



COVINA-VALLEY

UNIFIED SCHOOL DISTRICT

ADDENDUM #2

MAY 5, 2022

PROJECT: FLOORING PROJECT AT SOUTH HILLS HIGH SCHOOL RE-BID NO. 21-22-110

This Addendum forms a part of the Bid Documents and modifies the original Bid Documents. Acknowledge receipt of this Addendum in space provided on the Bid Proposal Form. Failure to acknowledge may subject Bidder to disqualification. Except as specifically modified by this Addendum, all other terms and conditions set forth in the Bid Documents remain in full force and effect.

QUESTIONS AND CLARIFICATIONS:

Question: Where can I find this Exhibit 1? I could not find it in the bid docs.

Clarification: Only the first page of the specifications section was included in the bid documents. I have attached the full thirty-three-page project specifications. The technical specifications for hazardous materials removal were included in the bid documents.

END OF ADDENDUM

Scope of Work:

South Hills High School Cafeteria Flooring Project

Description

Demo approximately 6,700 square feet of vinyl composite tile (VCT) and wall base and haul away.

Repair any damage to the concrete subfloor and prepare the subfloor (per attached specifications Exhibit 1 pg 03-08).

Concrete subfloor has obvious moisture issues. Taylor - Resolute epoxy floor prep needs to be used throughout the entire floor where LVt and walk off mats will be installed. (See attached specifications)

Install approximately 57 sy off walk off mats using Bentley Rough Idea - Shear -EliteFlex - Cushion Color Outline 800115 (See attached specifications)

Install new Bentley LVT - Ground rules - Color Mute Devices in the Dining area as shown in the drawing attached. Install 2 Huskie paw shaped inlays per attached drawings using Bentley LVT - Modern Revival - Color FourSquare . See photos of Student Union for reference. Trace existing art and scale to approximately 14 x 14 ft. (See attached drawings)

Contact - Bentley Mills Representative - Angela Lumaye - angela.lumaye@bentleymill.com 310-613-1395 to confirm any questions regarding project or installation.

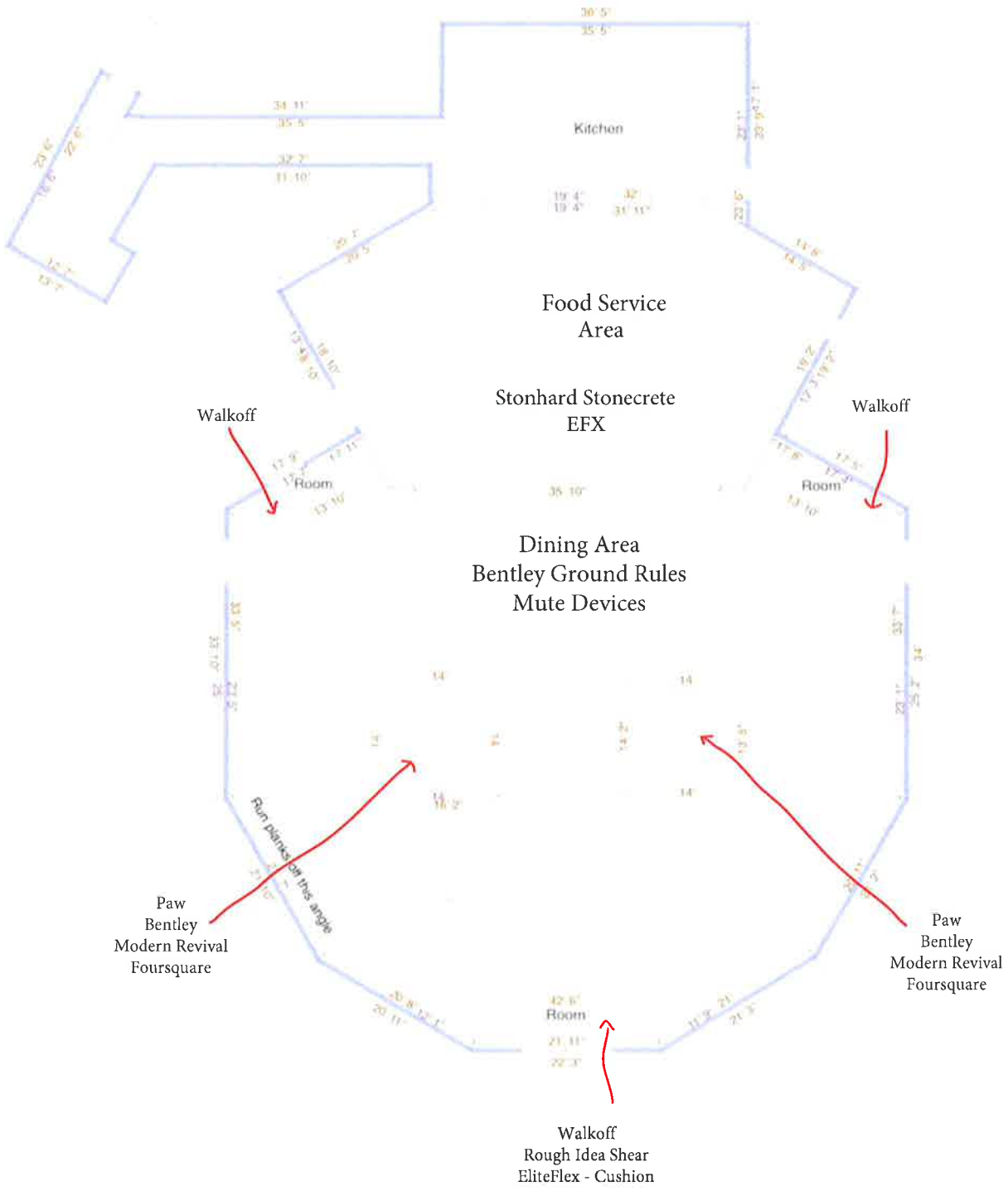
In the Food Service area approximately 2,500 sf prepare floor prep according to Stonhard specifications (see attached). Install Stonhard Stonfill OP2 Moisture Mitigation Vapor Barrier per attached specifications. Install Stonhard Stonecrete EFX - Color to be determined by the District. Installation of Stonhard must be installed by a Stonhard Certified Installer.

