

**SECTION 096500
RESILIENT FLOORING SYSTEM**

(Including Adhesives, Moisture Mitigation and concrete Surface Prep products from TEC/HB Fuller)

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Preparation of new and existing concrete floor slabs for installation of floor coverings.
- B. Testing of concrete floor slabs for moisture and alkalinity (pH).
- C. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
 - 1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by the testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination before entering into the contract, a contract modification will be issued.
- D. Remedial floor coatings.
- E. Preparation of new and existing wood-based floors and subfloors for installation of new floor coverings.
- F. Resilient sheet flooring.
- G. Resilient tile flooring.
- H. Resilient base.
- I. Installation accessories.
- J. Hydraulic Cement Underlayment (Concrete Self-Leveling Underlayments for concrete not within flatness requirements)
- K. Trowelable Leveling Compounds (Skim Coats/Patches- for concrete not within flatness requirements)
- L. Moisture Vapor Emission Control (For concrete with relative humidity and/or pH levels too high prior to installation of flooring)

1.02 RELATED SECTIONS

- A. Section 012100 – Allowances: Bid pricing for concrete floor flatness.
- B. Section 012200 - Unit Prices: Bid pricing for remediation treatments if required.
- C. Section 035400 – Hydraulic Cement Underlayment: Concrete Self-leveling requirements.
- D. Section 090561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

1.03 PRICE AND PAYMENT PROCEDURES

- A. Allowance: See Section 012100 – Allowance for concrete floor flatness prior to flooring. Include the cost of the ¼” cementitious self-leveling underlayment in the base bid; state on the bid form the unit price per square foot (square meter) underlayment, installed, in the event such floor flatness is required to meet the requirements of the flooring type (vinyl, ceramic large format tile, carpet, etc).

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- B. Unit Prices: See Section 012200 - Unit Prices.
- C. Unit Price for Remedial Floor Coating or Sheet Membrane: Do not include the cost of the floor coating or underlayment in the base bid; state on the bid form the unit price per square foot (square meter) for the floor coating or underlayment, installed, in the event such remediation is required.
 1. Base the unit price on a total quantity of 10,000 square feet (1000 square meters).

1.04 REFERENCE STANDARDS

- A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source 2019a, with Editorial Revision.
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- C. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile.
- D. ASTM F1303 - Standard Specification for Sheet Vinyl Floor Covering with Backing.
- E. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile.
- F. ASTM F1861 - Standard Specification for Resilient Wall Base.
- G. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing.
- H. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- I. ASTM F 1869 - Standard Test Method for Measuring MVER of Concrete Subfloor Using Anhydrous Calcium Chloride
- J. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
- K. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns, colors available; and installation instructions.
- C. Sustainable Design Submittal: Submit VOC CDPH emissions documentation for flooring and adhesives.
- D. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.
- E. Certification: Before installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of the subfloor is acceptable.
- F. Testing Agency's Report:
 1. Description of areas tested; include floor plans and photographs if helpful.
 2. Summary of conditions encountered.
 3. Moisture and alkalinity (pH) test reports.
 4. Copies of specified test methods.
 5. Recommendations for remediation of unsatisfactory surfaces.
 6. Submit report directly to Owner.
 7. Submit report not more than two business days after the conclusion of testing.

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- G. Maintenance Materials: Furnish the following for Owner's use in the maintenance of the project.
1. See Section 016000 - Product Requirements, for additional provisions.
 2. Extra Flooring Material: [] square feet ([] square meters) of each type and color.

SUBMIT THE FOLLOWING "REQUIRED LEED CRITERIA" CERTIFICATION ITEMS AS LISTED BELOW. REFER TO DIVISION 01 81 00 FACILITY PERFORMANCE REQUIREMENTS FOR ADDITIONAL REQUIREMENTS:

