SECTION 03540

RECOMMENDED SPECIFICATION FOR
SCHÖNOX APF FIBER REINFORCED SELF LEVELING UNDERLAYMENT COMPOUND
FOR CRITICAL SUBSTRATES SUCH AS:
GYPSUM, WOOD, EXISTING CERAMIC, TERRAZZO, SHEET VINYL, OSB BOARD AND PLYWOOD

PART 1 – GENERAL

1.01 SUMMARY

A. This is the recommended specification for **Schönox APF Fiber Reinforced Self Leveling Compound** designed for renovation work for leveling substrates such as; gypsum, wood, existing ceramic, terrazzo, sheet vinyl, OSB board, concrete cement substrates, and plywood above grade. Once mixed with water, it can be pumped or poured and provides a smooth, hard flat surface. This leveling compound has embedded fibers which provide additional reinforcement for critical substrates.

1.02 SECTION INCLUDES

A. Schönox APF- Fiber Reinforced Self Leveling Underlayment

B. **Schönox VD**-Primer for porous substrates

C. **Schönox SHP**-Primer for non-porous substrates

D. **Schönox AST**-Synthetic Feather Edging Material

E. **Schönox SL**-cement based patch for under primer

1.03 QUALITY ASSURANCE

A. Installation of the “Synthetic Gypsum” based, self-leveling underlayment must be done by a qualified installer, using equipment and tools recommended by the manufacturer.

B. Underlayment shall be installed from 1/4” to 5/8” without aggregates.

C. Underlayments shall develop a compressive strength of 5800 psi per ASTM C109/mod (air cure only) and a flexural strength of 1550 psi per ASTM C348.

D. Underlayment shall be ready for foot traffic after approximately 3 hours and be ready to receive floor covering after approximately 24 hours, up to 1/8" layer thickness.

E. Installation shall be performed by an INSTALL certified contractor. **www.installfloors.org**

1.04 DELIVERY, STORAGE AND HANDLING

A. General requirements: Materials shall be delivered in their original, unopened packages and protected from the elements. Avoid extreme hot or cold, direct sunlight and moisture. Damaged materials shall be removed from the job site.

1.05 SITE CONDITIONS

A. **Schönox APF** IS A ***"SYNTHETIC GYPSUM"*** material.

B. All slabs on or below grade must be known to have an intact vapor retarder directly beneath the concrete in accordance to the relevant standards. Do not install below 41° F surface temperature. Install quickly if floor is warm. Never mix with cement or additives other than **Schönox** approved products.

PART 2-PRODUCTS

2.01 MATERIALS

A. The "Synthetic Gypsum" based leveling underlayment shall be **Schönox APF.**
CONTACT - DAWN BONETTI
CDC DISTRIBUTORS, INC. FOR PRICING
248-563-4400 dbonetti@cdcdist.com

B. The Primer for standard porous substrates shall be **Schönox VD**.

C. The primer for non-porous substrates shall be **Schönox SHP**.

D. Repair of small holes and indentations can be done with **Schönox SL**, before prime and pour

E. Use **Schönox AST** for correcting any imperfections after leveling.

2.02 MIX DESIGNS

A. Mixing ratios: **Schönox APF** 55 lb bag with 5.8 quarts of water. Product shall be mixed in a clean mixing drum. Add **Schönox APF** to cold clean water to form a homogenous mixture. This compound should be thoroughly mixed for approximately 3 minutes. Use of a heavy-duty drill (min 600 rpm) is recommended to obtain a lump-free mix, after 3 minutes mix again. **DO NOT OVER WATER!** Follow written instructions per **Schönox APF** bag label or product data sheets.

B. For pump installations **Schönox APF** shall be mixed using an automatic mixing pump. Start the pump and adjust to the minimum water reading that still allows self-leveling properties**. DO NOT OVER WATER!** Check the consistency of the product on the floor to ensure a homogeneous mixture of the pour. If settling is occurring, reduce the water amount and recheck. Conditions during the installation, such as variation in water, powder, substrate and ambient temperature, require that the water setting be monitored and adjusted carefully to avoid overwatering.

PART 3-EXECUTION

3.01 PREPARATION

A. Subfloors must be smooth, sound, clean, dry and free of any contaminates which may hinder adhesion. All subfloors must be solid, sound and primed properly. Any loose areas must be mechanically removed back to a sound base and substrate repaired with **Schönox** repair compounds as required.

B. Subfloors shall be inspected and corrected for moisture and any other condition that could affect the performance of the underlayment or finished floor covering. This product is not a vapor barrier and will allow free passage of moisture. Follow the directives of the floor manufacturer regarding maximum allowable substrate moisture content and test the substrate prior to installing **Schönox APF**. Where substrate moisture exceeds the maximum allowed then an application of **Schönox SDG** or **Schönox EPA** may be used to suppress residual moisture (see data sheet). **Schönox SDG** is suitable for cement based substrates with residual moisture up to 93% RH or 12 lbs. and **Schönox EPA** is suitable for cement based substrates with residual moisture up to 100% RH or 25 lbs.

C. Gypsum substrates should always be dry. Do not use damp proof membranes on gypsum substrates.

D. Old water-soluble adhesives should be removed completely; old water resistant adhesives should be mechanically removed as far as possible. The complete mechanical removal of cutback (i.e. grinding or sanding) can be hazardous as old cut-back adhesives may contain asbestos. Consult with government agencies for removal of flooring adhesives that contain asbestos. Prime remaining adhesive residues accordingly.

E. Old floors such as ceramic tiles should be thoroughly cleaned and abraded.

F. All cracks and non-moving joints in the subfloor shall be repaired.

G. It is the responsibility of the flooring contractor to ensure that the subfloor is thoroughly clean and properly anchored prior to the installation of any **Schönox** products.

B. PRIMING

1. Initial priming on standard absorbent substrates such as; cement or concrete

   A. **Schönox VD** is stirred or shaken before use. Apply **Schönox VD** avoiding puddles using a suitable tool such as; a roller, paintbrush, or push broom. **Schönox VD** can be sprayed when mixing 1:1 or more. Mix **Schönox VD** (1:3 with water). A second application is recommended on strong absorbent substrates. Waiting time is approximately 10 minutes on cementitious substrates.

2. Priming on non-absorbent, smooth, sound substrates.

   A. **Schönox SHP** is stirred or shaken before use. Apply **Schönox SHP** avoiding puddles using a suitable tool such as; a roller, paintbrush or short-pile roller or pad. Apply undiluted. Drying time is about 1-2 hours before underlayment's can be installed.

3. Priming Gypsum Substrates (sanded and vacuumed)

   A. **Schönox VD** is stirred or shaken before use. Apply **Schönox VD** (diluted 1:1 with water) avoiding puddles using a suitable tool such as; a roller, paintbrush, or push broom. **Schönox VD** can be sprayed when mixing 1:1 or more. Drying time can be omitted.