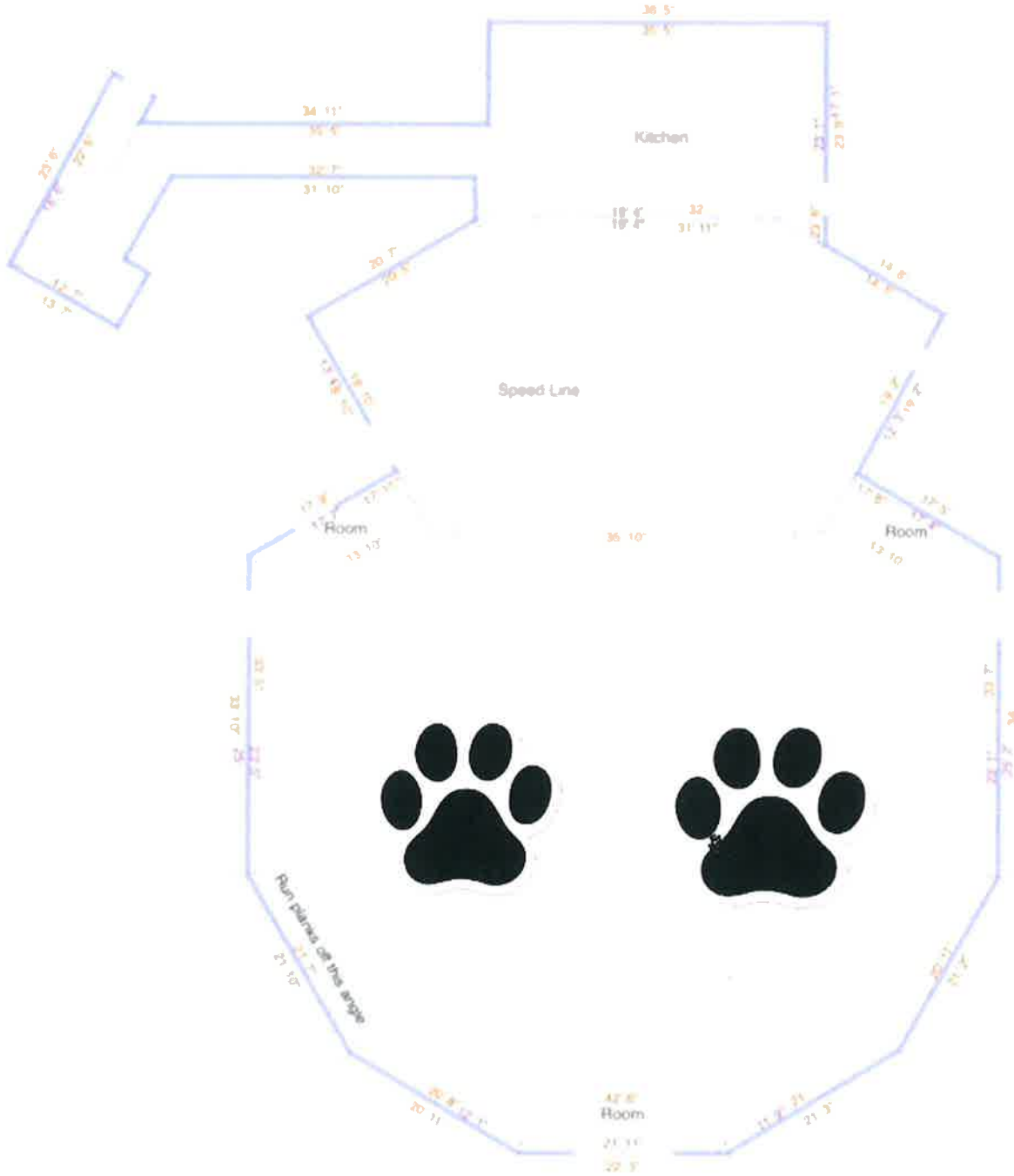
Contact - Stonhard Rep Rick Tran rtran@stonhard.com - 949-322-4029

Additional alternate -

Demo Approximately 1,200 sf in the Kitchen area (VCT) & Kitchen restroom

Prepare floor prep according to Stonhard specifications (see attached). Install Stonhard Stonfill OP2 Moisture Mitigation Vapor Barrier per attached specifications. Install Stonhard Stonecrete EFX - Color to be determined by the District. Installation of Stonhard must be installed by a Stonhard Certified Installer.









Ground Rules

(BGRRUL)

Product Code:	BGRRUL0648U
Style Number:	BGRRUL648U802016193
Backing & Size:	LVT 2.5mm 6 in x 48 in (15.24 cm x 121.92 cm)
Gauge Total Thickness:	0.1
Wear Layer Thickness:	20 mil (0.50 mm)
Install Type:	Direct Glue
Maintenance:	Inherent No Wax Surface
Pieces per Carton:	20
Coverage per Carton:	40 ft ² (3.72 m ²)
Weight per Carton:	36.38 lbs (16.5 kg)
Classification:	ASTM F1700, Class III Type B
Dimensional Stability:	ASTM F2199, ? 0.02 in (0.5 mm)
Indoor Air Quality:	FloorScore™

Bentley's carpet products are manufactured in our California mill, a LEED Existing Buildings: Operations and Maintenance Gold certified facility. Certifications for carpet products, including Cradle to Cradle™, NSF/ANSI Standard 140 - Sustainable Carpet Assessment (NSF 140), and CRI Green Label Plus are available in Certifications under the Sustainability section of our website. Information regarding our Environmental Product Declarations, Health Product Declarations, and Declare Labels can be found in Transparency under the Sustainability section of our website. For more information, including product warranties, please visit <https://www.bentleymills.com>.