- H. **LEED or "green" requirements:** "MAS Certified Green" COMPLIANT WITH THE VOC-EMISSION LIMITS AND TESTING REQUIREMENTS SPECIFIED IN THE CALIFORNIA DEPARTMENT OF PUBLIC HEALTH STANDARD METHOD FOR THE TESTING AND EVALUATION OF VOC EMISSIONS FROM INDOOR SOURCES USING ENVIRONMENTAL CHAMBERS, VERSION 1.2 (ALSO KNOWN AS CDPH STANDARD METHOD V1.2 OR SPECIFICATION 01350)" for classroom & private office scenario for **hydraulic cast underlayment and skim coat** used to verify Low VOC product information.
- I. **Flooring Adhesives:** CRI Green Label Plus Certified complying with California DPH Section 01350 Versions 1.1 and 1.2 Private Office Scenario.
- J. Contractor's certification of LEED Compliance: Submit Contractor's certification verifying the installation of specified LEED Compliant products.

1.06 QUALITY ASSURANCE

- A. The General Contractor shall provide substrate surfaces that are smooth, porous (to ASTM F3191), flat (to minimum industry standards), level, thoroughly dry, and free from alkali, dust, dirt, adhesives, paint, varnish, solvents, oils and grease, waxes, release agents, sealers and curing and hardening compounds that are incompatible with adhesives and other flooring materials to be used or that are unacceptable or detrimental to the application requirements of selected flooring materials.
- B. The Contractor shall provide substrates within moisture and alkalinity levels acceptable for floor covering materials. Testing for moisture and alkalinity shall be done by an independent third-party agency on time. Test results must show acceptable conditions within manufacturer's moisture and alkalinity limits before commencement of any flooring work.
- C. The Contractor shall provide substrate surface level and flatness conditions acceptable for floor covering materials. This shall include grinding or sanding of ridges, undulations, projections, and areas of carbonation and scaling and filling and leveling of expansion joints, cracks, grooves and other irregularities. The surface of the floor shall be vacuumed clean.
- D. Contractor's Responsibility Relating to Independent Agency Testing of Concrete:
1. Provide access for and cooperate with testing agency.
 2. Confirm date of start of testing at least 10 days before actual start.
 3. Allow at least 4 business days on-site for testing agency activities.
 4. Achieve and maintain specified ambient conditions.
 5. Notify Architect when specified ambient conditions have been achieved and when testing will start.
- E. Installer Qualifications: Company specializing in installing specified flooring with minimum of two years documented experience.

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F. Single-Source Responsibility: To the greatest extent practical provide a resilient sub-flooring system supplied by one manufacturer, an installation system supplied by one manufacturer, including self-leveling/skim coat materials, moisture vapor emission membranes, and adhesives providing a single system limited warranty of no less than 25 years. [alternatively, single source responsibility from one manufacturer of only self-leveling/skim coat materials, moisture vapor emission membranes (not flooring adhesive) providing system limited warranty of no less than 15 years.]

1.07 PRE-INSTALLATION MEETINGS

- A. Convene a minimum of two weeks before starting work in this section.
- B. Discuss contract document requirements, moisture tests, manufacturer recommendations, installer's recommendations, scheduling, and protection of work from damage by other trades.
- C. Attendance required by Contractor, Floor Installer, Flooring Manufacturer, Sub Flooring Manufacturer's Representative, Independent testing agency, Concrete Subcontractor, Ready-Mix supplier.
- D. The Objective of the conference is:
 - A. Review methods and procedures.
 - B. Tour job site representative areas to inspect and discuss the condition of the substrate.
 - C. Review concrete finishing requirements.
 - D. Review and finalize construction schedule.
 - E. Review required inspections, testing, certifications, and material usage procedures.
 - F. Review environmental restrictions and forecasts.
 - G. Record content of conference including attendance and topics.
- E. Furnish record of pre-installation conference to all parties who are affected by the Work of this section.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging, within absolute limits recommended by the manufacturer for environmental conditions, until ready for installation.
- B. Store materials in an enclosed space, off the ground, and protected from the weather. Protect adhesives from freezing.

1.09 PROJECT CONDITIONS

- A. For interior applications only.
- B. Do not bridge existing expansion joints.
- C. Do not install in temperatures below 50 degrees F.
- D. Not for use in conditions of hydrostatic pressure or excessive moisture (greater than 100 percent Relative Humidity) per ASTM F 2170.
- E. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

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- F. **Floor covering work shall not commence where there is an indication of moisture or hydrostatic pressure or excess alkalinity.**
- G. Minor discrepancies in new or existing surface levels can be adjusted by using patching and filling compounds. This is considered, within reason, part of the flooring contractor's work.
- H. Where level discrepancies are too large, i.e. where the thickness of patching and filling compounds required exceeds flooring manufacturer's tolerances, floor levels must be corrected by using a self-leveling cementitious underlayment capable of bonding to prepared substrate surfaces and being installed from 1/8" to 1/2" thick in one pour and up to 1" thick in small areas. The material must be capable of being feather edged or tapered without fracturing to not leave ridges and to match existing elevations. Such material should achieve a compressive strength of 4500 psi after 28 days, be capable of being walked on after 3 hours without damage, and be capable of being coated after 24 hours at 70°. Substrate preparation is critical for the bonding of this material.

1.10 WARRANTY

- A. Flooring Manufacturer's Standard Product Warranty for Defects in Material: Provide manufacturer's standard limited warranty for defects in material.
 - 1. Warranty Period for Resilient Tile Flooring: **X year**
 - 2. Warranty Period for Vinyl Products: **X years.**
 - a. **10 Year Limited Product Limited Warranty for Moisture Mitigation Vapor Barrier: Product shall be free from manufacturing defects and will not break down or deteriorate under normal use for 10 years.**
 - b. **15 Year Limited Product Limited Warranty for Flooring Adhesive: Product shall be free from manufacturing defects and will not break down or deteriorate under normal use for 15 years.**
 - c. **25 Year Moisture Control System Limited Warranty is available when using concrete moisture vapor barrier system in conjunction with specific surface preparation products and adhesives as identified on published warranty at the time of issuance. This limited warranty warrants to the Owner of the premises in which the product is applied, that the products, as indicated on published limited warranty, when installed as a complete system, will 1) reduce the moisture vapor emissions of treated concrete substrate from a maximum of 25 pounds per 1000 sq. ft./24 hours as determined by the Calcium Chloride Test Method ASTM F1869 (or 100 percent RH using the Relative Humidity Method ASTM F2170-09) to no more than 3 pounds per 1000 sq. ft./24 hours, and 2) if moisture vapor emissions comply with above, and the products are used as a complete System, the System a) will not fail due to a manufacturing defect, b) will prevent flooring damage and bond failure caused by vapor emissions from the concrete substrate.**
 - d. **15 Year Moisture Control and Surface Prep ONLY Limited Warranty is available when using concrete moisture vapor barrier system in conjunction with specific surface preparation products (not adhesives) as identified on published warranty at the time of issuance. This warranty warrants to the**

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Owner of the premises in which the product is applied, that the products, as indicated on published warranty, when installed as a complete system, will 1) reduce the moisture vapor emissions of treated concrete substrate from a maximum of 25 pounds per 1000 sq. ft./24 hours as determined by the Calcium Chloride Test Method ASTM F1869 (or 100 percent RH using the Relative Humidity Method ASTM F2170-09) to no more than 3 pounds per 1000 sq. ft./24 hours, and 2) if moisture vapor emissions comply with above, and the products are used as a complete System, the System a) will not fail due to a manufacturing defect, b) will prevent flooring damage and bond failure caused by vapor emissions from the concrete substrate.

PART 2 PRODUCTS

2.01 SHEET FLOORING

- A. Vinyl Sheet Flooring - Type [____]: Homogeneous without backing, with color and pattern throughout the full thickness.
- Manufacturers:
 - [____]
 - [____].
 - Minimum Requirements: Comply with ASTM F1913.
 - Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
 - Thickness: 0.080 inch (2.0 mm) nominal.
- B. Vinyl Sheet Flooring - Type [____]: Transparent or translucent vinyl wear layer over interlayer and backing.
- Manufacturers:
 - [____].
 - [____].
 - [____].
 - Minimum Requirements: Comply with ASTM F1303, Type I, with Class A fibrous backing.
 - Wear Layer Thickness: 0.020 inch (0.50 mm) minimum.
 - Total Thickness: 0.080 inch (2.0 mm) minimum.

2.02 TILE FLOORING

- A. Vinyl Composition Tile - Type [____]: Homogeneous, with color extending throughout the thickness.
- Manufacturers:
 - [____].
 - [____].
 - Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
 - Size: 12 by 12 inch (305 by 305 mm).
 - Thickness: 0.125 inch (3.2 mm).
 - Vinyl Tile - Type [____]: Solid vinyl with color and pattern throughout the thickness.
 - Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.

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- b. Total Thickness: 0.125 inch (3 mm).

2.03 RESILIENT BASE

- A. Resilient Base - Type [____]: ASTM F1861, Type TS rubber, vulcanized thermoset; style as scheduled.
 - 1. Height: 4 inch (100 mm).
 - 2. Thickness: 0.125 inch (3.2 mm).
 - 3. Finish: Satin.

2.04 ADHESIVE

- A. Adhesive for LVT, LVP, VCT, and solid vinyl heterogeneous or homogeneous sheetgoods. Concrete substrate RH% maximum of **99% per ASTM F2170**. Maximum concrete substrate pH level of 12. Foot Traffic after 4 hours and Heavy Traffic after 24 hours.
 - 1. Manufacturer:
 - a. [TEC Flexera \(HT\) Premium Universal Adhesive: www.tecspecialty.com](http://www.tecspecialty.com).
 - b. [Parabond 5092 HT www.parabond.com](http://www.parabond.com)
 - c. [_____].

2.05 MOISTURE VAPOR EMISSION CONTROL COATING (FOR CONCRETE WITH RELATIVE HUMIDITY AND/OR PH LEVELS TOO HIGH PRIOR TO INSTALLATION OF FLOORING)

- A. One component, **water-based, polymeric emulsion**. Concrete substrate RH% maximum of 100% per ASTM F2170. Applied to damp or new concrete in a minimum of 48 hours. Mechanical Preparation of concrete not required if concrete is clean and sound. Two coats; No primer needed. 10-year Product Warranty; one component of the [TEC Moisture Control 25 Year System Limited Warranty](#)
 - 1. Manufacturer:
 - a. [H.B. Fuller Construction Products, Inc; TEC Liquidam EZ concrete moisture vapor emission control coating: www.tecspecialty.com](http://www.tecspecialty.com).
 - b. [_____].
- B. Two component, **100% solids epoxy**. Concrete substrate RH% maximum of 100% per ASTM F2170. Applied to damp or new concrete in a minimum of 48 hours. Mechanical Preparation of concrete not required if concrete is clean and sound. One coat, primer needed prior to installation of cementitious underlayment. 10-year Product Limited Warranty; one component of the [TEC Moisture Control 25 Year System Limited Warranty](#)
 - 2. Manufacturer:
 - c. [H.B. Fuller Construction Products, Inc; TEC Liquidam concrete moisture vapor emission control coating: www.tecspecialty.com](http://www.tecspecialty.com).

2.06 HYDRAULIC CEMENT UNDERLAYMENT (CEMENTITIOUS SELF LEVELING UNDERLAYMENTS FOR CONCRETE NOT WITHIN FLATNESS REQUIREMENTS)

- A. **High-flow**, calcium aluminate-based, self-leveling underlayment that provides an extremely smooth surface. 28 Day Compressive Strength minimum 4500 psi. 28 Day Flexural Strength minimum 1000 psi. Install moisture sensitive floor covering in 15 hours; ceramic tile in 2-3 hours. No need for additional sanding. Walkable hardness in 2-3 hours. Thickness range limits:

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1/16" - 1/2" neat. Ten-year Product Limited Warranty; one component of [TEC Moisture Control 25 Year System Limited Warranty](#)

1. Manufacturer:
 - a. [H.B. Fuller Construction Products, Inc; TEC Level Set 400 HF \(high flow\) self-leveling underlayment: www.tecspecialty.com](#).
 - b. [_____].

B. Calcium aluminate-based, fiber-reinforce, self-leveling underlayment. 28 Day Compressive Strength minimum 5500 psi. 28 Day Flexural Strength minimum >1100 psi. Walkable hardness in 2-3 hours. Maximum thickness is 2" neat. 10-year Product Limited Warranty; one component of TEC Moisture Control 25 Year System Limited Warranty

1. Manufacturer:
 - a. [H.B. Fuller Construction Products, Inc; TEC Level Set 300 self-leveling underlayment: www.tecspecialty.com](#).

2.07 TROWELABLE LEVELING COMPOUNDS (SKIM COATS/PATCHES- FOR CONCRETE NOT WITHIN FLATNESS REQUIREMENTS)

A. Cement-based trowelable compound that is designed to skim coat, smooth, and level irregularities from feather edge up to 1/2" and dry within 20 minutes.

1. Manufacturer:
 - a. [H.B. Fuller Construction Products, Inc; TEC Feather Edge skim coat: www.tecspecialty.com](#).
 - b. [_____].

PART 3 EXECUTION

3.01 EXAMINATION AND TESTING

- A. **MOISTURE testing:** Before applying concrete moisture vapor barrier coating, conduct independent testing according to ASTM F2170. must be obtained to determine the relative humidity of the concrete.
1. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.
 2. If test values exceed floor covering manufacturer's limits, perform moisture remediation as indicated. In the absence of manufacturer limits, perform remediation if any test value exceeds 75 percent relative humidity.
 3. Report: Report the information required by the test method.
 4. Notify the Architect and General Contractor in writing of any unsatisfactory conditions.
- B. **ALKALINITY testing:** Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
1. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.

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- C. Use wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.
- D. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.
- E. Use of a digital pH meter with probe is acceptable; follow meter manufacturer's instructions.
 - 1. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 12.
- F. **FLOOR FLATNESS:** Verify that concrete substrates are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through the flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with the bonding of flooring to the substrate.
- G. **WALL FLATNESS:** Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

3.02 PREPARATION

- A. Concrete: Prepare surfaces according to ICRI 310.2R.
- B. A successful application to concrete requires evaluation and preparation to address any conditions that would prevent a good bond. The following guidelines are provided to assist in this process. Additional evaluation, testing and/or preparation may be required to ensure the above Surface Preparation Requirements are met. It is necessary to evaluate all four conditions. Check for Condition 1 on the entire concrete surface. Conditions 2 through 4 should be checked for at least once per every 50 ft² (4.6 m²) on small applications (1000 ft² [93 m²] or less) and once every 100 ft² (9 m²) on large applications (greater than 1000 ft² [93 m²]). Once you have completed the preparation method, always re-check to confirm the method worked.
 - 1. **CONDITION 1:** Surface coatings and/or contamination such as gypsum plaster, joint compound, paint and adhesive. **Evaluation:** Look at the surface and note the type and location of the surface contamination. **Preparation:** First scrape off any lumps and loose material. Then use an appropriate cleaning method for the type of coating or contamination.
 - a. For gypsum plaster and joint compound — Scrub with warm water and detergent to remove any remaining material. Thoroughly rinse off any residue and allow concrete to dry prior to application of any TEC[®] materials.
 - b. For paint — Chemical strippers should not be used. They may leave a residue or be absorbed into the concrete and later migrate into the surface and cause a bond failure. Paint not easily scraped off should be mechanically removed.
 - c. For adhesive — Scrape off all the adhesive from the surface first, then remove the layer of adhesive-contaminated concrete by mechanical means.
 - 2. **CONDITION 2:** Weak top layer (called laitance) or damaged concrete such as spalling, scaling, delaminating or crumbling. **Evaluation:** First scrape the surface with a knife

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blade. If this produces a fine powder, then laitance is present. Then use a hammer or other heavy object to sound out weak or hollow areas. Note the areas that are weak or damaged. **Preparation:** Weak or damaged concrete must be mechanically removed. Do NOT acid wash or etch concrete because it is difficult to fully remove contaminants and properly neutralize. The acid can penetrate into the porous concrete and chemically undermine it, weakening the concrete. Acid washing will not remove grease or oil.

3. **CONDITION 3: Curing Compounds/Sealers**

- a. Broom finish or Steel troweled finish (non-glossy) **Evaluation:** Apply water droplets onto the surface. If the droplets are not absorbed within 60 seconds the surface was treated with a curing compound/ sealer or is contaminated. **Preparation:** The sealed or contaminated layer of concrete must be removed by mechanical means.
- b. Burnished finish (glossy surface) **Evaluation:** Frequently LiquiDam EZ™ can be installed over burnished concrete without mechanical preparation. For glossy burnished concrete surfaces, apply test areas to confirm bond strength of at least 150 psi when tested per ASTM D7234 (tensile bond test). **Preparation:** Glossy burnished concrete surfaces that do not provide bond strength of at least 150 psi must be removed by mechanical means.

4. **CONDITION 4: Final Surface Preparation - removal of dirt and dust. Evaluation:** Wipe the surface with a clean dark cloth. If powder is visible on the cloth the surface is not clean enough. Note the areas that were not clean enough. **Preparation:** Always use a two-step method to remove surface dirt and dust. First use a dry clean broom and sweep the entire surface. Do not use oil or wax based sweeping compounds. They can leave a film on the concrete surface that will prevent a proper bond. The second step should consist of one of the following:

- a. Vacuuming — use a heavy-duty industrial type vacuum to provide a dust-free surface. It may also be necessary to follow vacuuming with a damp sponge wipe to remove residual surface dust.
- b. Water cleaning — use a stream of potable water with sufficient pressure to remove dust and dirt. When necessary, also scrub with a stiff bristled brush. **Remove all wash water and allow concrete to thoroughly dry.**
- c. Detergent water cleaning — using a stiff bristled brush or broom, scrub the entire concrete surface with a cleaning product intended for concrete or a solution of at least 4 ounces (113 g) of trisodium phosphate per gallon (3.78 L) of warm water. Before the surface dries, thoroughly flush the concrete with clean potable water to remove all wash water and residue. **Allow concrete to thoroughly dry prior to application of any TEC® materials.**

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3.03 MIXING OF MOISTURE VAPOR BARRIER

A. Mix materials in accordance with manufacturer's instructions.

1. Open the pail and hand stir to a smooth creamy consistency with a paint stick or margin trowel. Be sure to re-blend in any liquid that may have separated to the top of the container. Do not use an electric drill and mixing paddle. High-speed drills and paddles can entrain air into the formula. Air entrainment may increase work time to roll out the bubbles. Substrate and all materials must be maintained at 50°F-90°F (10°C-32°C) for 24 hours before, during and after installation.

B. EXISTING CRACKS

1. For Static Cracks, Cuts or Joints less than 1 mm wide: remove dirt, debris or existing sealant from all cracks and joints, then treat static (non-moving) joints, cuts and cracks with LiquiDam EZ™ by directly applying LiquiDam EZ™ into the cracks or joints with a paintbrush, to completely coat the walls of each cavity.
2. For Static Cracks / Control Joints 1 mm-3 mm wide: remove dirt, debris or existing sealant from cracks and joints, then use a concrete crack filler, such as TEC® Feather Edge Skim Coat or TEC® PerfectFinish™ Skim Coat and allow to dry 15 to 60 minutes.
3. For Static Cracks / Control Joints more than 3 mm wide: remove dirt, debris or existing sealant from cracks and joints, then use a concrete crack filler, such as TEC® Fast-Set Deep Patch Underlayment 305 mixed with TEC® Patch Additive 861 and allow to dry 60 to 90 minutes.
4. For Expansion Joints / Dynamic (moving) Cracks: remove any dirt, debris or existing sealant from cracks and joints. Treat all dynamic (movement) joints with LiquiDam EZ™ by applying a layer into the joint edges with a paintbrush to completely coat the walls of the cavity. Once dried, fill the dynamic joint with backer rod, leaving a minimum of 1/2" (12 mm) open at the top for proper treatments with a sealant.

C. APPLICATION

1. Lay out the substrate area into one 150 ft² (13.94 m²) "grid" (6 ft. x 25 ft. / 1.83 m x 7.62 m) to validate the initial gallon spread rate. Depending on the porosity of the substrate, each gallon (3.78 L) will coat an average of 120-150 ft² (11.14- 13.93 m²), per coat.
2. After stirring (as noted above), spread one gallon of the LiquiDam EZ™, across the grid area with a 1/16" x 1/16" x 1/16" (1.6 x 1.6 x 1.6 mm) square-notched trowel. NOTE: Do not exceed 150 ft² (13.94 m²) per applied gallon. Product must be troweled as the first step and followed up in unison with the quarter inch nap roller.
3. Immediately saturate the roller in the initial application of trowel applied LiquiDam EZ™. Then backroll the area, to optimize disbursement of the material over the entire substrate. Periodically evaluate the surface to ensure a smooth continuous film.

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4. Allow to dry a minimum of 90-120 minutes. As the membrane dries it will transition from light blue to dark blue in color. Once the initial coat dries (after 90-120 minutes), the final coat can be applied. Repeat the first coat application steps using the 1/16" x 1/16" x 1/16" (1.6 x 1.6 x 1.6 mm) square-notched trowel, followed up in unison with the quarter inch nap roller. The second coat must fill any remaining white pinholes from the initial coat. Care should be taken to not gouge or otherwise disturb or damage the dried membrane. Inspect the dried film to make sure there are no pin holes, voids, bubbles or breaks in the membrane. Apply additional LiquiDam EZ™ to fill all voids and allow to dry. Do not overwork.
5. The initial application of TEC® LiquiDam EZ™ will require a minimum of 90-120 minutes to dry before a second coat can be applied, depending on ambient conditions. The finished application must cover the substrate completely without any voids or pinholes, to ensure moisture vapor suppression. Once dry, the second coat will appear darker than the first coat. The second coat MUST dry a minimum of 90-120 minutes before moving to the next installation step. After a job is complete, any unused, uncontaminated LiquiDam EZ™ Moisture Vapor Barrier can be simply resealed securely with the container lid, and then can be used for up to 6 months (see storage guidelines).

D. DRYING AND SURFACE PREPARATION

1. Most impervious floor coverings require the application of a TEC® cementitious underlayment over LiquiDam EZ™* for the adhesives to bond properly to the floor coverings. Combined coats of LiquiDam EZ™ dry in as little as 3-4 hours, depending on surface porosity and ambient humidity. Apply appropriate TEC® cementitious underlayment directly to the dried LiquiDam EZ™ at a minimum thickness of 1/8" (3 mm) (no primer is required). For further information contact your TEC® Sales Associate.

3.04 INSTALLATION – HYDRAULIC CAST UNDERLAYMENTS (SELF-LEVELING UNDERLAYMENTS)

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
 1. All surfaces shall be structurally sound and free from oil, grease, dust, loose or peeling paint, sealers, floor finishes, curing compounds or any contaminant that would prevent a good bond.
 2. Minimum tensile bond strength of 72 psi (0.5 MPa) is required.
 3. All materials should be stored at 50°F (10°C) to 90°F (32°C) 24 hours prior to installation
 4. Substrate temperature shall be a minimum of 43 degrees F (6 degrees C) during application.
 5. Air temperature shall be maintained above 50 degrees F (10 degrees C).
 6. For installation over cutback adhesive, remove adhesive by scraping until all that remains is a thin transparent layer of adhesive residue (minimum tensile bond strength of 72 psi (0.5 MPa) is required).
 7. Create a minimum of 1/8" to 1/4" (3-6 mm) wide gap where cast underlayment abuts

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walls, columns, and fixtures by installing self-sticking foam weather stripping tape or damp sand (vacuum up sand after self-leveling underlayment has cured).

8. Existing building expansion or control joints shall be honored through the patching material.

3.05 INSTALLATION - SHEET FLOORING

- A. Install flooring in strict accordance with the latest edition of manufacturer's installation instructions. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, or movable partitions. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.
- B. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.
- C. Seam welded installation in accordance with manufacturer's written instructions.

3.06 INSTALLATION - TILE FLOORING

- A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.

3.07 INSTALLATION - RESILIENT BASE

- A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches (45 mm) between joints.
- B. Install base on solid backing. Bond tightly to wall and floor surfaces.

END OF SECTION

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