4. Priming on wooden substrates such as; OSB Board, Plywood (APA Grade)

A. **Schönox VD** is stirred or shaken before use. Apply **Schönox VD** (undiluted) avoiding puddles using a suitable tool such as; a roller, paintbrush, or push broom. Drying time is about 2 hours.

3.02 APPLICATION OF UNDERLAYMENT

A. Pour or pump the **Schönox APF** and spread using a smoothing trowel. Even surfaces are easily achieved using a pin leveler or gauge rake. In higher thicknesses using a spike roller is recommended. Underlayment can be carefully walked on after in about three hours.

B. If a second layer of leveling compound is to be applied, prime the first layer with **Schönox VD** (diluted 1:1 with water) after drying. The maximum layer thickness must not exceed the layer thickness of the first layer.

3.03 PREPARATION FOR FLOORING INSTALLATION

A. Underlayment can accept finished floor covering materials after approximately 24 hours for layer thickness up to 1/8". See manufacturer's recommendations for subfloor requirements.

3.04 FIELD QUALITY CONTROL

A. Where specified, field sampling of **Schönox** leveling compounds is to be done by taking an unopened bag of the product being installed to an independent testing facility to perform the compressive strength testing in accordance to ASTM C 109/modified: air cure only.

3.04 PROTECTION

A. Prior to installation of the finished flooring, the surface of the underlayment shall be protected from abuse by other trades by use of plywood, Masonite or other suitable protection.

END OF SECTION

SECTION 03540

RECOMMENDED SPECIFICATION FOR
SCHÖNOX AP SYNTHETIC GYPSUM SELF LEVELING UNDERLAYMENT COMPOUND
FOR CRITICAL SUBSTRATES SUCH AS:
GYPSUM, WOOD, CERAMIC, TERRAZZO, SHEET VINYL, OSB BOARD AND PLYWOOD

PART 1 – GENERAL

1.01 SUMMARY

A. This is the recommended specification for **Schönox AP** Synthetic Gypsum **Self Leveling Compound** designed for renovation work for leveling substrates such as; gypsum, wood, existing ceramic, terrazzo, sheet vinyl, OSB board, and plywood above grade. Once mixed with water, it can be pumped or poured and provides a smooth, hard flat surface.

1.02 SECTION INCLUDES

A. **Schönox AP-** Synthetic Gypsum Self Leveling Underlayment

B. **Schönox VD**-Primer for porous substrates

C. **Schönox SHP**-Primer for non-porous substrates

D**. Schönox Kh Fix -** Primer for gypsum based substrates

E. **Schönox AST**-Synthetic Feather Edging Material

1.03 REFERENCES

A. ASTM C109 Standard Test Method for Compressive Strength 5800 PSI at 28 days
B. ASTM C348 Flexural Strength 1400 PSI at 28 days
C. ASTM C1583 Tensile Strength 400 PSI after 3 days
D. ASTM C191 Initial and Final Set, approx. 160-200 minutes
E. ASTM E84 Flame Spread 0; Smoke Development 0
F. LEED

1. EQc2 Low Emitting Materials
2. MR Credit 1.1- Maintain existing Walls, Floors and Roof
3. MR Credit 1.2- Existing Interior Non Structural Elements
4. MRc3-Environmentally Preferable Products

1.04 ADMINISTRATIVE REQUIREMENTS

Coordination: Coordinate work of this Section with work of other trades for proper time and sequence to avoid construction delays.

A. Pre-installation Meetings: Conduct pre-installation meeting prior to commencing to verify project requirements, substrate conditions and coordination with other building sub-trades, and to review manufacturer's installation instructions and manufacturer's warranty requirements.

B. Sequencing: Base on manufacturer's written recommendations for sequencing construction operations

C. Scheduling

1.05 ACTION SUBMITTALS

A. General: Submit listed submittals in accordance with Contract Conditions and Section.

B. Product Data: Submit specified products as follows:

Manufacturer's product data, including manufacturer's SPEC-DATA product sheet.

Manufacturer's installation instructions.

Catalog pages illustrating products to be incorporated into project.

1. Material Safety Data Sheets (MSDS).

1.06 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: HPS North America, **Schönox**

B. Having 20 years experience manufacturing components similar to or exceeding requirements of project.

C. Having sufficient capacity to produce and deliver required materials without causing delay in work.

1. Installer:

D. Acceptable to the manufacturer, experienced in performing work of this

section and specialized in installation of work similar to that required for this project. INSTALL certified or equal.

E. Installation
   1. Underlayment shall be installed from 1/16" to 1" without aggregates and layer thickness up to 2" with aggregates.
   2. Underlayments shall develop a compressive strength of 5800 psi per ASTM C109/mod (air cure only) and a flexural strength of 1400 psi per ASTM C348.
   3. Underlayment shall be ready for foot traffic after approximately 2 hours and be ready to receive floor covering after approximately 16 hours, up to 1/8" layer thickness.

1.07 WARRANTY

F. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under other Contract Documents.

   1. Warranty Term: **Schönox AP** carries a standard 10 year warranty.

1.08 DELIVERY, STORAGE AND HANDLING

A. General requirements: Materials shall be delivered in their original, unopened packages and protected from the elements. Avoid extreme hot or cold, direct sunlight and moisture. Damaged materials shall be removed from the job site.

1.09 SITE CONDITIONS

A. **Schönox AP** IS A *"**SYNTHETIC GYPSUM**"* material.

B. All slabs on or below grade must be known to have an intact vapor retarder directly beneath the concrete in accordance to the relevant standards. Do not install below 41° F surface temperature. Install quickly if floor is warm. Never mix with cement or additives other than **Schönox** approved products.

PART 2-PRODUCTS

2.01 MATERIALS

A. The "Synthetic Gypsum" based leveling underlayment shall be **Schönox AP.**

B. The Primer for standard porous substrates shall be **Schönox VD**.

C. The primer for non-porous substrates shall be **Schönox SHP**.

D. The primer for over gypsum substrates shall be **Schönox KH Fix**

E. Repair of small holes and indentations can be done with **Schönox AST**.

2.02 MIX DESIGNS

A. Mixing ratios: **Schönox AP** 55 lb bag with 6.3 quarts or 6.0 liters of water. Product shall be mixed in a clean mixing drum. Add **Schönox AP** to cold clean water to form a homogenous mixture. Use of a heavy-duty drill (min 600 rpm) is recommended to obtain a lump-free mix, mix for 3 minutes. DO NOT OVER WATER! Follow written instructions per Schönox AP bag label or product data sheets.

B. When extended with aggregates at layer thickness of 3/8”-2” add aggregates last. Approx. 65wt% clean silica same (0.1-3.0mm). **DO NOT OVER WATER!** Foam while mixing or settling of the sand aggregate while placing indicates overwatering. Follow written instructions per **Schönox AP** bag label or product data sheets.