Patterned carpet may require special attention by the installer to assure a suitable match, and must be addressed in the original labor quotation. Repositioning of carpet tiles may be necessary to ensure light or dark lines do not align at the seams. Products that go through the shearing process may result in a small loss of yarn weight. Slight variations in color among different production lots are normal and should be considered in the overall installation plan. Carpet specifications and components are subject to normal manufacturing tolerances and may change without notice. Product warranted in accordance with the terms and conditions of Bentley's standard printed warranty in effect at time product is sold. All other warranties, including without limitation any implied warranties of merchantability or fitness for a particular purpose, are hereby disclaimed. Made in USA. Warning: unauthorized reproduction of this carpet design constitutes copyright infringement. ©2022 Bentley Mills, Inc.



Memory

(BMMRY)

Product Code:	BMMRY00948U
Style Number:	BMMRY0948U801984193
Backing & Size:	LVT 2.5mm 9 in x 48 in (22.86 cm x 121.92 cm)
Gauge Total Thickness:	0.1
Wear Layer Thickness:	20 mil (0.50 mm)
Install Type:	Direct Glue
Maintenance:	Inherent No Wax Surface
Pieces per Carton:	16
Coverage per Carton:	48 ft ² (4.46 m ²)
Weight per Carton:	41.0 lbs (18.59 kg)
Classification:	ASTM F1700, Class III Type B
Dimensional Stability:	ASTM F2199, ? 0.02 in (0.5 mm)
Indoor Air Quality:	FloorScore™

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NOW FEATURING NO MOISTURE TESTING

Resilient flooring has finally met its match. **RESOLUTE'S®** safe, 1-part chemistry makes it a faster, more install-friendly alternative to 2-part epoxy systems. Engineered for heavy rolling loads and challenging environments, Resolute's® waterproof design forms a robust moisture vapor barrier and can also take the punishment introduced by topical liquids.

Shelf Life: 1 Year



AVAILABLE IN 2-GALLON PAIL


PRODUCT BENEFITS

- Simple 1-part system (modified urethane)
- Strong early grab, fast-curing formula
- High-strength, waterproof bond
- Self-leveling technology reduces telegraphing
- LEED v4 contributing
 - VOC content 0.1 g/L (meets SCAQMD Rule 1168)
 - CDPH/EHLB Standard Method v1.2
 - Does not contain methylene chloride and perchloroethylene
 - Contributes to low emitting materials

APPROVED FLOORING TYPES

- LVT/LVP
- Sheet goods (vinyl, homogeneous, heterogeneous, fiberglass, felt-backed)
- Rubber (tile and sheet)
- Linoleum
- WPC/WSC
- Cork-backed hard surface
- Cork flooring
- Cork underlayment
- VCT/VET
- Stair treads (rubber and vinyl)

APPLICATION METHODS

 150-260 sf/gal

Note: Coverage range dependent upon substrate composition and porosity, application method and flooring type.

CERTIFICATIONS



RH
100%

pH
5-14

MVER
N/A

OPEN TIME
0 min

WORKING TIME
45 min

CURE TIME
6 hrs

LIGHT TRAFFIC
3 hrs

HEAVY TRAFFIC
4 hrs

HEAVY ROLLING LOADS
8 hrs

**Carpet Specification for
Rough Idea Shear EliteFlex Cushion- 6 Ft Wide -
Sheet Goods**

PART TWO PRODUCTS

2.1 MATERIALS – CARPET – SHEET GOODS – 6
FT WIDE CUSHION

2.1.1 Carpet: Throughout this contract shall be of the same type and manufacture. Carpeting shall be:

2.1.1.1 Yarn: Type 6,6 Nylon, bulk continuous filament (BCF) with Monofilament Scraper Yarn. No substitutions.

2.1.1.2 Static Control: By permanent means (i.e. antistatic filaments) and without chemical treatment. Static generation ≤ 3.5 kilovolts using AATCC 134 [Electrostatic Propensity (Step)].

2.1.1.3 Construction: Tufted Tip Sheared

2.1.1.4 Dye Method: Solution Dyed

2.1.1.5 Total Weight: 98 oz/yd²

2.1.1.6 Total Thickness: 0.360 in

2.1.1.7 Stitches per inch: 6.3

2.1.1.8 Machine Gauge: 5/64 in

2.1.1.9 Primary Backing: 100%

woven or non-woven synthetic

2.1.1.10 Secondary Backing:

Low Density Polyethylene (LDPE)
Moisture Barrier with 24 lb
Polyurethane Cushion. No PVC

2.1.1.11 Product Width: 6 Feet

**2.1.1.12 Resistance to
Delamination:** ASTM D3936 test
method: minimum 3.5 lbs/inch

2.1.1.13 Tuft Bind: ASTM D1335
test method: 3 lbs-force minimum
cut pile, 8 lbs-force minimum loop
pile tile.

**2.1.1.14 Flammability: Critical
Radiant Flux:** ASTM E648 (NFPA
253) Must meet Class I. ≥ 0.45
watts/cm² (verify Federal, State or
Local requirements)

2.1.1.15 Smoke Density: ASTM
E662, < 450 Dm Corr in flaming
mode (verify Federal, State or
Local requirements)

**Carpet Specification for
Rough Idea Shear EliteFlex Cushion - 6 Ft Wide -
Sheet Goods**

**2.1.1.16 Federal Flammability
standard:** CPSC FF1-70
(Methenamine Pill test, ASTM
D2859 test method). Must
pass.

2.1.1.17 Colorfastness to Light:

AATCC 16 option 3 to 160 AFU;
minimum rating of 4 using AATCC
Gray Scale for Color Change.

2.1.1.18 Colorfastness to

crocking: AATCC 165, minimum
rating of 4 both wet and dry using
the AATCC Chromatic Transference
Scale.

