossville Gauged Porcelain Tile Panels

**NOTE TO SPECIFIER: edit for each tile type**

B. **FLOOR TILE MATERIALS** – **Interior** floors over slab on grade, below grade, or above grade concrete and/or over existing tile securely bonded and properly prepared on above, below, or on grade concrete.

 1. Meets the requirements of ANSI A137.3 Table 4 (range thickness of 5.6 mm)

 a. Gauged Porcelain Tile Panel: LAMINAM 5.6 mm

 b. Color: Tile shall be **[insert color name and number].**

 c. Size:

 d. Finish:

 e. Special Shapes:

f. Location:

C. **WALL TILE MATERIALS** – Interior walls

 1. Meets the requirements of ANSI A137.3 Table 5 (range thickness of 3+ mm)

 a. Gauged Porcelain Tile Panel: LAMINAM 3+ mm or LAMINAM 5.6mm

 b. Color: Tile shall be **[insert color name and number].**

 c. Size:

 d. Finish:

 e. Special Shapes:

f. Location:

D. **WALL TILE MATERIALS** –Exterior walls - vertical field applied direct bond method

1. Meets the requirements of ANSI A137.3 Table 5 (range thickness of 3+mm); See Exterior field applied direct bond guidelines in Crossville’s Technical Manual/Guidelines. All series except FILO available for exterior walls

 a. Gauged Porcelain Tile Panel: LAMINAM 3+ mm or LAMINAM 5.6mm

 b. Color: Tile shall be **[insert color name and number].**

 c. Size:

 d. Finish:

 e. Special Shapes:

f. Location:

B. Surface Preparation Products **[Choose appropriate method]**

1. Provide cementitious, trowelable, patch material to remedy any depressions in existing substrate to allow for flat installation of tile without lippage.

 **a. TEC® VersaPatch® Latex Modified Floor Patch**

 **b. TEC® Fast-Set Deep Patch**

 **c. TEC® Feather Edge Skim Coat**

2. Provide self-leveling cement underlayment to existing substrate to provide flat level surface to receive tile. Underlayment 28 day compressive strength shall be minimum 5500 psi. Prime all surfaces per manufacturer’s requirements.

 a. **TEC Level Set® 300 Self-Leveling Underlayment.**

 **b. TEC Multipurpose Primer**

C. Waterproofing and Crack Isolation Fluid Membrane System

1. Fluid membrane shall meet all ANSI A118.10 specifications for ceramic and stone waterproofing membranes and ANSI A118.12 for ceramic and stone crack isolation membranes.

 a. **TEC® HydraFlex™ Waterproofing Crack Isolation Membrane**. Minimum in-plane crack width shall be ¼” as manufactured by TEC® / H.B. Fuller Construction Products Inc.

D. Setting Materials

1. Latex Modified Cement Mortars

a. **TEC® 3N1 Performance Tile Mortar** conforming to ANSI A118.4, A118.11, A118.15 and ISO 13007 C2TES1P2 as manufactured by TEC® / H.B. Fuller Construction Products Inc. 28 day shear strength (porcelain) shall be minimum of 700 psi as reported on product data sheet.
Color: **[white] [gray].**

b. **TEC® Ultimate 6 Plus Tile Mortar** conforming to ANSI A118.4 and A118.11, as manufactured by TEC® / H.B. Fuller Construction Products Inc.
Open time shall be minimum of 50 minutes. Mortar shall allow grouting in a minimum of 6 hours. Color: white.

E. Grouting Materials

1. Stain Resistant, Crack Resistant, Cementitious Grout. Grout 28 day water absorption shall be less than 1.5% and minimum of 10,000 psi 28 day compressive strength. Shall meet ANSI A118.7.

a. **TEC® Power Grout** Ultimate Performance grout mixed with water per manufacturer’s instructions as manufactured by TEC® / H.B. Fuller Construction Products Inc.

2. Stain Resistant, 100% Epoxy Grout. Provide grout with less than 4% Absorption conforming to ANSI A118.7 providing antimicrobial properties.

a. **TEC AccuColor EFX Grout Epoxy Grout**, 100% Solid Epoxy Grout. Shall meet ANSI A118.3.

F. Sealants

1. High performance 100% silicone sealant. Sealant shall Meets ASTM C920 Type S, NS, Class 25

a. **AccuColor 100® 100% Silicone Sealant**

**PART 3 EXECUTION**

* 1. **EXAMINATION**

A. Verify that surfaces to be covered with gauged porcelain tile panels are:

 1. Sound, rigid and conform to good design/engineering practices; Systems, including the framing system and panels, over which porcelain panels will be installed shall be in conformance with the International Residential Code (IRC) for residential applications, the International Building Code (IBC) for commercial applications, or applicable building codes (floor systems over which the tile will be installed should not exceed L/360 under live load).

2. Clean and free of dust, dirt, oil, grease, sealers, curing compounds, laitance, efflorescence, form oil, loose plaster, paint, and scale.

3. For thin-bed porcelain tile installations when a cementitious bonding material will be used, including large and heavy tile mortar: maximum allowable variation in the tile substrate is 1/8” in 10’ (3mm in 3m) from the required plane, with no more than 1/16” variation in 24” (1.5mm variation in 600mm) when measured from the high points in the surface. For modular substrate units, such as adjacent concrete masonry units, adjacent edges cannot exceed 1/32” (0.8mm) difference in height.

4. In order to achieve accurately comparable labor quotes the specification must contain language indicating that the work is to be bid assuming the substrates are within the required tolerances. If the substrates are found not to be within those tolerances, language and/or pricing should be included in the installation contractor’s bid which qualifies which trade is to do the work needed to bring the substrate into required tolerances.

5. Examine substrates for compliance with requirements for conditions affecting performance of the work. Refer to ANSI A108.01; General requirements for sub-surfaces and preparations by other trades materials.

6. For Interior installations reference ANSI A108.19

B. Do not proceed with tile work until surfaces and conditions comply with requirements indicated in referenced tile installation standard and Crossville’s Technical Manual / Guidelines.

C. Tile contractor by commencing work assumes overall responsibility to assure that all components and parts shown or required within the installation comply with contract documents and are compatible with each other and with the conditions and expected use. Commencement of work signifies acceptance of substrate and installation conditions.

**PREPARATION AND SITE CONDITIONS**

1. General
2. Concrete in accordance with ANSI A108 and the TCNA Handbook. Surfaces to be tiled shall be structurally sound, dry and free from oil, grease, dust, loose or peeling paint, concrete sealers or curing compounds. All contaminants must be removed prior to system installation.
3. Surfaces must be free of hydrostatic conditions or other moisture related problems.
4. Tile contractor shall provide trowelable screed / surface prep or self-leveling underlayments as needed to substrate to receive tile panels to level and plumb surface.

4. Confirm location of expansion, isolation or control joints required and details provided on the drawings.

**3.03 INSTALLATION**

**NOTE TO SPECIFIER:**

**• The edges of the gauged porcelain tile panels are not eased or beveled making them susceptible to damage from heavy rolling loads and impact. Full and flush grout joints should be specified to minimize edge impact.**

**• Minimum Shore A hardness rating of 25 or greater (per the TCNA Handbook) should be specified for all movement joints in traffic situations. Compressible joint fillers with less than a Shore A hardness of 25 should not be used. For installations exposed to heavy/hard rubber wheel rolling loads, pre-fabricated commercial grade movement joints should be considered. The use of steel wheels over gauged porcelain tile shall not be used.**

**• All expansion joints specific to structural movement: material types and placement should be specified by architectural/engineering authority on the project.**

A. General

1. Install work in accordance with Crossville’s Technical Manual / Guidelines for Laminam Thin Porcelain Tiles. For Interior installation install per ANSI A108.19. For Exterior Installation, install per Crossville, Inc; Technical Manual.
2. Install crack isolation/waterproofing fluid membrane over entire surface or surface preparation products per manufacturer’s instructions.
3. Trowel mortar in strict accordance with ANSI A108.19.

4. Protect floors from all traffic during initial 72 hours.

B. Tile Installation

1. General
2. Install tile in pattern shown on drawings. Joints shall be aligned and of same size when adjoining tiles on floor, base, walls and trim.
3. Tile should be cut straight and have edges aligned with adjacent materials. Grind edges of cut tile.
4. Install tile under equipment and fixtures and into recesses to form a complete tile covering.

d. Terminate tile neatly at edges, corners using Schluter Schiene 3mm

1. Walls: Install tile in accordance with latest version of ANSI 108.19 and applicable TCNA method

C. Grout Installation

1. Install specified product in strict accordance with H.B. Fuller Construction Products Inc. installation instructions and following the guidelines of ANSI A108.19, A108.10 or A108.6. Grout joint width shall be [ ]” as indicated on drawings.

**NOTE: If using TEC Ultimate 6 Plus mortar to install tile, grouting may start in 6 hours. Crossville Inc requires epoxy grout for all commercial floors.**

**NOTE: Use a minimum of 3 mm (0.12") grout joint size due to lack of floor flatness and variable tolerances in field-cut thin porcelain panels**

D. Expansion and Control Joints: Install expansion and control joints in accordance with TCNA method EJ171. Joint width and color shall match grout joints.

**3.04 FIELD QUALITY REQUIREMENTS**

1. General: Comply with requirements of Section 01450.
	1. **CLEANING**

 A. Epoxy Grout use:

1. The use of TEC® AccuColor EFX® Clean-up Water Concentrate is highly recommended. Lightly scour the tiled surface with a nylon scrubbing pad and plenty of clean water. Wipe across tiles diagonally to avoid removing grout from joints. Wipe remaining grout residue off tile with a grout sponge and clean water. Rinse often. Repeat until cleaned. Frequent change out of clean-up water is recommended. Note: During clean-up, protect ungrouted joints from water. Inspect the installed grout the next day to determine if residual haze is present on the tile surface. For removing any remaining grout residue, use a grout haze remover.

B. Cementitious Grout use:

1. Allow the grout to firm up in the joints, 20 to 30 minutes under normal conditions. Check for firmness by touching the grout with your finger. If there is transfer, wait 15 minutes and test again. When there’s no transfer it is time to begin clean-up.

2. Wet a grout sponge in a pail containing cool, fresh water and wring out. Loosen the grout on the tile surface by moving the sponge in a circular motion across the tiles. Then use the sponge to smooth the joints. Completely rinse and wring out the sponge. Wipe diagonally across the tiles to remove grout residue. Use each side of the sponge once, then rinse, completely wring out and repeat. Change the water frequently.

3. Allow the grout to dry 30 to 60 minutes and remove all remaining grout residue from the tiles with a damp sponge or terrycloth towel.

**PROTECTION**

1. Protect wall installations from impact or heavy vibration for at least 14 days after completed installation.
2. Protect tile installation from freezing and water immersion for at least 21 days after installation is complete.

**END OF SECTION**