C. For pump installations **Schönox AP** shall be mixed using an automatic mixing pump. Start the pump and adjust to the minimum water reading that still allows self-leveling properties**. DO NOT OVER WATER!** Check the consistency of the product on the floor to ensure a homogeneous mixture of the pour. If settling is occurring, reduce the water amount and recheck. Conditions during the installation, such as variation in water, powder, substrate and ambient temperature, require that the water setting be monitored and adjusted carefully to avoid overwatering.

PART 3-EXECUTION

3.01 PREPARATION

A. Subfloors must be smooth, sound, clean, dry and free of any contaminates which may hinder adhesion. All subfloors must be solid, sound and primed properly. Any loose areas must be mechanically removed back to a sound base and substrate repaired with **Schönox** repair compounds as required.

B. Subfloors shall be inspected and corrected for moisture and any other condition that could affect the performance of the underlayment or finished floor covering. This product is not a vapor barrier and will allow free passage of moisture. Follow the directives of the floor manufacturer regarding maximum allowable substrate moisture content and test the substrate prior to installing **Schönox AP**. Where substrate moisture exceeds the maximum allowed then an application of **Schönox SDG, Schönox MR18** or **Schönox EPA** may be used to suppress residual moisture (see data sheet). **Schönox SDG** is suitable for cement based substrates with residual moisture up to 93% RH or 12 lbs., **Schönox MR18 is suitable for cement based substrates with residual moisture up to 96% RH or 18 lbs.** and **Schönox EPA** is suitable for cement based substrates with residual moisture up to 100% RH or 25 lbs.

C. Gypsum substrates should always be dry. Do not use damp proof membranes on gypsum substrates.

D. Old water-soluble adhesives should be removed completely; old water resistant adhesives should be mechanically removed as far as possible. The complete mechanical removal of cutback (i.e. grinding or sanding) can be hazardous as old cut-back adhesives may contain asbestos. Consult with government agencies for removal of flooring adhesives that contain asbestos. Prime remaining adhesive residues accordingly.

E. Old floors such as ceramic tiles should be thoroughly cleaned and abraded.

F. All cracks and non moving joints in the subfloor shall be repaired.

G. It is the responsibility of the flooring contractor to ensure that the subfloor is thoroughly clean and properly anchored prior to the installation of any **Schönox** products.

B. PRIMING

1. Initial priming on standard absorbent substrates such as; cement or concrete

A. **Schönox VD** is stirred or shaken before use. Apply **Schönox VD** avoiding puddles using a suitable tool such as; a roller, paintbrush, or push broom. **Schönox VD c**an be sprayed when mixing 1:1 or more. Mix **Schönox VD** (1:3 with water). A second application is recommended on strong absorbent substrates. Waiting time is approximately 10 minutes on cementitious substrates.

2. Priming on non-absorbent, smooth, sound substrates.

A. **Schönox SHP** is stirred or shaken before use. Apply **Schönox SHP** avoiding puddles using a suitable tool such as; a roller, paintbrush or short-pile roller or pad. Apply undiluted. Drying time is about 1-2 hours before underlayment's can be installed.

3. Priming Gypsum Substrates (sanded and vacuumed)

A. Apply **Schönox KH Fix**, undiluted.

4. Priming on wooden substrates such as; OSB Board, Plywood (APA Grade)

A. **Schönox VD** is stirred or shaken before use. Apply **Schönox VD** (undiluted) avoiding puddles using a suitable tool such as; a roller, paintbrush, or push broom. Drying time is about 2 hours.

3.02 APPLICATION OF UNDERLAYMENT

A. Pour or pump the **Schönox AP** and spread using a smoothing trowel. Even surfaces are easily achieved using a pin leveler. In higher thicknesses using a spike roller in recommended. Underlayment can be walked on after two hours.

B. If a second layer of leveling compound is to be applied, prime the first layer with **Schönox VD** (diluted 1:1 with water) after drying. The maximum layer thickness must not exceed the layer thickness of the first layer.

3.03 PREPARATION FOR FLOORING INSTALLATION

A. Underlayment can accept finished floor covering materials after approximately 16 hours for layer thickness up to 1/8". See manufacturer's recommendations for subfloor requirements.

3.04 PROTECTION

A. Prior to installation of the finished flooring, the surface of the underlayment shall be protected from abuse by other trades by use of plywood, Masonite or other suitable protection.

END OF SECTION

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Web: **www.hpsubfloors.com**

This Manu-Spec® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A Manu-Spec is a manufacturer specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ]; delete optional text in final copy of specification. Specifier notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate product model numbers, styles and types are used in specifier notes and in the specification text article titled "Acceptable Material." Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies synthetic gypsum cement based self-leveling liquid compound for filling, patching, smoothing and leveling substrates for interior applications.

SECTION 03 54 13
GYPSUM CEMENT UNDERLAYMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: This Section specifies synthetic gypsum cement based [fiber reinforced] self-leveling liquid compound for filling, patching, smoothing, and leveling substrates for interior applications.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI MasterFormat and specifier's practice.

B. Related Requirements:

Specifier Note: Include in this paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the subparagraph below. Do not include Division 00 documents or Division 01 sections, as it is assumed all technical sections are related to all project Division 00 documents and Division 01 sections to some degree. Refer to other documents with caution, as referencing them may cause them to be considered part of the contract.

1. Section [___].

1.2 REFERENCES

Specifier Note: Define terms unique to this section and not provided elsewhere in the contract documents. Include terms unique to the work result specified that may not be commonly known in the construction industry. Delete the following paragraph if no definitions are required.

A. Definitions:
1. Friable: Substrate material easily crumbled or pulverized.

Specifier Note: List retained standard(s) referenced in this section alphabetically. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced and update as applicable.

Contract Conditions Section 01 42 00 - References may be used to establish the edition date of standards. This paragraph does not require compliance with standard(s). It is a listing of all references used in this section. Only include here standards referenced in the body of the specification in PARTS 1, 2 and/or 3. Do not include references to building codes at any level.

B. Reference Standards:
   1. American Concrete Institute (ACI).
      a. ACI 117 Specification for Tolerances for Concrete Construction and Materials (ACI 117-10) and Commentary.
   2. American National Standards Institute (ANSI).
      a. ANSI/UL 723 Test for Surface Burning Characteristics of Building Materials.
      b. ANSI/ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C.
   3. ASTM International (ASTM).
      a. ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or [50 mm] Cube Specimens).
      b. ASTM C136/C136M Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
      c. ASTM C191 Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle.
      d. ASTM C348 Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars.
      e. ASTM C1583/C1583M Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).
      f. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
      g. ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C.
      h. ASTM E1155 Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
   4. South Coast Air Quality Management District (SCAQMD).
      a. SCAQMD Rule 1113 Architectural Coatings.
   5. Underwriters Laboratories, Inc. (UL).
      a. ANSI/UL 723 Test for Surface Burning Characteristics of Building Materials.
   6. US Green Building Council (USGBC).
      a. LEED Version 4 (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.

1.3 SUBMITTALS

A. Product Data: (manufacturer's standard specifications and descriptive literature, including:
   1. Product characteristics.
   2. Performance criteria.
   3. Safety Data Sheets (SDS).