2.1.1.19 Stain Resistance:

AATCC 171 (HWE) for 2 cleanings
to simulate removal of topical
treatments by hot water extraction,
followed by AATCC 175 Stain
Resistance test; minimum rating of
8 using AATCC Red 40 Stain Scale

2.1.1.20 Moisture Resistance:

Must pass AATCC 205, Carpet:
Liquid Penetration by Spillage.

2.1.1.21 Appearance Retention:

Texture Appearance Retention
Rating (TARR) of **[3.5 Severe
Traffic]** ASTM D5252, Hexapod
Tumble Drum Test, 12,000 cycles
with 8.4 lb commercial heavy ball,
and ASTM D7330 Assessment of
Surface Change

2.1.1.22 Indoor Air Quality -Must

pass CRI Green Label Plus
certification.

2.1.1.23 Recycling: New Carpet:

Carpet must be eligible for recycling
by the supplying mill or fiber
producer to an existing operational
third party certified recycling center;
submit program parameters.
Landfills are not an option

Used Carpet: Remove carpet and recycle regardless of manufacturer, fiber type or construction. Landfills are not an option.

2.1.1.24 Manufacturing: All products must be made in a LEED Gold manufacturing facility.

2.1.1.25 Sustainability: Certified NSF140 Gold minimum.

Product Specifications: Rough Idea Shear

REFERENCE NUMBER:	8RN2407609
PRODUCT CONSTRUCTION:	Tufted Tip-Sheared
FIBER:	Ultron® nylon 6,6
DYE METHOD:	Solution Dyed
BACKING:	EliteFlex Cushion
YARN WEIGHT TUFTED:	24 oz/sy
MACHINE GAUGE:	5/64 in
PILE HEIGHTS:	High: 0.250 in Med: 0.187 in Low: 0.125 in
STITCH PER INCH:	6.3
SIZE:	12'6"
PATTERN REPEAT:	18-3/4" W x 75" L
RADIANT PANEL:	Passes Class 1 ≥ 0.45 W/cm ² (ASTM-E648)
SMOKE DENSITY:	< 450 dm Corrected (ASTM-E662), Flaming
STATIC:	≤ 3.5 kV (AATCC-134), Step
FLAMMABILITY:	Passes Methenamine Pill Test (CPSC-FF1-70)

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December 4, 2019

EliteFlex™ 6 ft Cushion EliteFlex™ 6 ft Hardback

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Basics

Bentley Mills has adopted the Carpet and Rug Institute's "Standard for Installation of Commercial Carpet," (CRI 104) as the basic minimum industry guideline for the installation of Bentley Mills carpet. Please note, the instructions for some specific styles may exceed the basic minimum requirements set forth in the CRI 104 Standard. When consulting the CRI 104, please make certain it is the most recent edition and contains the latest updates. Copies may be obtained on the CRI website (www.carpet-rug.org).

Layout

Carpet seams will never be completely invisible and are usually most visible the days following the initial installation. Seams become less visible with routine vacuuming and foot traffic.

Note: Bentley's EliteFlex 6 ft Cushion and EliteFlex 6 ft Hardback require no pattern matching.

Floor Preparation

Concrete Subfloor

All new concrete must be fully cured, clean, and dry. Old concrete must be clean, dry, level, and free of paint, dirt, old adhesive, oils, or other contaminants. The concrete should be free of curing or parting agents that interfere with the bonding of the adhesive. Whenever a powdery surface is encountered, such as lightweight concrete, a sealer compatible with the adhesive, such as Taylor 2025 Primer, must be used to provide a suitable surface for a direct glue installation.

Level the floor to the standards outlined in the American Concrete Institute specifications for Concrete Building ACI 301 in regards to trowel finish and finishing tolerance. Leveling compounds must be Portland-based cement. Patch cracks and holes with one of the following approved patching compounds: Ardex Feather Finish, Ardex K-15, Henry's 547, Mapei Plani Patch mixed with Plus additive or similar cementitious based compound. Do not exceed manufacturer's recommendation for patch thickness. Gypsum based compounds are not recommended.

Note: Incompatible adhesives, solvent-based materials, and other contaminants should be removed 85-90% and encapsulated with Taylor Zephyr prior to installation of carpet. Contact Bentley Mills for further information at 800.423.4709.

Concrete Moisture

Healthbond 2399 Adhesive (EliteFlex 6 ft Cushion and EliteFlex 6 ft Hardback)

- Up to 100% RH - No testing required.
- No pH testing required.
- No verifiable intact moisture vapor retarder required.

Healthbond 1000 Adhesive (EliteFlex 6 ft Cushion Only)

- 95% RH maximum - Testing required.
- 9 pH maximum - Testing required.

Other Substrates

Underlayment grade OSB, APA registered underlayment plywood, Gypsum or lightweight concrete must be primed with Taylor 2025 primer.

Test Conditions

Testing is not required when using Bentley Healthbond 2399 adhesive. No RH testing, no pH testing, no intact moisture vapor retarder required.

Note: Hydrostatic pressure is not an acceptable condition of the substrate. Hydrostatic pressure is the occurrence of the concrete slab being hydrated from below or water under the slab pushing up through the surface. This is visually seeing effervescence or alkaline salts carried with water on the surface of concrete and occurs with "on grade" or "below grade" concrete.

Installation Instructions

Conditioning Carpet

The carpet should be allowed to acclimate in the anticipated installation space for a minimum of 24 to 48 hours prior to installation. The amount of time necessary for conditioning will depend upon potential temperature extremes during storage. Carpet subject to extreme temperature fluctuations will require more acclimation time than carpet stored in a climate-controlled building. During periods of high humidity more time may be required to allow the carpet to acclimate. Water-based adhesives may need more time to flash off prior to placing carpet onto the adhesive.

Seam Cutting

Bentley Mills goes to great lengths to determine the appropriate products to be offered with the EliteFlex backing option. EliteFlex backing options require the same general installation methods and recommendations. **Most EliteFlex seams require a slight serpentine double cut seam, however, some styles require a straight double cut seam in an effort to reduce possible visual discrepancies with the face yarn.** Verification of product seaming method is the responsibility of the dealer/installer. For any questions, please contact Bentley Mills at 800.423.4709.

EliteFlex 6 ft Cushion and EliteFlex 6 ft Hardback

- Recommended seam cutting tool - National Carpet Equipment #575 Commercial Seam Cutter or equivalent.
- Installations utilizing a wet set adhesive requires the seams to be dry cut.
- Overlap the selvage edges 2" to allow sufficient material to be cut.
- With firm and continuous pressure, cut both breadths of material in a slight serpentine double cut resulting in 18-24" wave repeat; the blade should be sharp and lightly touch the subfloor.
- All EliteFlex products should use the slight serpentine double cut method, with the exception of the following products which require a straight double cut for best seam appearance:
 - **Allegro** (Straight Cut ONLY)
 - **Backstage** (Straight Cut ONLY)
 - **Interlude** (Straight Cut ONLY)

Note: For the most current version of our Installation Guidelines, please refer to the QR Code found on the cover page or visit bentleymills.com

Seam Sealing

EliteFlex 6 ft Cushion

- Remove both top and bottom strips of carpet and properly edge/seam seal only with Bentley PermaWeld Premium Seam Sealer.
- Apply a continuous 1/8" bead of seam sealer to the cut edge on one side only in sufficient quantity to seal both trimmed edges and to cover the primary and cushion backing without contaminating face yarns.
- Immediately place the edge of the second piece of carpet into contact with the first piece which has the seam sealer on it. To achieve a good bond, it is essential for the two pieces of carpet to have a tight fit.
- Traffic on the seam should be restricted for 12 hours.

EliteFlex 6 ft Hardback

- EliteFlex 6 ft Hardback does not require seam sealing

Adhesive and Adhesive Application

Once the floor has been properly prepared as detailed in CRI 104, a full spread method of adhesive is required to install both EliteFlex Hardback and EliteFlex Cushion carpet. Full spread means that the entire area to receive carpet should be covered. Healthbond 2399 Pressure Sensitive Adhesive and Healthbond 1000 Multi-purpose Adhesive are specifically designed for interior installation of Bentley carpet. These adhesives can be applied using common tools and techniques over a variety of porous and non-porous surfaces.

Healthbond 2399 Pressure Sensitive Adhesive (EliteFlex 6 ft Cushion and EliteFlex 6 ft Hardback)

- Up to 100% RH- No testing required.
- No pH testing required.
- No verifiable intact moisture vapor retarder required.
- Full Spread
 - Apply with:
 - 1/2" nap paint roller (33 sy/gal spread rate) or
 - 1/16" X 1/32" X 1/32" U notch trowel (24-28 sy/gal spread rate)
 - Allow adhesive to flash 100%.
 - Roll with a 75-100 pound roller to ensure proper adhesion.
- Traffic should be restricted for 12 hours after installation.

Healthbond 1000 Multi-purpose Adhesive (EliteFlex 6 ft Cushion ONLY)

- 95% RH maximum - Testing required.
- 9 pH maximum - Testing required.
- Dry cut seams prior to applying adhesive
- Full Spread
 - Apply with:
 - 1/16" x 1/16" x 1/16" square notch trowel (16 sy/gal spread rate)
 - Wet set installation method.
 - Roll with a maximum 35 pound roller to ensure proper adhesion.
- Traffic should be restricted for 12 hours after installation

Important Advice

These installation procedures are recommendations designed for the experienced and competent installer. Strict adherence to these procedures will result in a quality installation under most conditions. **Any situation that could alter the installation procedure or jeopardize the possibility of a satisfactory installation, such as identification of defective material or unusual installation conditions, creates a responsibility for the installer to STOP the installation immediately**

and call Bentley Mills Customer Care at 800.423.4709. Bentley Mills will not be responsible for substandard installation or for an installer's decision to proceed with an installation that is not resulting in a satisfactory or acceptable finished installation.

Contact Us

Bentley Mills, Inc. 14641 East Don Julian Road, City of Industry, California 91746

800.423.4709 | bentleymills.com

Luxury Vinyl Tile (LVT)

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References

Note: This document refers to the following standards. Please use current version available at time of installation:

ACI 302.1R Guide for Concrete Floor and Slab Construction

ACI 302.2R Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials

APA Engineered Wood Construction Guide

ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

ASTM F1869 Standard Test Method for Measuring Moisture Evaporation Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes

ASTM F1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring

ASTM F2419 Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring

ASTM F2678 Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compound

ASTM F2873 Standard Practice for the Installation of Self-Leveling Underlayment and the Preparation of Surface to Receive Resilient Flooring

ASTM F3010 Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings

Recommended Work Practices for Removal of Resilient Floor Coverings of Resilient Floor Covering Institute (RFCI)

Storage and Handling

Store boxes on clean, flat, and solid surfaces in a controlled environment. Do not store outside. Handle all materials carefully and safely. Do not toss or drop LVT as this may damage the corners. Do not stand boxes on end. Care must be taken to avoid damage to edges and corners. Do not install damaged tiles.

Acclimation

- Under normal conditions, the LVT must be taken out of their boxes 16-24 hours prior to the installation. In cases where the flooring may have spent a long period of time in colder conditions, more time will be required for acclimation.
- Areas to receive LVT must be fully enclosed with the permanent HVAC system operational and set to a minimum of 65°F or a maximum of 85°F for a minimum of 48 hours prior to, during, and then maintained after the installation.

Subfloor Preparation

- The General Contractor will supply a smooth, flat concrete finish ready to receive the new flooring in accordance with ACI 302.1R Guide for Concrete Floor and Slab Construction and ACI 302.2R Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
- The concrete subfloor must be cured for a minimum of forty-five (45) days.
- The slab will have a tolerance of 3/16" in a 10' radius.
- Prepare substrate as per ASTM F710 "Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring."
- The concrete slab, new or old, must be tested for moisture. We recommend having the tests performed by a recognized engineering firm. The International Concrete Repair Institute (ICRI) website has a list of certified technicians for the USA: https://www.icri.org/page/ccsmft_list
- The moisture tests must be performed as per ASTM F1869 "Standard Test Method for Measuring Moisture Evaporation Rate of Concrete Subfloor Using Anhydrous Calcium Chloride" and/or ASTM F2170 "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes."
- Using Bentley Healthbond 2399 Adhesive, substrate moisture levels shall not exceed:
 - **Concrete slab with an effective moisture vapor barrier:**
 - 10 lbs / 95% RH, 12 pH
 - **Concrete slab with radiant heating system:**
 - 8 lbs / 95% RH, 12 pH
- Wood subfloor Construction and Wood Underlayment conditions. Please contact Bentley Mills Technical Services for further information.

Moisture Testing

Bentley requires concrete slab moisture testing and recognizes 2 test methods to measure the moisture in a concrete slab:

ASTM F2170 RH test

ASTM F1869 Calcium Chloride test

The best choice is to do both tests side by side. This way, all the information needed to properly assess the moisture condition of the concrete slab will be available.

When performing the tests, both tests need to pass the moisture requirements.

Should there be a decision to perform only one type of test, Bentley requires the ASTM F2170 RH test, as this is the most accurate test available at this time.

Gypsum Base Substrate

- Prohibit circulation of other trades in the installation area.
- The General Contractor shall patch and repair all cracks, voids and other imperfections of the gypsum base subfloor with high strength gypsum base patching compounds compatible with the gypsum base product.
- After completion of patching and leveling, vacuum or sweep entire surface of the gypsum base subfloor to remove loose dust and dirt.
- Apply Taylor 2025 Universal Primer per Taylor's instructions.
- Once the Primer has set, install the flooring following the installation instructions.

Subfloors with Radiant Heating Systems

Bentley LVT can be installed over subfloors with radiant heating systems.

To ensure proper installation and enable proper adhesion, respect the following conditions:

- In all cases, it is necessary to respect the curing time of the concrete slab.
- Before the installation, the radiant heating system must have been turned on for at least 4 weeks to stabilize the moisture content of the concrete slab and to avoid any moisture peak when the system will be in service after the installation of the flooring.
- A certified technician should turn on the system as per the manufacturer recommendation.
- The room temperature must be kept at its maximum 85°F for 8 days prior to the installation of the floor covering.
- The maximum temperature will not exceed 85°F at any time.
- To install on a subfloor with a radiant heating system, the system has to be turned off 48 hours before, during, and 72 hours after the installation. Always verify that the room temperature is not less than 65°F during that period of time.
- The heating system should be turned on gradually starting 72 hours after the installation. Temperature of 65°F to 85°F should remain in normal operating parameters post installation.
- Turning on the heat gradually will allow the substrate and the flooring to adapt to the temperature change together.
- A sudden temperature change could result in shrinkage or adhesion problems.
- During the drying period of the concrete slab, moisture tests shall be performed per the conditions stated in ASTM F1869, ASTM F2170 standards and substrate conditions will meet ASTM F710 standard.

WARNING: NEVER COVER THE FLOORING WITH RUGS, MATS, RUNNERS, ETC. THESE WILL AFFECT THE HEAT TRANSFER OF THE RADIANT SYSTEM AND COULD DAMAGE THE FLOORING.

Wood Substrates

Wood Subfloor Constructions

Suspended wood subfloor shall be 1" (25mm) thick or heavier, conforming to the current CSA or FHA standards, double-layered, strongly constructed, free from vertical movement and have a minimum of 18" (460mm) of well-ventilated air space clearance above the ground. In an area of high humidity due to ground moisture such as a crawl space or basement, a vapor barrier (minimum 4 mil polyethylene sheeting) should be installed over the ground with overlapped widths and lengths, to serve as a moisture barrier to help assure dryness. The truss shall be spaced not more than 16-inch (406mm) on centers. If truss are warped or twisted, or otherwise do not present a flat, true base for plywood installation, these conditions must be corrected prior to the installation of the plywood by routing the truss or by firmly nailing blocks to the sides of the truss whichever is required. All subfloor panels must be fastened to the truss in accordance with their manufactures recommendations to preserve their warranties.

Single Layer Wood Floors: Single layer plywood subfloors are not recommended in areas requiring resilient flooring; they are the major cause of nails popping and squeaking. These subfloors must be covered with a minimum of 1/4" (6.35 mm) or heavier approved underlayment grade plywood.

Strip wood Subfloors: Single and/or double tongue-and-groove strip wood floors should be covered with a 3/8" (9.53mm) or heavier underlayment to eliminate telegraphing of the strip wood floor board joints.

Wood Underlayment

Underlayment grade panels are used to resurface an existing wood subfloor. The finished appearance of any resilient flooring installation will be determined in part by the underlayment over which it is installed. Underlayment grade panels for commercial resilient floors must be 3/8" (9.53mm) or heavier with fully sanded face meeting CSA or FHA standards. The following descriptions of types of underlayment panels and Bentley Mills' resilient flooring's recommendations for their use are intended only as a guide. The underlayment selected is subject to the discretion of the installer based upon subfloor conditions. Bentley Mills strongly suggests that whoever is buying the underlayment material obtain a warranty from the supplier. **The responsibility for warranties, guarantees and performance rests with the manufacturer of the underlayment and not with Bentley Mills.**

CAUTION: Some plywood underlayment manufacturers use plastic or resin filler to patch surface cracks. Some filler can cause discoloration in vinyl flooring. Specify plywood underlayment with wood plugs and fills.

APA-Engineered Wood Construction Guide:

- 3/8" (9.53 mm) or heavier APA Underlayment Exposure 1 (with fully sanded face)
- 3/8" (9.53 mm) or heavier APA Underlayment C-C Plugged Exterior (with fully sanded face)

Sturd-I-Floor Construction Plywood Floor System

Conventional veneered plywood Sturd-I-Floor system with sanded face is a suitable subfloor for installation of Bentley Mills' resilient flooring when constructed for resilient flooring per APA.

The identification provides information on thickness and the corresponding allowable maximum joist spacing. Tables in the APA Engineered Wood Construction Guide provide maximum joist spans for each joist size, wood specie and grade. Glued tongue and groove edges are recommended to assure snug joints. Only fully sanded panels are acceptable and must be thoroughly dry before applying floor covering. The long dimension of the panel must be installed across supports and with panel continuous over two or more spans. To minimize squeaks, buckling and nail-pop, follow the APA recommendations for site applied glue on both joists and tongue-and-groove joints.

Note: 3/8" (9.53 mm) minimum APA Underlayment grade plywood must be applied over the Sturd-I-Floor System with staggered and off-set joints.

Caution: Certain industrial grade adhesives used in the construction trade to adhere subfloor panels have been known to discolor resilient flooring products even if covered over with board or trowelable underlayment. Any construction adhesives used in subfloor construction must be guaranteed by its manufacturer, not Bentley Mills, to be non-staining for resilient flooring materials.

Note: Installing resilient flooring over approved plywood will not diminish the telegraphing of the sheets of plywood through the resilient flooring.

Installation of Planks and 18 in x 36 in Tiles

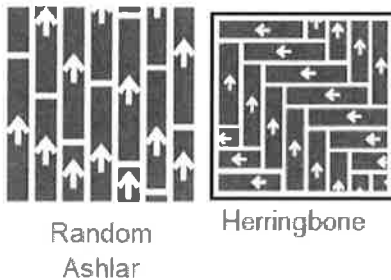
Flooring Material Inspection

- Boxes are clearly marked with batch numbers and the product should be checked for match before installing.
- Inspect all materials carefully to verify that correct colors, lot number, patterns, quality and quantities have been shipped as ordered. Do not install, cut, or fit any material that has visible defects.
- A contractor that installs material that has visible defects or damage without prior consent of Bentley deems the product acceptable for installation and therefore accepts full responsibility for said material.

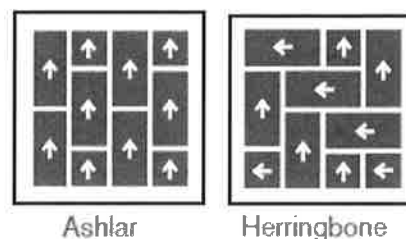
Plank and 18 in x 36 in Tile Layout

- Chalk the center lines of the work area so that the line is parallel to the length of the room.
- Before spreading adhesive, it is recommended to lay one or two rows of planks or tiles along center line to check for proper alignment.
- Mix planks or tiles from different boxes to obtain a consistent layout.
- Be certain the planks or tiles are installed right on the center lines.
- After the first row is in place, begin laying planks or tiles outward.
- Press planks or tiles firmly against adjoining planks and press into the adhesive.
- Begin stair-stepping the planks or tiles into the field area.

Plank Installation Methods



18 in x 36 in Tile Installation Methods



** Please reference the recommended installation method for your specific product.*

Note: For Random Ashlar installations, the stagger must not be less than 12 inches.

Bentley Healthbond 2399 Adhesive for LVT

- All Bentley LVT must be direct glue with Healthbond 2399 Adhesive
- Recommended trowel size 1/16" x 1/32" x 1/32" U-notch (coverage approximately 225 to 275 ft²/gal).
- Starting from the center lines and working outward, apply the adhesive to the subfloor.
- To ensure uniform adhesion of the entire surface, apply a workable amount of adhesive at one time.
- Maintain a uniform spread rate. Replace trowel (or trowel blade) as needed to maintain spread rate.
- Open time is the combination of flash time and working time for both wet and semi wet installations.
- "Open time" of the adhesive is dependent upon porosity of the substrate, temperature, and humidity. It is important that the installers familiarize themselves with the adhesive before starting the installations. Excessive open time will cause bubbling and result in poor adhesion.
- This installation method requires a porous substrate such as bare plywood, concrete or gypcrete.
- DO NOT install resilient flooring products until the work area can be temperature controlled. The temperature of your job site must stay within 65°F (18.3°C) and 85°F (29.5°C) with relative humidity (RH) between 40% - 60% for 72 hours prior to, during, and remain under operational HVAC thereafter.
- This service temperature must be maintained before, during, and after from 65°F to 85°F.
- Apply the Bentley Healthbond 2399 using a 1/16" x 1/32" x 1/32" U-notch trowel.
- Allow the adhesive to begin to dry between the trowel notches but still provide wet transfer on the ridges. This will help reduce slippage while installing planks (wet transfer is critical).
- A standard wet set method is also acceptable.
- The installer will need to monitor the drying process because the dry time will vary with temperature, humidity, and air flow.
- For a semi wet installation, expect a period of dry time approximately 20 to 30 minutes from adhesive spread to tile placement with a short window to place the tile and roll the assembly using a Crain 333 or similar roller for wet transfer.

Application Characteristics over Porous Substrates:

- Wet Set Installation: Approximately 0-20 minutes @ 50% RH and 65°F to 85°F temperature
- Semi Wet Installation: Approximately 10-20 minutes @ 50% RH and 65°F to 85°F temperature (to reach a tacky state).

Note: Flash time and working time may vary based on temperature, humidity, substrate porosity, trowel size and jobsite conditions.

Note: Improper acclimation, HVAC operations, and adhesive set up times can result in end gapping with large format planks generally being more pronounced and may be more difficult to control.

- Start by laying a full plank or tile around the center line. You can start it right at the center line or overlap the center line. Work outward from the center point toward the perimeter in both directions installing them end to end. If you have multiple installers, have one move in one direction and the other the opposite, so as to maximize efficiency. As you progress to the next row overlap the seams by at least ¼ of the length of the one before it. Keep in mind you are creating a random looking installation that will mimic a natural look. As you proceed, overlap the prior rows by differing amounts ensuring that seams do not line up.

- Finish by cutting in the fill pieces on the side allowing an expansion area of ¼" around the perimeter. This is necessary to allow for some expansion or contraction of the product.
- Once flooring is placed into the adhesive, immediately roll thoroughly with a Crain 333 Extension Hand Roller (or similar roller) and after 1 but not more than 2 hours, roll with a 75-100-lb roller in both directions.
- Use a 14" to 16" cork board or a piece of 2" x 4" wrapped with a piece of carpet to remove air bubbles.
- Continue laying tiles by butting the edges together without too much pressure.
- During the installation, always double check the flooring for bubbles with the lights on and off.
- Avoid adhesive displacement by prohibiting traffic for a period of 48 hours and 72 hours for rolling loads.
- The use of walking boards is mandatory to protect from adhesive displacement during installation.
- Protect your installed flooring from exposure to extreme or direct sunlight. Prolonged, direct sunlight will heat your floor, causing it to expand. When the floor temperature drops after the sun passes, your floor will shrink, causing the floor to separate. This is especially true in areas where the flooring is pinned or where heavy objects are on the floor. In areas where large windows or sliding glass doors are present, shades and window treatments are needed to protect your floor from sunlight during all seasons.

Once The Installation is Complete

- Perform a visual inspection of the project.
- Repair every imperfection before leaving the project.
- Make sure that all vertical obstacles, such as door frames, are well trimmed and sealed with a silicone sealer or an equivalent product.

For additional information, please contact Bentley Technical Services at 800.423.4709.

Contact Us

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SECTION 096723 - RESINOUS FLOORING**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes one resinous flooring system, one with an epoxy body.
 - 1. Application Method: Plastic power or metal hand troweled.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- B. Samples for Verification: For each resinous flooring system required, 5 inches (150 mm) square, applied to a rigid backing.
- C. Product Schedule: Use resinous flooring designations indicated in Part 2 and room designations indicated on Drawings in product schedule.
- D. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- E. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. No request for substitution shall be considered that would change the generic type of floor system specified (i.e. epoxy mortar-based system). Equivalent materials of other manufactures may be substituted only on approval of Architect or Engineer. Requests for substitution will only be considered if submitted 10 days before the bid date. Requests will be subject to specification requirements described in this section.
- B. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is approved by the resinous flooring manufacturer.

1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
 2. The flooring installer shall have completed at least (5) five projects of similar size and complexity.
- C. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, through one source from a single manufacturer, with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by the manufacturer of primary materials.
- D. Manufacturer Field Technical Service Representatives: Resinous flooring manufacture shall retain the services of Field Technical Service Representatives who are trained specifically on installing the system to be used on the project.
1. Field Technical Services Representatives shall be employed by the system manufacturer to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem-solving issues with the installer.
- E. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Apply full-thickness mockups on a 48-inch- (1200-mm-) square floor area selected by Architect.
 - a. Include a 48-inch (1200-mm) length of integral cove base.
 2. Approved mockups may become part of the completed Work if undisturbed at the time of Substantial Completion.
- F. Pre-installation Conference:
1. The General contractor shall arrange a meeting not less than thirty days before starting work.
 2. Attendance:
 - a. General Contractor
 - b. Architect/Owner's Representative.
 - c. Manufacturer/Installer's Representative.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating the brand name and directions for storage and mixing with other components.

- B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects. Store material per the product datasheet.
- C. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on-site mixing errors. No on-site weighing or volumetric measurements allowed.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
 - 1. Maintain material and substrate temperature between 65° and 85° degrees Fahrenheit (18° and 30° degrees Celsius) during resinous flooring application and for not less than 24 hours after application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless the manufacturer recommends a longer period.
- D. The concrete substrate shall be properly cured. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure-resistant grout must be installed before the resinous flooring application.

1.7 WARRANTY

- A. The manufacturer shall furnish a single, written warranty covering both material and workmanship for (1) full year from date of installation, or provide a joint warranty signed on a single document by the material manufacturer and applicator jointly and severally warranting the materials and workmanship for (1) full year from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

PART 2 - PRODUCTS

2.1 RESINOUS FLOORING

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include,
 - 1. Build of Broadcast or liquid-rich type systems will not be accepted, and will result in disqualification from the bid.
- B. Acceptable Manufacturers,
 - 1. Stonhard Basis of design.
- C. Products: Subject to compliance with requirements:

1. Stonhard, Inc.; Stoncrete EFX.

D. System Characteristics:

1. Color and Pattern: Choose from Mfg. Standards
2. Wearing Surface: Standard smooth.
3. Integral Cove Base: TBD
4. Overall System Thickness: nominal 3/16" to 1/4"

E. System Components: Manufacturer's standard components that are compatible with each other and as follows:

1. Primer:

- a. Material Basis: Stoncrete Groutcoat
- b. Resin: Epoxy
- c. Formulation Description: (2) two-component, 100 percent solids.
- d. Application Method: Squeegee and roller.
- e. Number of Coats: (1) one.

2. Mortar Base:

- a. Material design basis: Stonclad EFX
- b. Resin: Epoxy.
- c. Formulation Description: (4) four-component, 100 percent solids.
- d. Application Method: Metal/Plastic Trowel.
 - 1) Thickness of Coat: nominal 3/16" (4.76mm) to 1/4 inch (6.4 mm).
 - 2) Number of lifts: One.
- e. Aggregates: Pigmented and natural blended aggregates.

3. Groutcoat:

- a. Material design basis: Stoncrete EFX Groutcoat
- b. Resin: Epoxy.
- c. Formulation Description: (2) two-component 100 percent solids.
- d. Type: clear.
- e. Application Method: Squeegee and loop roller.
- f. Finish: standard.
- g. Number of Coats: one.

1. Sealcoat:

- h. