

SECTION 09 65 19.19
RESILIENT TILE FLOORING

CSI 3-PART LONG-FORM GUIDE SPECIFICATION
USE FOR CONTRACT DOCUMENT (CD) SPECIFICATION ISSUES
EDIT TO SUIT PROJECT

PART 1 - GENERAL

1.1 SUMMARY

- A. Work of this Section consists of resilient through-pattern homogeneous vinyl tile flooring and accessories including, but not limited to:
1. TOLI **Linotesta**
 2. TOLI **FasolPlus**
 3. TOLI **Viale**
 4. TOLI **Piesta**
 5. TOLI **Terraline**
 6. TOLI **Strataline**
 7. TOLI **Kolurpath**
 8. TOLI **Arborpath**
 9. Accessories
 - a. Adhesives
 - b. Cleaning solutions
 - c. Finish top coatings
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to the following:
1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and DIVISION 01 General Requirements, Specification Sections, apply to this Section.
 2. SECTION 033000, CAST-IN-PLACE CONCRETE: For proper concrete design, underslab vapor barrier and finished concrete surface required to accept vinyl tile flooring.
 3. SECTION 035416, HYDRAULIC CEMENT UNDERLAYMENT: For leveling of existing concrete slabs.
 4. SECTION 061000, ROUGH CARPENTRY: For proper wood-based panel underlayment required to accept installation of vinyl tile flooring.
 5. SECTION 079200, JOINT SEALANTS: For exposed movement joints.
 6. SECTION 079513, EXPANSION JOINT COVER ASSEMBLIES: For expansion joint assembly penetrating through tile flooring.
 7. SECTION 096513, RESILIENT BASE AND ACCESSORIES: For wall base, and expansion joint trim between flooring and other flooring surfaces.

NOTE: Edit Definitions and References below to suit project.

1.2 REFERENCES

NOTE: Coordinate and edit the correct Section number below. The numbers shown indicate relevant broad-scope, medium-scope, and narrow-scope numbers of the CSI MasterFormat® system.

- A. Abbreviations and Acronyms per SECTION 011000, SECTION 014000, and as follows:
1. AHJ. Authority Having Jurisdiction from local, state, and federal regulatory agencies.

2. Per. In accordance with.
3. RH. Relative humidity.
4. SCOF. Static Coefficient of Friction.

NOTE: Coordinate and edit to the correct Section number below.

- B. Definitions per SECTION 011000, SECTION 014000, and as follows:
1. HAP. Hazardous Air Pollutant.
 2. Homogeneous. Meaning uniform in structure or composition throughout.
 3. HVT. Homogeneous Vinyl Tile is made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of colors and patterns.
 4. VOC. Volatile Organic Compounds are chemical compounds that have a high vapor pressure and low water solubility.
- C. Referenced Standards per SECTION 014000 and as follows:
1. ASTM. ASTM International; www.astm.org
 - a. ASTM D2047, Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
 - b. ASTM D5116, Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products.
 - c. ASTM E648, Test Method for Critical Radiant Flux (Radiant Panel) of Floor Covering Systems using a Radiant Heat Energy Source.
 - d. ASTM E662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 - e. ASTM F410, Wear Layer Thickness of Resilient Floor Coverings by Optical Measurement.
 - f. ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
 - g. ASTM F925, Standard Test Method for Resistance to Chemicals of Resilient Flooring.
 - h. ASTM F970, Standard Test Method for Static Load Limit.
 - i. ASTM F1066, Standard Specification for Vinyl Composition Floor Tile/Homogeneous Vinyl Tile.
 - j. ASTM F1265, Standard Test Method for Resistance to Impact for Resilient Floor Tile.
 - k. ASTM F1304, Standard Test Method for Deflection of Resilient Floor Tile.
 - l. ASTM F1514, Standard Test Method for Measuring Heat Stability of Resilient Vinyl Flooring by Color Change.
 - m. ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
 - n. ASTM F1914, Standard Test Method for Short- Term Indentation and Residual Indentation of Resilient Floor Covering.
 - o. ASTM F2055, Size and Squareness.
 - p. ASTM F2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
 - q. ASTM F2199, Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat.
 2. NFPA. National Fire Protection Association; www.nfpa.org
 - a. NFPA 253, Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Energy Source.

- b. NFPA 258, Research Test Method for Determining Smoke Generation of Solid Materials
- 3. TOLI Flooring Technical Documents
 - a. [TOLI Material Handling & Subfloor Preparation Guide](#)
 - b. [TOLI HVT Installation Guide](#)
 - c. [Tech Data](#)
 - d. [TOLI HVT Maintenance Guide](#)

1.3 ADMINISTRATIVE REQUIREMENTS

NOTE: Coordinate and edit to the correct Section number below.

- A. Coordination per SECTION 013000 or 013100, and as follows:
 - 1. Coordinate expansion joint system installation prior to installing tile flooring. Refer to SECTION 079500 or 079513.

RED NOTE: Specifier to closely coordinate applicable sections between concrete and other subfloor substrate finishes with floor covering.

- 2. Coordinate concrete topping finish per SECTION 035400 or 035416.

NOTE: Coordinate and edit to the correct Section number below.

- B. Preinstallation Meetings per SECTION 013000 or 013100 and as follows:
 - 1. Meeting purpose is to review site conditions, installation procedures, schedules, coordination with other work, and warranty requirements.

NOTE: Coordinate and edit to the correct Section number below.

- C. Sequencing: Per SECTION 010000 or 011100.

NOTE: Coordinate and edit to the correct Section number below.

- D. Scheduling: Per Section 010000 or 011100, and SECTION 013000 or 013200.

1.4 SUBMITTALS

NOTE: Coordinate and edit to the correct Section number below.

- A. Product Data per SECTION 013000 or 013300 and as follows: Submit manufacturer's printed descriptions of materials, components and systems, performance criteria, use limitations, recommendations, installation information, and the following:
 - 1. Typical section details indicating each specified system on proposed substrates and transitions to other flooring systems.
 - 2. Sections indicating flooring system abutting wall.
 - 3. Typical plan views of various layout patterns.

NOTE: Coordinate and edit to the correct Section number below.

- B. Shop Drawings per SECTION 013000 or 013300 and as follows: Submit keyed location plans, plans indicating tile type, layout, pattern direction, edge transitions, columns, doorways, enclosing partitions, built-in furniture, cabinets, cutouts, expansion and control joints, and attachment requirements.

NOTE: Coordinate and edit to the correct Section number below.

- C. Samples per SECTION 013000 or 013300 and as follows:
 - 1. Initial for Selection: Submit printed color charts, sample chains or Architectural Binder indicating manufacturer's complete range to determine color, texture, shape, and/or composition for each type of material finish.
 - 2. Final Selection: Submit two (2) 9" x 9" samples of each different type, color and pattern selected for acceptance.

D. Quality Assurance Submittals per SECTION 014000 and as follows:

1. Test and Evaluation Reports: Submit certified test results by a recognized testing laboratory in accordance with specified test methods for each product and/or system indicating physical, chemical and performance characteristics.

NOTE: Edit LEED Requirements below to suit project.

E. Sustainable Design (USGBC LEED®) Submittals: Submit the following in accordance with the requirements of SECTION 018113, LEED REQUIREMENTS:

1. LEED Credit MR, Materials & Resources. Submit completed LEED Submittal Templates, and other required paperwork as follows:
 - a. MR 4.1: Recycled Content: 10 Percent (post-consumer + 1/2 pre-consumer)
 - 1). Submit product data indicating percentage by weight of recycled content.
 - b. MR 6: Rapidly Renewable Materials: 2.5 percent of the total value of the building materials in the project.
 - 1). Submit the product name, material manufacturer, total product cost for each tracked material, total product cost for each tracked material, percentage of product by weight, for each material that meets the rapidly renewable criteria.
2. LEED Credit EQ, Indoor Environmental Quality. Submit completed LEED Submittal Templates and required paperwork as follows:
 - a. EQ 4.1: Low Emitting Materials, Adhesives & Sealants, VOC Data
 - 1). Submit manufacturers' product data for construction adhesives and sealants, including printed statement of VOC content and MSDS Sheets.
 - b. EQ 4.3: Low Emitting Materials, Carpet and Resilient Flooring Systems
 - 1). Submit manufacturers product data for systems that includes printed statement of VOC content.

NOTE: Coordinate and edit to the correct Section numbers below.

F. Closeout Submittals per SECTION 017000 or 017800, unless noted otherwise.

1. Operation and Maintenance Data: Including, but not limited to, methods for maintaining installed products and precautions against cleaning materials with methods detrimental to finishes and performance.
2. Executed Warranty Documentation: Manufacturers' material warranties and installers' workmanship warranty.
3. Record Documents: Drawings, Specifications, Product Data.

NOTE: Edit LEED Requirements below to suit project.

4. Sustainable Design Closeout Documentation: Submit completed USGBC LEED® worksheet templates for the following credits:
 - a. MR 4.1, MR 6
 - b. EQ 4.1, EQ 4.3

NOTE: Edit percentage below to suit scope of project.

G. Maintenance Material Submittals - Extra Materials: Submit no less than five (5) percent additional full and unopened cartons of each type and pattern of tile used.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements

1. Fire-Test-Response Characteristics: As determined by testing identical products as follows by a qualified testing agency.
 - a. ASTM E648: Critical Radiant Flux Classification: Class I
 - b. ASTM E662: Smoke Density: 450 or less

B. Qualifications:

1. Manufacturer: A company with a minimum ten (10) years' experience in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance. A single source manufacturer supplying both product and adhesive.
 - a. Company shall be ISO 9001 Certified.
 - b. Company shall be ISO 14001 Certified.
2. Installer / Applicator: Perform installation with skilled, experienced, and trained workmen with demonstrated ability to install TOLI products, supervised by trained personnel who shall have a minimum three (3) years successful experience in installations of similar size and scope.
3. Testing Agency: An independent testing agency with the experience and capability to conduct the testing indicated, meeting requirements of ISO/IEC (International Organization for Standardization / International Electrotechnical Commission) Standard 17025 or ASTM E699 and ASTM E329.

C. Source Limitations: Obtain primary flooring materials through one source from a single manufacturer.

1. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

D. Field Samples per SECTION 014000: Provide field samples, dry laid, to demonstrate aesthetic effects of materials in situ, assisting the Architect and Owner in making final selections.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery, Storage and Handling per industry and manufacturer guidelines, SECTION 016000, and as follows:

1. Delivery and Acceptance Requirements

- a. Deliver materials to Project site in an undamaged condition, in original unopened cartons bearing manufacturer's intact label, names, brand names, types and sizes of contents, and proper handling, storing, unpacking, protecting, and installation instructions, as warranted.
- b. Inspect shipped materials on delivery to ensure compliance with requirements of Contract Documents and to ensure that products are undamaged and properly protected.
 - 1). Document and report damaged goods at time of delivery. Accept properly ordered, protected and undamaged goods. [Material Handling & Subfloor Preparation Guide](#).

2. Storage and Handling Requirements

- a. Store materials in a dry, temperature-controlled interior area at 65-80 deg F (18-27 deg C). Avoid exposure to temperature extremes. Protect materials from damage from improper handling, and the action of other trades.
 - 1). Store cartons flat and squarely on top of one another.
 - 2). Do not lay cartons on their edge.
 - 3). Deliver all materials to the job site no later than 48 hours in advance to acclimate flooring in conditioned air.

3. Packaging Waste Management

- a. Request that manufacturers, suppliers, and shippers provide least amount of packaging that adequately and properly protects, supports, and contains the items shipped, and is reusable, returnable, or recyclable.

1.7 WARRANTY

- A. Manufacturer Warranty. Provide manufacturer's ten (10) year limited warranty to be free from defects in material and workmanship, under normal commercial use and service, to repair or replace all effected tiles including reasonable labor.

1. Warranty Period: Ten (10) year limited warranty from the date of CBC invoice. Warranty to include reasonable labor. [Product Warranty](#).

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Manufacturers List: Subject to compliance with requirements, provide products by one of the following:

1. TOLI Corporation, a flooring manufacturer represented by CBC AMERICA LLC, 2000 Regency Parkway, Cary, NC 27518; Telephone: 919.230.8700; E-mail: technical@cbcflooring.com; Website: www.cbcflooring.com

- B. Substitution Limitations: No substitutions permitted because of the specific attributes listed in sections 2.2, 2.3 and 2.4.

- C. Product Options

1. Flooring Type:

- a. TOLI **Linotesta**: Class 1 per ASTM E 648
- 1). Size: 17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)
 - 2). Color and Pattern: [The Collection](#)
- b. TOLI **FasolPlus**: Class 1 per ASTM E 648
- 1). Size: 17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)
 - 2). Color and Pattern: [The Collection](#)
- c. TOLI **Viale**: Class 1 per ASTM E 648
- 1). Size: 17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)
 - 2). Color and Pattern: [The Collection](#)
- d. TOLI **Piesta**: Class 1 per ASTM E 648
- 1). Sizes: 17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)
17.7 x 12 x 0.120 inches (450 mm x 300 mm x 3.0 mm)
17.7 x 4 x 0.120 inches (450 mm x 100 mm x 3.0 mm)
 - 2). Color and Pattern: [The Collection](#)
- e. TOLI **Terraline**: Class 1 per ASTM E 648
- 1). Size: 17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)
 - 2). Color and Pattern: [The Collection](#)
- f. TOLI **Strataline**: Class 1 per ASTM E 648
- 1). Size: 17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)
 - 2). Color and Pattern: [The Collection](#)
- g. TOLI **Kolurpath**: Class 1 per ASTM E 648
- 1). Size: 17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)
 - 2). Color and Pattern: [The Collection](#)
- h. TOLI **Arborpath**: Class 1 per ASTM E 648

- 1). Size: 35.4 x 5.9 x 0.120 inches (900mm x 150mm x 3.0mm)
- 2). Color and Pattern: [The Collection](#)

NOTE: Custom colors, custom marbling, and solid color tiles available by Special Order.

2. Maintenance System Options:
 - a. Cleaner / Maintainer maintenance system
 - b. Conventional acrylic finish maintenance system
3. Accessories
 - a. Underlayment leveling compound per SECTION 035416
 - b. Expansion joints per SECTIONS 079200 and 079513
 - c. CBC 5001 Acrylic Adhesive
 - d. CBC 951 Epoxy Adhesive
 - e. Cleaning solutions

2.2 DESCRIPTION

NOTE: Select one of the following descriptions, deleting the ones not chosen.

- A. TOLI **Linotesta** is a Class II, through-pattern vinyl tile made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of colors and patterns. The color and pattern detail are dispersed uniformly throughout the thickness of the product. Product to include a removable factory finish and a calculated recycled content of 26%.
- B. TOLI **FasolPlus** is a Class II, through-pattern vinyl tile made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of colors and patterns. The color and pattern detail are dispersed uniformly throughout the thickness of the product. Product to include a removable factory finish and a calculated recycled content of 26%.
- C. TOLI **Viale** is a Class II, through-pattern vinyl tile made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of colors and patterns. The color and pattern detail are dispersed uniformly throughout the thickness of the product. Product to include a removable factory finish and a calculated recycled content of 26%.
- D. TOLI **Piesta** is a Class II, through-pattern vinyl tile made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of sizes, colors, and patterns. The color and pattern detail are dispersed uniformly throughout the thickness of the product. Product to include a removable factory finish and a calculated recycled content of 18%.
- E. TOLI **Terraline** is a Class II, through-pattern vinyl tile made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of colors and patterns. The color and pattern detail are dispersed uniformly throughout the thickness of the product. Product to include a removable factory finish and a calculated recycled content of 18.5%.
- F. TOLI **Strataline** is a Class II, through-pattern vinyl tile made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of colors and patterns. The color and pattern detail are dispersed uniformly throughout the thickness of the product. Product to include a removable factory finish and a calculated recycled content of 18%.
- G. TOLI **Kolurpath** is a Class II, through-pattern vinyl tile made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of colors and patterns. The color and pattern detail are dispersed uniformly throughout

the thickness of the product. Product to include a removable factory finish and a calculated recycled content of 18.5%.

- H. TOLI **Arborpath** is a Class II, through-pattern vinyl tile made from polyvinyl esters and inorganic fillers materials formed under heat and pressure and cut to create resilient tile flooring in a variety of sizes, colors, and patterns. The color and pattern detail are dispersed uniformly throughout the thickness of the product. Product to include a removable factory finish and a calculated recycled content of 18%.

I. Sustainability Characteristics

1. USGBC LEED Rating: Comply with project requirements intended to achieve the following Rating, as measured and documented according to the USGBC LEED® Green Building Rating System, Version indicated:

NOTE: Each LEED Version requires a different credit total to achieve the desired LEED Rating.
Note: Select one of the following Ratings:

- a. Rating: Certified
- b. Rating: Silver
- c. Rating: Gold
- d. Rating: Platinum

2. Applicable LEED Credits: Performance requirements of the following LEED Categories and Credits apply to this Section and are met as follows:

a. Materials & Resources (MR):

- 1). MR 4.1: Recycled Content: 10 Percent (post-consumer + 1/2 pre-consumer)
 - a). TOLI Linotesta homogeneous vinyl tile contains 0-2% post-consumer and >50% pre-consumer, or 26% calculated recycled content.
 - b). TOLI FasolPlus homogeneous vinyl tile contains 0-2% post-consumer and >50% pre-consumer, or 26% calculated recycled content.
 - c). TOLI Viale homogeneous vinyl tile contains 0-2% post-consumer and >50% pre-consumer, or 26% calculated recycled content.
 - d). TOLI Piesta homogeneous vinyl tile contains >4% post-consumer and >28% pre-consumer, 18% calculated recycled content.
 - e). TOLI Terraline homogeneous vinyl tile contains 0-2% post-consumer and >35% pre-consumer, or 18.5% calculated recycled content.
 - f). TOLI Strataline homogeneous vinyl tile contains >4% post-consumer and >28% pre-consumer, or 18% calculated recycled content.
 - g). TOLI Kolurpath homogeneous vinyl tile contains 0-2% post-consumer and >50% pre-consumer, or 26% calculated recycled content.
 - h). TOLI Arborpath homogeneous vinyl tile contains >4% post-consumer and >28% pre-consumer, or 18% calculated recycled content.

2). MR Credit 6, Rapidly Renewable Materials

- a). TOLI HVT products are made with greater than 70 percent limestone.

b. Indoor Environmental Quality (EQ):

1). EQ Credit 4.1, Low-Emitting Materials:

- a). Acrylic Adhesive - CBC 5001 VOC: 0 g/L
- b). Epoxy Adhesive – CBC 951 VOC: 0 g/L

2). EQ Credit 4.3, Low-Emitting Materials:

- a). TOLI Linotesta FloorScore Certified Low Emitting. [Floor Score Certificate.](#)
- b). TOLI FasolPlus FloorScore Certified Low Emitting. [Floor Score Certificate.](#)
- c). TOLI Viale FloorScore Certified Low Emitting. [Floor Score Certificate.](#)

- d). TOLI Piesta FloorScore Certified Low Emitting. [Floor Score Certificate.](#)
- e). TOLI Terraline FloorScore Certified Low Emitting. [Floor Score Certificate.](#)
- f). TOLI Strataline FloorScore Certified Low Emitting. [Floor Score Certificate.](#)
- g). TOLI Kolurpath FloorScore Certified Low Emitting. [Floor Score Certificate.](#)
- h). TOLI Arborpath FloorScore Certified Low Emitting. [Floor Score Certificate.](#)

NOTE: Select / delete products as required for project:
TOLI Linotesta, FasolPlus, Viale, Piesta, Terraline, Strataline, Kolurpath, and Arborpath

2.3 MATERIALS

- A. Performance Capacities – Linotesta / Viale / FasolPlus / Piesta / Terraline / Strataline / Kolurpath / Arborpath
- 1. Size per ASTM F2055: +/- 0.008" per LF
 - 2. Thickness per ASTM F386: +/- 0.005"
 - 3. Squareness per ASTM F2055: < 0.010"
 - 4. Dimensional Stability per ASTM F2199: < .024" per LF
 - 5. Short Term Indentation per ASTM F1914: Pass ASTM F1066
 - 6. Static Load Limit per ASTM F970: 1,000 psi < 0.005"
 - 7. Critical Radiant Flux per ASTM E648: Class I ≥ 0.45 watts/cm squared
 - 8. Smoke Generation per ASTM E662:
 - Non-flaming: Pass; < 450
 - Flaming: Pass; < 450
 - 9. Heat Resistance per ASTM F1514: Max. avg. Delta E < 1
 - 10. Chemical Resistance per ASTM F925: No effect
 - 11. TVOC Emissions per ASTM D5116: Pass; FloorScore Certified
 - 12. Dry Slip Resistance per ASTM D2047: ≥ 0.5 ADA Compliant

2.4 MATERIALS

- A. Floor Tile per ASTM F1066: Class: II, through pattern homogeneous vinyl tiles
- 1. Composition: Vinyl tile formulated from 20% - 30% PVC and binder with the color and pattern detail dispersed uniformly throughout the thickness of the product. Product to include a removable factory finish and a calculated recycled content of approximately 20%
 - 2. Surface: Type A, Smooth
 - 3. Thickness: 0.120 inch (3.0mm)

Select / delete as necessary.

- 4. Edge:
 - a. Piesta: Beveled
 - b. Arborpath: Micro-Beveled
 - c. All Others: Square
- 5. Sizes:

Piesta:	Square	17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)
	Rectangle	17.7 x 12 x 0.120 inches (450 mm x 300mm x 3.0 mm)
	Plank	17.7 x 4 x 0.120 inches (450 mm x 100 mm x 3.0 mm)
Arborpath:	Plank	35.4 x 5.9 x 0.120 inches (900mm x 150mm x 3.0mm)
All Others:	Square	17.7 x 17.7 x 0.120 inches (450mm x 450mm x 3.0mm)

6. Color: As selected by Architect from Manufacturer's standard colors.

2.5 ACCESSORIES

NOTE: Select one of the following leveling methods, deleting the one not chosen.

- A. Leveling and Patching Compound: Trowelable, latex-modified Portland cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Self-Leveling Underlayment: Pourable latex-modified Portland cement-based formulation provided or approved by manufacturer for applications indicated.

NOTE: Select one of the following adhesive types, deleting that not chosen.

NOTE: Select CBC 951 when expecting floors to be frequently washed or wet, or floors installed in extremely hot, cold or wet spaces, such as near outside entrances or freezer cases, or floors subject to heavy loads, including hospital beds, heavy carts, pallet jacks, rolling chairs, etc.
CBC 5001 is suitable for most other applications.

- C. Acrylic Adhesive: Solvent-free, low odor, acrylic based, high tack type adhesive acceptable to floor tile manufacturer to suit floor tile product and substrate conditions indicated.
 - 1. Manufacturer / Product: CBC 5001 Adhesive
- D. Epoxy Adhesive: Water-resistant, hard-setting, reactive, epoxy type adhesive acceptable to homogeneous vinyl tile manufacturer to suit floor tile product and substrate conditions indicated.
 - 1. Manufacturer / Product: CBC 951 Adhesive

RED NOTE: CBC/TOLI does not warrant the compatibility and performance of TOLI HVT with non-CBC adhesives.

- E. Adhesive Equipment: Professional U-notched trowel (1/32 x 1/16 x 1/32 inch).
- F. Floor Finish Systems: Provide protective liquid maintenance product systems as recommended by flooring manufacturer's most recent published maintenance guide. [Maintenance Product Guide](#).

2.6 FABRICATION

- A. Fabrication Tolerances:
 - 1. "X" and "Y" Direction: ± 0.2 mm (0.008 inch) / LF
 - 2. Thickness: ± 0.127 mm (0.005 inch)
 - 3. Squareness: Not to exceed 0.25mm (0.010 inch)

PART 3 - EXECUTION

3.1 FIELD CONDITIONS

- A. Conditions and Measurements: Visit jobsite to verify installation conditions and floor measurements.

NOTE: Coordinate and edit to the correct Section number below.

- B. Ambient Conditions per manufacturer's most recent published written recommendations, SECTION 017000 or 017100 or 017116, and as follows:
 - 1. New concrete slabs shall be flat, clean, and dry meeting all most recent published manufacturer's written requirements. [Material Handling & Subfloor Preparation Guide](#).
 - 2. Concrete floors shall be prepared in accordance with the latest version of ASTM F710.
 - 3. Environmental Limitations: Do not deliver or install until building is enclosed, overhead work is complete, wet work is complete, and HVAC system has been fully operating a minimum (1) one week, consistently maintaining temperature and relative humidity at occupancy levels, all in accordance with manufacturer's most recent published recommendations.
 - a. Maintain space and substrate a min. 65 deg F (18 deg C) to max. 80 deg F (26.7 deg C) temperature for 48 hours prior to, during and after installation. Minimum temperature thereafter shall be 55 deg F (13 deg C).
 - b. Maintain recommended relative humidity prior to and during installation.

4. Do not install floor tiles and adhesive until all products are same temperature as space where they are to be installed.
 - a. Move floor tiles and all related installation materials into spaces where they will be installed a minimum 48 hours in advance of installation.

RED NOTE: Use of portable heaters may cause failure.

3.2 EXAMINATION

NOTE: Coordinate and edit to the correct Section number below.

- A. Examination per SECTION 017000 or 017100 or 017116, and as follows:
 1. Acceptance of Conditions: Carefully examine installation areas with Installer/Applicator present, for compliance with requirements affecting Work performance.
 - a. Verify that field measurements, surfaces, substrates, structural support, tolerances, levelness, plumbness, temperature, humidity, moisture content level, cleanliness and other conditions are as required by the manufacturer, and ready to receive Work.
 - 1). Verify that substrate meets ASTM F710 requirements and is flat to within 3/16 inch in 10 ft (4.8mm per 3m) or the equivalent of 1/32 inch in 12 inches (0.8mm in 300mm).
2. Test substrates as required by manufacturer to verify proper conditions.

NOTE: Coordinate and edit requirements to the project substrates present.

- a. Concrete:
 - 1). Perform moisture testing to verify that concrete substrate is sound and dry. Both of the following tests are required:
 - a). Perform relative humidity (RH) test using in situ probes per ASTM F2170. Proceed with installation only after each substrate measures a maximum 85 percent RH (subject to Adhesive Specification). [Adhesive Reference Chart.](#)
 - b). Perform anhydrous calcium chloride testing per ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 6 lbs. of water/1000 sf (2.27 kg of water/92.9m²) in 24 hours (subject to Adhesive Specification). [Adhesive Reference Chart.](#)
 - 2). Perform alkalinity testing to verify pH level is between 7 and 10 per ASTM F710. [Adhesive Reference Chart.](#)
 - 3). Perform and document bond testing per ASTM F710 to determine compatibility of adhesive to concrete substrate and establish open time and working time.
 - b. Plywood: Shall be dry, clean, structurally sound, and flat to within 1/8 inch in 10 ft (3mm per 3m) and comply with ASTM F1482. Plywood to be well nailed and/or glued, free of voids and with joints that do not exceed 1/16 inch (1.6mm) per underlayment manufacturer's most recent published installation instructions. Underlayment manufacturer shall warrant underlayment compatibility with resilient flooring.
 - 1). Perform pin meter reading to verify maximum 14 percent moisture with all readings to be within 2 percent of each other.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

NOTE: Coordinate and edit to the correct Section numbers below.

- A. Preparation per manufacturer's most recent published written instructions, SECTION 017000 or 017100 or 017123, and as follows:
 - a. General: Prepare substrates to ensure proper adhesion of flooring system per adhesive manufacturer's most recent published written instructions. [TOLI HVT Installation Guide](#)

NOTE: Select correct substrate(s), edit to suit project, and delete items that do not suit project.

2. Concrete Substrates: Prepare substrate per ASTM F710.
 - a. Verify the substrate is smooth, permanently dry, and clean, being free of dirt, rust, oil, wax, paint, or other contaminants that will interfere with adhesive bonding.
 - b. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer.
 - 1). Do not use solvents.
 - 2). Mechanically abrade substrate as needed.
 - 3). Sweep and vacuum substrate just prior to installation.
 - c. Use latex Portland cement filler to patch cracks, small holes, and for leveling of small areas.
 - 1). Do NOT skim coat large areas with latex patching compound.
 - 2). Sand patched areas smooth after material is cured.

RED NOTE: Do not use gypsum-based underlayment products, and do not skim coat concrete subfloors.

- d. Self-Leveling Underlayments: Provide a dry and smoothly sanded underlayment substrate ready for homogeneous vinyl tile flooring system installation. Underlayment compound shall be moisture, mildew, and alkali resistant, and have a minimum 3,500 psi (24.1 MPa) compressive strength.
 - e. Lightweight concrete shall have a compressive strength greater than 115 pcf (1849 kg/m³).
 - 1). For lightweight concrete substrates that are less than the minimum, place a minimum 1 inch (25.4mm) topping of standard weight concrete (140 pcf (2251 kg/m³)).
3. Wood Substrates or Panel Type Underlayment:
 - a. Wood substrate shall be double layer construction with a minimum 1-inch total thickness.
 - b. Double layer construction of a minimum 1-inch (25.4mm) thickness with a minimum 18 inches (457mm) of well-ventilated airspace beneath.
 - 1). Crawl spaces shall be insulated and protected by a vapor barrier.
 - c. The top layer of a wood substrate shall be completely free of knots or other voids in its surface.

NOTE: Edit below to the wood substrate type and thickness used. Delete APA item above if not used.

- d. [Insert wood product selected]
 - e. Thickness: [Insert product thickness]
 - f. Underlayment shall be smooth, dry and clean being free of paint, varnish, wax, oils, solvents or other foreign matter, structurally sound, and flat to within 3/16 inch in 10 ft. (4.8mm per 3m) and within the equivalent of 1/32 inch in 12 inches (0.8mm in 305mm), well nailed or screwed per manufacturer's most recent published installation instructions.
 - 1). Ensure that each nail or screw head is set flush with or below surface.

RED NOTE: Do not install over 'sleeper' floors or plywood floors installed directly over concrete slabs. Remove existing resilient floors prior to installation per OSHA regulations and work practices, as applicable.

4. Existing Substrates:

RED NOTE: Unacceptable surfaces include, but are not limited to, lauan, plywood with knots, underlayment made of pine or other soft woods, particleboard, Masonite® or other hardboard underlayment, hardwood flooring, textured or cushioned flooring or other uneven or unstable substrates.

- a. Properly prepare manufacturer acceptable substrates to accept flooring.
 - 1). Cover manufacturer unacceptable substrates with a minimum 1/4-inch (6.4mm) panel underlayment, such as Tecply, designed for use intended.
- b. Substrate shall be smooth, dry, clean, and flat to within 1/8 inch in 10 ft. (3mm per 3m), well nailed and/or glued, free of voids and with joints that do not exceed 1/16 inch (1.6mm).
- c. Underlayment shall be sanded smooth to remove varnish, high edges, chips, or other contaminants.
- d. Ensure that each nail head is set flush with or below surface.
- e. Allow 1/32 to 1/16-inch (0.8mm to 1.6mm) expansion space between sheets with staggered joints. Leave 3/4 inch (19mm) minimum expansion space at all vertical obstructions.
- f. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps, ridges, and other irregularities to produce a uniform and smooth substrate.
 - 1). Verify that substrate is flat to within 3/16 inch in 10 ft (4.8mm per 3m).
 - 2). Comply with manufacturer's recommendations for compatible products.

RED NOTE: Do not fill expansion and isolation joints with patching compound or cover with resilient flooring. Use an expansion joint covering system.

5. Sweep and vacuum clean flooring substrates immediately prior to installation of floor tile.

3.4 INSTALLATION / APPLICATION

NOTE: Coordinate and edit to the correct Section number below and to project requirements.

- A. Installation per manufacturer's most recent published written instructions, SECTION 017000 or 017300 or 017316, and as follows:
 1. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width.
 - a. Ensure lines are square.

NOTE: Select correct layout. Delete items that do not suit project.

- b. Field of tiles shall be installed with directional marking on back and:
 - 1). all aligned in the same direction,
 - 2). in a quarter-turned fashion, or
 - 3). Other pattern as specified.
- c. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
- d. Adjust as necessary to accommodate door openings.
- e. Locate joints in tile surfaces directly above joints in concrete substrates.
2. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered.
 - a. When installing multiple dye lots, 'shuffle' the tiles to mix the dye lots, creating a random look, or use the different lots in different areas.

3. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and doorframes.
4. Extend floor tiles into toe spaces, door reveals, closets, and similar openings.
 - a. Extend floor tiles to center of door openings.
5. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates.
 - a. Use chalk or other nonpermanent, non-staining marking device.
6. Expansion Joints: Locate expansion joints and other movement joints, including control, contraction, and isolation joints, where indicated prior to installation of adhesive and tile.
 - a. Do not fill movement joints with patching compound or cover with resilient flooring.
 - b. Install movement joint systems per manufacturers' instructions and per SECTION 079513 and SECTION 079200 or 079513.
7. Trowel Adhesive Method: Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
 - a. Spread adhesive with a professional 1/32inch x 1/16 inch x 1/32 inch U-notch trowel.
 - b. Set tile into adhesive after minimum set up time and maximum working time. Note: These times will vary based upon actual site conditions.
 - c. Following installation of tile (typically within an hour after installing) roll entire floor area with a 100 lb. roller to ensure proper bonding.
 - d. Protect flooring from traffic for 48 hours after installation or per adhesive manufacturer's most recent published instructions to allow proper set up time.

RED NOTE: Do not wet mop until adhesive has properly set per adhesive manufacturer's written instructions.

3.5 FIELD QUALITY CONTROL

NOTE: Coordinate and edit to the correct Section number below.

- A. Site Tests and Inspections: Per SECTION 014000 or 014500 or 014523, and as follows:
 1. Inspect floor installation for non-conforming work including, but not limited to, the following:
 - a. Lack of adequate adhesion
 - b. Air blisters, buckles, and dirt or debris under the tile flooring
 - c. Loose edges or seams
 - d. Adhesive on top of the flooring
 - e. Wide joints
 - f. Misapplication of directional patterning
 - g. Improper substrate preparation as indicated by buckling or telegraphing
 - h. Damaged tiles as indicated by dents, splits, cuts, cracks, punctures, melting, burn marks
- B. Non-Conforming Work per General Conditions and as follows:
 1. Remove, Repair and Reinstall or Restore in Place damaged items.
 - a. Finish touch-up damaged surface finishes.
 2. Replace damaged materials or items with new when repair is not acceptable to Architect.

3.6 CLEANING

NOTE: Coordinate and edit to the correct Section number below.

- A. Provide Progress Cleaning per manufacturer's most recent published written instructions, SECTION 017000 or 017400 or 017413, and as follows:
1. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - a. Clean and protect completed construction until Substantial Completion.
 2. Site: Maintain Project site free of waste materials and debris.

NOTE: Coordinate and edit to the correct Section number below.

- B. Provide Final Cleaning immediately prior to Substantial Completion inspection per manufacturer's most recent published written instructions, and SECTION 017000 or 017400 or 017423. [See HVT Maintenance Guide.](#)

3.7 CLOSEOUT ACTIVITIES

NOTE: Coordinate and edit to the correct Section number below.

- A. Substantial Completion Requirements per SECTION 017000 or 017700 and as follows:
1. Perform Closeout Procedures per SECTION 017000 or 017700.
 2. Perform required Demonstration and Training with Owner's designated staff per SECTION 017900.
 3. Sustainable Design Closeout Documentation per SECTION 017000, 017800 or 017853: LEED credit worksheet paperwork.

3.8 PROTECTION

- A. Protect materials from construction operations until date of Final Completion or Owner occupancy, whichever occurs first.
1. Protect finished floor from abuse and damage by using heavy non-staining kraft paper, drop cloths or equivalent. Use additional non-damaging protective materials as needed.
 2. Light foot traffic on a newly installed floor can be permitted after:
 - a. 3-4 hours if installed with CBC 5001 acrylic adhesive
 - b. 12 hours if installed with CBC 951 epoxy adhesive
 3. Keep heavy traffic, rolling loads and other equipment off the newly installed TOLI floor for
 - a. 24 hours if installed with CBC 5001 adhesive
 - b. 48 hours if installed with CBC 951 epoxy
 - c. Protect the floor from rolling traffic by covering with protective boards.

3.9 MAINTENANCE

- A. Initial Maintenance per flooring manufacturer's most recent published written instructions and as follows:
1. Begin initial maintenance only after the adhered tile flooring has been properly cured and bonded to the subfloor.
 2. When floor adhesive is fully cured sweep or dust mop clean with untreated mops.
 3. [See HVT Maintenance Guide.](#)

END OF SECTION

RED NOTE: Be sure to obtain the latest version of this Guide Specification.
This Guide Specification is not a completed document ready for use. It must be edited, deleting, adding, or modifying text, as required to suit project requirements.
The professional stamping and the contracting parties of the Contract Documents are responsible for

the accuracy of issued project specifications, including any use of this TOLI floor tile Guide Specification.

TOLI AND CBC AMERICA LLC SHALL NOT BE LIABLE FOR DAMAGES ARISING OUT OF THE USE OF THIS GUIDE SPECIFICATION.