Specifier Note: Specify submittals intended to document manufacturer storage, installation and other instructions.

B. Manufacturer's written instructions, including:
   1. Delivery, storage and handling recommendations.
   2. Preparation and application recommendations.

C. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

D. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

E. Manufacturer's Field Reports: Submit manufacturer's field reports within 3 days of each manufacturer representative's site visit and inspection.

Specifier Note: Coordinate article below with Contract Conditions and with Section 01 78 36 - Warranties.

F. Installer's Experience: Installers will be experienced in performing work of this section and specialized in work similar to that required for this project; INSTALL certified or equal.

G. Warranty: Fully executed, issued in [Owner's] name, and registered with manufacturer, including:
   1. Manufacturer's 10-year warranty, from date of substantial completion, covering defects in materials.

Specifier Note: Retain the following only if specifying for a LEED project. Specify only the technical submittal requirements necessary to achieve the credits desired for this project. For Schönox AP, Schönox APF and Schönox AST, the possible total for LEED v4 is 8.

H. Sustainable Design (LEED) Submittals:
   1. LEED Submittals: In accordance with Section [01 35 21 – LEED Requirements].
   2. Submit verification for items when appropriate as follows:
      a. EQc2 - Low-Emitting Materials: 3.
      b. MRc1 - Building Reuse — Maintain Existing Walls, Floors and Roof: 2.
      c. MRc2 - Construction Waste Management: 1.
      d. MRc3 - Materials Reuse: 1.
      e. MRc4 - Recycled Content: 1.

1.4 QUALITY ASSURANCE

A. Installer: Experienced in performing work similar to work of this section.

1.5 DELIVERY, STORAGE & HANDLING

A. Deliver materials in accordance with manufacturer's written instructions.
   1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact and product name and manufacturer clearly visible and sized to suit project.

B. Store materials protected from exposure to harmful environmental conditions, clean, dry, frost-free and at recommended temperature and humidity levels.
   1. Do not store materials at temperatures lower than 41 degrees F or higher than 90 degrees F.

1.6 EXISTING CONDITIONS

A. Apply self-leveling underlayment only when substrate temperature is greater than 41 degrees F and lower than 90 degrees F.

1.7 WARRANTY

A. Manufacturer's 10-year Warranty: Manufacturer's standard comprehensive warranty document executed by authorized company official.
   1. Project Warranty: Submit request for Owner's acceptance is in addition to and not intended to limit other rights Owner may have under Contract Conditions of manufacturer's standard comprehensive warranty document.

PART 2 PRODUCTS

Specifier Note: Add product attributes performance characteristics, material standards and descriptions in other articles as applicable. Use of such phrases as "or equal," "approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.1 MANUFACTURER

A. Schönox, HPS North America, Inc.; 511 Wilhite Street, Florence, AL 35630; Phone: (855) 391-2649, (256) 246-0345; Fax: (256) 246-0346; Email: info@hpsubfloors.com; Website: www.hpsubfloors.com.

2.2 PERFORMANCE REQUIREMENTS

Specifier Note: Retain and edit the following paragraph related to compressive strength and choose 3600 psi if specifying Schönox AST; choose 5800 psi if specifying Schönox AP; choose 6200 psi if specifying Schönox APF.

A. Compressive Strength: To ASTM C109, [3600] [5800] [6200] psi at 28 days.

Specifier Note: Retain and edit the following paragraph related to flexural strength, and choose 1250 psi if specifying Schönox AST; choose 1400 psi if specifying Schönox AP; choose 1600 psi if specifying Schönox APF.

B. Flexural Strength: To ASTM C348, [1250] [1400] [1600] psi at 28 days.

Specifier Note: Retain and edit the following paragraph related to tensile strength, and choose 400 psi for Schönox AP or Schönox APF. Tensile strength is not applicable to Schönox AST. Delete the following paragraph if specifying Schönox AST.

C. Tensile Strength: To ASTM C1583, 400 psi after 3 days.

Specifier Note: Delete the following paragraph if specifying Schönox AST. Schönox AST is a fast drying, smoothing and patching compound, and set times are negligible.

D. Setting Time to ASTM C191:

Specifier Note: Retain and edit the following paragraph related to initial set times and choose 160 minutes if specifying Schönox AP; choose 170 minutes if specifying Schönox APF.

1. Initial Set: approximately [160] [170] minutes at 70 degrees F.

Specifier Note: Retain and edit the following paragraph related to final set times for both Schönox AP and Schönox APF.

2. Final Set: approximately 200 minutes at 70 degrees F.

Specifier Note: Retain and edit the following paragraph to designate timing for foot traffic; choose 1 hour if specifying Schönox AST; choose 2 hours if specifying Schönox AP; choose 3 hours if specifying Schönox APF.

3. Foot-traffic Ready: [1] [2] [3] hours minimum.

Specifier Note: Retain and edit the following paragraph related to when product is able to be covered by other materials. Schönox AST can be covered after 30 minutes when applied as a true featheredge and after 12 hours when covering larger areas. Choose 16 hours if specifying either Schönox AP or Schönox APF.

E. Covering Time: [30 minutes] [[12] [16] hours] minimum with up to 1/8 inch layer thickness.

F. VOC: 0 g/l to SCAQMD Rule 1113.

G. Fire Burning Characteristics:
   1. UL Certified
      a. ANSI/UL 723.
      b. ANSI/ASTM E136.
   2. ASTM E84
      a. Flame spread: 0.
      b. Smoke developed: 0.

H. Floor Flatness: To ASTM E1155, in accordance with ACI 117.

2.3 DESCRIPTION

Specifier Note: Retain and edit the following Paragraph. Choose the option for fiber reinforced if specifying Schönox APF only.

A. Synthetic gypsum cement based [fiber reinforced] self-leveling liquid compound for filling, patching, smoothing and leveling substrates in interior applications.

2.4 MATERIALS

A. Underlayment system: Synthetic gypsum cement based self-leveling, low VOC underlayment [capable of permitting feathered edges].

Specifier Note: Retain and edit the following Paragraph to suit project requirements. Choose the first option when specifying Schönox AST. Choose the second option when specifying either Schönox AP or Schönox APF. Contact the manufacturer directly to determine coverage for underlayment thicknesses other than the options specified below.

1. Coverage: [[75] square feet per 10 lbs bag when applied as true featheredge] [60 - 70 square feet per 55 lbs bag at 1/8 inch thickness].

Specifier Note: Retain and edit the following Paragraph to specify layer thickness. Schönox AST can be applied as layer thickness above a featheredge to 1/4 inch. Schönox AP without aggregates can be applied in thicknesses of 1/6 to 1 inch and can be applied up to 2 inches thick with aggregates added to the mix.

2. Layer thickness [with] [without] aggregates: [[1/4] [____] inches] [As indicated].

Specifier Note: Retain and edit the following Paragraph to suit project requirements. Specify Schönox AST for featheredge work or for smaller patch and repair work. Specify Schönox AP for underlayment work to 2 inches thick. Specify Schönox APF under critical substrates for refurbishment and when fiber reinforcement is to be used instead of laying reinforcement fabric.

3. Acceptable Material: [Schönox AST] [Schönox AP] [Schönox APF].

B. Primer: In accordance with manufacturer's written recommendations.

Specifier Note: Retain and edit the following Paragraph to suit substrate conditions. Choose Schönox VD (1.3) for standard absorbent concrete or cement substrates. Choose Schönox SHP for non-absorbent smooth, sound substrates such as ceramic tile. If substrate has been sanded and then vacuumed choose Schönox KH FX. Contact the manufacturer directly for more information on application usage.

1. Acceptable Material: [Schönox VD (1.3)] [Schönox SHP] [Schönox EPA] [Schönox KH FX].

2.5 ACCESSORIES

A. Reinforcing Mat: Multiaxial glass fiber fabric.
   1. Acceptable material: Schönox Renotex.

B. Repair Compound: In accordance with manufacturer's written recommendations.
   1. Acceptable Material: Schönox Repair Compound.

C. Residual Moisture Mitigation: Moisture suppressor in accordance with manufacturer's written recommendations.

Specifier Note: Retain and edit the following Paragraph to suit substrate conditions. Contact the manufacturer directly to determine the most effect residual moisture suppressor for the project substrate conditions.

1. Acceptable Material: [Schönox SDG] [Schönox MR 18] [Schönox EPA].

D. Sand: Fine sand aggregate to ASTM C136/C136M.

PART 3 EXECUTION

3.1 INSTALLER

A. Use only installers who have training and experience in performing work of this section and specialized in work like that required for this project; INSTALL certified or equal.

3.2 EXAMINATION

A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for underlayment application in accordance with manufacturer's written recommendations.
   1. Ensure substrate is smooth, sound, clean and free of contaminants which may hinder adhesion.
   2. Visually inspect substrate in presence of Architect or General Contractor.
   3. Inform Architect or General Contractor of unacceptable conditions immediately upon discovery.

4. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Architect or General Contractor.
5. Starting application of synthetic gypsum cement underlayment implies substrate conditions are acceptable for Work of this Section.

Specifier Note: Retain and edit the following article to meet project requirements. Retain only those paragraphs appropriate to the project.

3.3 PREPARATION

A. Mechanically remove friable substrate materials and repair areas to smooth finish using repair compound and methods in accordance with manufacturer's written recommendations.

Specifier Note: Retain and edit the following Paragraph to suit substrate conditions only if moisture is an issue.

B. Mitigate moisture using residual moisture suppressor and methods in accordance with manufacturer's written recommendations.

Specifier Note: A reinforcing mat is not always required. The following Paragraph should be retained or deleted to meet specific project requirements. Contact the manufacturer directly for advice on the use of a reinforcing mat. Schönox APF is a fiber reinforced underlayment and does not require a separate reinforcing mat. Delete the following Paragraph if Schönox APF is specified.

C. Lay reinforcing mat in accordance with manufacturer's written recommendations.

3.4 MIXING

Specifier Note: Retain and edit the following Paragraph to suit product specified. For Schönox AST choose 10 lbs bag with 1.2 quarts of water or 33 lbs bag with 4 quarts of water; for Schönox AP choose 55 lbs bag with 6.3 quarts of water; for Schönox APF choose 55 lbs bag with 5.8 quarts of water.

A. Mix each [10] [33] [55] lb bag with [1.2] [4] [6.3] [5.8] quarts of cold clean water.
    a. Do not overwater.

Specifier Note: Delete the following Paragraph if aggregates are not required.

    b. Add aggregates in accordance with manufacturer's written recommendations.
    c. Mix thoroughly for 3 minutes minimum using heavy duty drill mixer.

Specifier Note: Choose 20 minutes for Schönox AST and 30 minutes for either Schönox AP or Schönox APF.

    d. Use mixture within [20] [30] minutes of mixing.

3.5 APPLICATION

Specifier Note: Specifier Note: There is no primer required when using Schönox AST. Delete the following paragraph if Schönox AST is specified.

A. Prime substrate in accordance with manufacturer's written recommendations.

B. Pour self-leveling underlayment onto substrate and spread using smoothing trowel.

Specifier Note: Retain and edit the following Paragraph only if a second layer is required to achieve a thicker underlayment. Delete the following paragraph if a single layer will provide adequate underlayment coverage.

C. Prime first layer only after it has reached final set and only when second layer is required.
    1. Use primer and methods in accordance with manufacturer's written recommendations.
    2. Pour second layer over primed first layer and spread using smoothing trowel.
    3. Ensure second layer does not exceed thickness of first layer.

Specifier Note: Retain and edit the following Paragraph to suit project conditions. A spike roller is recommended for greater thickness pours.

D. Ensure surfaces are even and level using [pin leveler] [spike roller].

Specifier Note: Retain and edit the following Paragraph only when underlayment will be used as a wear layer over existing substrate.

3.6 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with Section [01 45 00 Quality Control].

Specifier Note: Specify requirements if manufacturers are to provide field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Manufacturer field reports are included under PART 1, Submittals.

B. Manufacturer's Services:

Specifier Note: Use the following Paragraphs only when manufacturer's field services are provided and are required to verify the quality of the installed components. Establish the number and duration of periodic site visits required by manufacturer and specify below. Contact the manufacturer to determine any costs associated with Technical Representatives providing manufacturer's field services. Delete if field services are not required.

1. Coordinate manufacturer's services with Section [01 45 00 - Quality Control].

Specifier Note: Delete the following paragraph if no costs are associated with manufacturer's services.

2. Arrange for payment for manufacturer's services.
3. Have manufacturer review work involved in handling, application, protection, and cleaning of synthetic gypsum cement underlayment and submit written reports in acceptable format to verify compliance of Work with Contract conditions.
4. Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.
    a. Report any inconsistencies from manufacturer's recommendations immediately to Architect or General Contractor.

Specifier Note: Edit the following Paragraph to meet project requirements. Coordinate site visits with manufacturer or delete the Paragraph and all of its subparagraphs if site visits are not required.

5. Schedule site visits to review work at stages listed:
    a. After delivery and storage of synthetic gypsum cement underlayment, and when preparatory work on which Work of this Section depends is complete, but before application begins.
    b. During progress of work.
    c. Upon completion of Work, after cleaning is carried out.
    d. Obtain reports within three days of review and submit immediately to Architect or General Contractor.

3.7 CLEANING

A. Immediately clean tools in water.
    1. Leave work area clean at end of each day.

B. Upon completion, remove surplus materials, rubbish, tools and equipment.

C. Collect recyclable waste and dispose of at appropriate recycling facilities.

Specifier Note: Specify protection methods completed after installation, but prior to acceptance by the owner. Include only statements unique to this Section. Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.

3.8 PROTECTION

A. Protect applied synthetic gypsum cement underlayment from damage during construction.

1. Place temporary wood planking over finished synthetic gypsum cement underlayment work as directed by Architect or General Contractor.

B. Repair or replace adjacent materials damaged by application of synthetic gypsum cement underlayment.

END OF SECTION

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Phone: (256) 246-0345
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This Manu-Spec® utilizes the Construction Specifications Institute (CSI) *Project Resource Manual* (PRM), including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A Manu-Spec is a manufacturer specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets [ ]; delete optional text in final copy of specification. Specifier notes precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate product model numbers, styles and types are used in specifier notes and in the specification text article titled "Acceptable Material." Metric conversion, where used, is soft metric conversion.

This Manu-Spec specifies hydraulic cement based self-leveling compound for filling, patching, smoothing and leveling of interior and exterior substrates.

SECTION 03 54 16
HYDRAULIC CEMENT UNDERLAYMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: This section specifies hydraulic cement based self-leveling liquid compound for filling, patching, smoothing and leveling interior and exterior substrates.

Specifier Note: Revise paragraph below to suit project requirements. Add section numbers and titles per CSI MasterFormat and specifier's practice.

B. Related Requirements:

Specifier Note: Include in this paragraph only those sections and documents that directly affect the work of this section. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the subparagraph below. Do not include Division 00 documents or Division 01 sections, as it is assumed all technical sections are related to all project Division 00 documents and Division 01 sections to some degree. Refer to other documents with caution, as referencing them may cause them to be considered part of the contract.

1. Section [___].
2. Section [09 65 19.19 - Vinyl Composition Tile Flooring].
3. Section [09 65 19.23 - Vinyl Tile Flooring].

1.2 REFERENCES

Specifier Note: Define terms unique to this section and not provided elsewhere in the contract documents. Include terms unique to the work result specified that may not be commonly known in the construction industry. Delete the following paragraph if no definitions are required.

A. Definitions:
   1. Friable: Substrate material easily crumbled or pulverized.

Specifier Note: List retained standard(s) referenced in this section alphabetically. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced and update as applicable. Contract Conditions Section 01 42 00 - References may be used to establish the edition date of standards. This paragraph does not require compliance with standard(s). It is a listing of all references used in this section. Only include here standards referenced in the body of the specification in PARTS 1, 2 or 3. Do not include references to building codes at any level.

B. Reference Standards:
   1. ASTM International (ASTM).
      a. ASTM C109/C109M Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in. or [50 mm] Cube Specimens).
      b. ASTM C136/C136M Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
      c. ASTM C191 Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle.
      d. ASTM C348 Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars.
      e. ASTM C1583/C1583M Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).
      f. ASTM D4060 Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
      g. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
      h. ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C.
      i. ASTM E1155 Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
   2. South Coast Air Quality Management District (SCAQMD).
      a. SCAQMD Rule 1113 Architectural Coatings.
   3. Underwriters Laboratories, Inc. (UL):
      a. ANSI/UL 723 Standard for Test for Surface Burning Characteristics of Building Materials.
   4. US Green Building Council (USGBC).
      a. LEED Version 4 (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Contract Conditions and Section 01 33 00 - Submittal Procedures.

1.3 SUBMITTALS

A. Product Data: Manufacturer's standard specifications and descriptive literature, including:
   1. Product characteristics.
   2. Performance criteria.
   3. Safety Data Sheets (SDS).

Specifier Note: Specify submittals intended to document manufacturer storage, installation and other instructions.

B. Manufacturer's written instructions, including:
   1. Delivery, storage and handling recommendations.
   2. Preparation and application recommendations.

C. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.

D. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

E. Manufacturer's Field Reports: Submit manufacturer's field reports within 3 days of each manufacturer representative's site visit and inspection.

Specifier Note: Coordinate article below with Contract Conditions and with Section 01 78 36 - Warranties.

F. Installer's Experience: Installers will be experienced in performing work of this section and specialized in work similar to that required for this project; INSTALL certified or equal.

G. Warranty: Fully executed, issued in [Owner's] name and registered with manufacturer, including:
   1. Manufacturer's 10-year warranty, from date of substantial completion, covering defects in materials.

Specifier Note: Retain the following only if specifying for a LEED project. Specify only the technical submittal requirements necessary to achieve the credits desired for this project. For Schönox DSP, Schönox SL, Schönox US, Schönox ZM and Schönox ZM Rapid, the possible total for LEED v4 is 7.

H. Sustainable Design (LEED) Submittals:
   1. LEED Submittals: In accordance with Section [01 35 21 – LEED Requirements].
   2. Submit verification for items when appropriate as follows:
      a. EQc2 - Low-Emitting Materials: 3.
      b. MRc1 - Building Reuse — Maintain Existing Walls, Floors and Roof: 2.
      c. MRc2 - Construction Waste Management: 1.
      d. MRc4 - Recycled Content: 1.

1.4 QUALITY ASSURANCE

A. Installer: Experienced in performing work similar to work of this section.

1.5 DELIVERY, STORAGE & HANDLING

A. Deliver materials in accordance with manufacturer's written instructions.
   1. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact and product name and manufacturer clearly visible and sized to suit project.

B. Store materials protected from exposure to harmful environmental conditions, clean, dry, frost-free and at recommended temperature and humidity levels.

Specifier Note: Select 59 degrees F for Schönox DSP; select 41 degrees F for Schönox SL, US, ZM or ZM Rapid.

   1. Do not store materials at temperatures lower than [41] [59] degrees F and lower than 90 degrees F.

1.6 EXISTING CONDITIONS

A. Apply self-leveling underlayment only when substrate temperature is greater than [41] [59] degrees F and lower than 90 degrees F.

1.7 WARRANTY

A. Manufacturer's 10-year Warranty: Manufacturer's standard comprehensive warranty document executed by authorized company official.

B. Project Warranty: Submit request for Owner's acceptance is in addition to and not intended to limit other rights Owner may have under Contract Conditions of manufacturer's standard comprehensive warranty document.

PART 2 PRODUCTS

Specifier Note: Add product attributes performance characteristics, material standards and descriptions in other articles as applicable. Use of such phrases as "or equal," "approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.1 MANUFACTURER

A. Schönox, HPS North America, Inc.; 511 Wilhite Street, Florence, AL 35630; Phone: (855) 391-2649, (256) 246-0345; Fax: (256) 246-0346; Email: info@hpsubfloors.com; Website: www.hpsubfloors.com.

2.2 PERFORMANCE REQUIREMENTS

Specifier Note: Retain and edit the following paragraph related to compressive strength and choose 3700 psi if specifying Schönox SL; choose 4200 psi if specifying Schönox US; choose 5800 psi if specifying Schönox ZM; choose 7250 psi if specifying

Schönox DSP; choose 7550 psi if specifying Schönox ZM Rapid.

A. Compressive Strength: To ASTM C109, [3700] [4200][5800][7250] [7550] psi at 28 days.

Specifier Note: Retain and edit the following paragraph related to flexural strength and choose 1000 psi if specifying Schönox US; choose 1300 psi if specifying Schönox ZM or Schönox SL; choose 1550 psi if specifying Schönox ZM Rapid or Schönox DSP.

B. Flexural Strength: To ASTM C348, [1000] [1300] [1550] psi at 28 days.

Specifier Note: Retain and edit the following paragraph related to tensile strength and choose 350 psi for Schönox US; choose 400 psi for Schönox ZM; choose 450 psi if specifying Schönox ZM Rapid or Schönox DSP. Tensile strength is not applicable to Schönox SL. Delete the following paragraph if specifying Schönox SL.

C. Tensile Strength: To ASTM C1583, [350] [400] [450] psi after 3 days.

Specifier Note: Retain the following paragraph related to abrasion resistance if specifying Schönox DSP; delete the paragraph if specifying Schönox ZM, Schönox ZM Rapid, Schönox SL or Schönox US.

D. Abrasion Resistance: To ASTM D4060, 1.4 at 28 days.

E. Setting Times to ASTM C191:

Specifier Note: Retain and edit the following paragraph related to initial setting times and choose 35 minutes if specifying Schönox ZM Rapid; choose 60 minutes if specifying Schönox ZM; choose 80 minutes for Schönox US or Schönox DSP. Delete the following paragraph for Schönox SL.

1. Initial Set: approximately [35] [60] [80] minutes at 70 degrees F.

Specifier Note: Retain and edit the following paragraph related to final setting times and choose 45 minutes if specifying Schönox ZM Rapid; choose 70 minutes if specifying Schönox ZM; choose 95 minutes for Schönox US or Schönox DSP. Choose 20 minutes if specifying Schönox SL.

2. Final Set: approximately [20] [45] [70] [95] minutes at 70 degrees F.

Specifier Note: Edit the following paragraph related to timing when product can accept foot traffic and choose 20 minutes if specifying Schönox SL; choose 1-1.5 hours if specifying Schönox ZM Rapid; choose 2 hours if specifying ZM; choose 4 hours if specifying Schönox US; choose 2-3 hours if specifying Schönox DSP.

3. Foot-traffic Ready: [20 minutes] [[1-1.5] [2] [2-3] [4] hours]] minimum.

Specifier Note: Retain and edit the following paragraph related to when product is able to be covered by other materials. Schönox SL can be covered after 20 minutes when applied as a true featheredge; check with the manufacturer when covering very large areas. Choose 1.5-2 hours if specifying Schönox ZM Rapid; choose 24 hours for up to 1/4 inch layer thickness or 48 hours for up to 3/8 inch layer thickness if specifying either Schönox ZM or Schönox US. Delete paragraph if specifying Schönox DSP.

F. Covering Time: [20 minutes] [[1.5-2] [24] [48] hours] minimum with up to [1/4] [3/8] inch layer thickness.

G. Fire Burning Characteristics:
   1. UL Certified to:
      a. ANSI/UL 723.
      b. ANSI/ASTM E136.
   2. ASTM E84
      a. Flame spread: 0.
      b. Smoke developed: 0.

H. VOC: 0 g/l to SCAQMD Rule 1113.

2.3 DESCRIPTION

Specifier Note: Retain and edit the following paragraph. Only Schönox US and Schönox DSP can be used for exterior applications; choose interior only for Schönox ZM, Schönox ZM Rapid or Schönox SL.

A. Hydraulic cement based self-leveling compound for filling smoothing and leveling substrates of [interior] [and] [exterior] applications

2.4 MATERIALS

A. Underlayment system: [Interior] [Exterior] use hydraulic cement based self-leveling, low VOC underlayment [capable of permitting feathered edges on sloped substrates].

Specifier Note: Retain and edit the following paragraph to suit project requirements. Choose the first option when specifying Schönox SL. Choose 60 square feet per 25 lbs bag if specifying Schönox ZM Rapid; choose 60 - 70 square feet per 55 lbs bag if specifying either Schönox ZM or Schönox US; choose 28-32 square feet at 0.25 inch if specifying Schönox DSP. Contact the manufacturer directly to determine coverage for underlayment thicknesses other than the options specified below.

1. Coverage: [[200] square feet per 10 lbs bag when applied as true featheredge] [[60] [60 - 70] square feet per [25] [55] lbs bag at 1/8 inch thickness]] [28 - 32 square feet at [0.25] inch depth.

Specifier Note: Retain and edit the following paragraph to specify layer thicknesses for Schönox ZM, Schönox ZM Rapid, and Schönox US when no aggregates are added to the mix. Delete the following paragraph if specifying Schönox SL. Schönox ZM without aggregates can be applied in thicknesses of 1/6 to 3/8 inches or Schönox DSP can be applied in thicknesses of 1/4" to 2" depending on aggregate used; Schönox ZM Rapid without aggregates can be applied in thicknesses of 1/16 to 1/2 inches; Schönox US without aggregates can be applied in thicknesses of 1/8 to 1 1/2 inches. Delete the following paragraph if specifying Schönox SL.

2. Layer thickness without aggregates: [____] inches.

Specifier Note: Retain and edit the following paragraph to specify layer thicknesses for Schönox ZM, Schönox ZM Rapid, and Schönox US with aggregates added to the mix. With aggregates added to the mix, Schönox ZM can be applied in thicknesses of 1/6 to 1 inches; with aggregates added to the mix, Schönox ZM Rapid can be applied in thicknesses of 3/8 to 1 inches; with aggregates added to the mix, Schönox US can be applied in thicknesses of 1/8 to 2 3/8 inches; with aggregates, DSP can be applied in thicknesses of 1/8 to 2 inches. Delete the following paragraph if specifying Schönox SL.

3. Layer thickness with aggregates: [____] inches.

Specifier Note: Retain and edit the following Paragraph only if Schönox SL is being specified as a feather edge.

4. Layer thickness: [____] inch

Specifier Note: Retain and edit the following paragraph to suit project requirements. For self-leveling of interior hydraulic cement and gypsum substrates to 7/8" thickness, choose ZM; for time-sensitive self-leveling of interior hydraulic cement and gypsum substrates to 7/8", choose ZM Rapid; for water, moisture and frost-resistant self-leveling of interior and exterior hydraulic cement and gypsum substrates of 1/8" to 2 3/8" thickness, choose US; for a self-leveling featheredge for patching, smoothing and finishing interior surfaces, choose SL; for wear-rated self-leveling and concrete topping of interior or exterior hydraulic concrete substrates of 1/8" to 2" thickness, choose DSP.

5. Acceptable Material: [Schönox ZM] [Schönox ZM Rapid] [Schönox US] [Schönox SL] [Schönox DSP]

B. Primer: In accordance with manufacturer's written recommendations and to SCAQMD Rule 1113.

Specifier Note: Retain and edit the following paragraph to suit substrate conditions. Choose Schönox VD (1.3) for standard absorbent concrete or cement substrates. Choose Schönox SHP for non-absorbent smooth, sound substrates such as ceramic tile. If substrate has been sanded and then vacuumed choose Schönox KH FX. Contact the manufacturer directly for more information on application usage.

1. Acceptable Material: [Schönox VD (1.3)] [Schönox SHP] [Schönox EPA] [Schönox KH FX].

2.5 ACCESSORIES

A. Reinforcing Mat: Multiaxial glass fiber fabric.
   1. Acceptable material: Schönox Renotex.

B. Repair Compound: In accordance with manufacturer's written recommendations.
   1. Acceptable Material: Schönox Repair Compound.

C. Residual Moisture Mitigation: Moisture suppressor in accordance with manufacturer's written recommendations.
   1. Ensure moisture suppressor meets requirements of SCAQMD Rule 1113.

D. Specifier Note: Retain and edit the following paragraph to suit substrate conditions. Contact the manufacturer directly to determine the most effective residual moisture suppressor for the project substrate conditions.

Specifier Note: Retain and edit the following paragraph to suit substrate conditions. Contact the manufacturer directly to determine the most effective residual moisture suppressor for the project substrate conditions.

   1. Acceptable Material: [Schönox SDG] [Schönox MR 18] [Schönox EPA] [EPA Rapid].

E. Sand: Fine sand aggregate to ASTM C136/C136M.

PART 3 EXECUTION

3.1 INSTALLER

A. Use only installers who have training and experience in performing work of this section and specialized in work similar to that required for this project; INSTALL certified or equal.

3.2 EXAMINATION

A. Verification of Conditions: Verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for underlayment application in accordance with manufacturer's written recommendations.
   1. Ensure substrate is smooth, sound, clean and free of contaminants which may hinder adhesion.
   2. Visually inspect substrate in presence of Architect or General Contractor.
   3. Inform Architect or General Contractor of unacceptable conditions immediately upon discovery.
   4. Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Architect or General Contractor.
   5. Starting application of hydraulic cement underlayment implies substrate conditions are acceptable for Work of this Section.

3.3 PREPARATION

A. Mechanically remove friable substrate materials and repair areas to smooth finish using repair compound and methods in accordance with manufacturer's written recommendations.

Specifier Note: Retain and edit the following paragraph to suit substrate conditions only if moisture is an issue.

B. Mitigate moisture using residual moisture suppressor and methods in accordance with manufacturer's written recommendations.

Specifier Note: A reinforcing mat is not always required. The following paragraph should be retained or deleted to meet specific project requirements. Contact the hydraulic cement underlayment manufacturer directly for advice on the use of a reinforcing mat.

C. Lay reinforcing mat in accordance with manufacturer's written recommendations.

3.4 MIXING

Specifier Note: Retain and edit the following paragraph to suit product specified. For Schönox ZM choose 55 lb bag with 6.6 to 6.8 quarts of water; for Schönox ZM Rapid choose 55 lbs bag with 6.1 quarts of water; for Schönox US choose 55 lbs bag with 4.7 quarts of water; for Schönox SL choose 10lb bag with 2 quarts of water; for Schönox DSP choose 55 lbs bag with 4.5/4.7 quarts of water.

A. Mix each [55 lbs bag with 6.6 to 6.8] [55 lbs bag with 6.1] [55 lbs bag with 4.5/4.7] [55 lbs bag with 4.7] [10lb bag with 2] quarts of water.
   1. Mix in accordance with manufacturer's written recommendations.
      a. Do not over water.
   2. Mix thoroughly for 3 minutes minimum using heavy duty drill mixer.

Specifier Note: Delete the following Paragraph if aggregates are not required.

      a. Add aggregates in accordance with manufacturer's written recommendations.

b. Mix thoroughly for 3 minutes minimum using heavy duty drill mixer.

Specifier Note: Retain and Edit the following paragraph. Schönox SL must be used within 15 minutes of mixing. Do not mix more than can be used within 15 minutes.

c. Use mixture within [15] [30] minutes of mixing.

3.5 APPLICATION

A. Prime substrate in accordance with manufacturer's written recommendations.

B. Pour self-leveling underlayment onto substrate and spread using smoothing trowel.

Specifier Note: Retain and edit the following Paragraph only if a second layer is required to achieve a thicker underlayment. Delete the following paragraph if a single layer will provide adequate underlayment coverage.

C. Prime first layer only after it has reached final set and only when second layer is required.
1. Use primer and methods in accordance with manufacturer's written recommendations.
2. Pour second layer over primed first layer and spread using smoothing trowel.
3. Ensure second layer does not exceed thickness of first layer.

Specifier Note: Retain and edit the following paragraph to suit project conditions. A spike roller is recommended for greater thickness pours.

D. Ensure surfaces are even and level using [pin leveler] [spike roller].

3.6 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with Section [01 45 00 Quality Control].

Specifier Note: Specify requirements if manufacturers are to provide field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Manufacturer field reports are included under PART 1, Submittals.

B. Manufacturer's Services:

Specifier Note: Use the following Paragraphs only when manufacturer's field services are provided and are required to verify the quality of the installed components. Establish the number and duration of periodic site visits required by manufacturer and specify below. Contact Schönox, HPS North America, Inc., to determine any costs associated with Technical Representatives providing manufacturer's field services. Delete if field services are not required.

1. Coordinate manufacturer's services with Section [01 45 00 - Quality Control].

Specifier Note: Delete the following paragraph if no costs are associated with manufacturer's services.

2. Arrange for payment for manufacturer's services.
3. Have manufacturer review work involved in handling, application, protection, and cleaning of hydraulic cement underlayment and submit written reports in acceptable format to verify compliance of Work with Contract conditions.
4. Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for product installation review in accordance with manufacturer's instructions.
   a. Report any inconsistencies from manufacturer's recommendations immediately to Architect or General Contractor.

Specifier Note: Edit the following paragraph to meet project requirements. Coordinate site visits with manufacturer or delete the Paragraph and all of its subparagraphs if site visits are not required.

5. Schedule site visits to review work at stages listed:
   a. After delivery and storage of hydraulic cement underlayment, and when preparatory work on which Work of this Section depends is complete, but before application begins.
   b. During progress of work.
   c. Upon completion of Work, after cleaning is carried out.
   d. Obtain reports within three days of review and submit immediately to Architect or General Contractor.

3.7 CLEANING

A. Immediately clean tools in water.
   1. Leave work area clean at end of each day.
B. Upon completion, remove surplus materials, rubbish, tools and equipment.
C. Collect recyclable waste and dispose of at appropriate recycling facilities.

Specifier Note: Specify protection methods completed after installation, but prior to acceptance by the owner. Include only statements unique to this Section. Coordinate the following Article with Section 01 76 00 - Protecting Installed Construction.

3.8 PROTECTION

A. Protect applied cement underlayment from damage during construction.
   1. Place temporary wood planking over finished cement underlayment work as directed by Architect or General Contractor.
B. Repair or replace adjacent materials damaged by application of hydraulic cement underlayment.

END OF SECTION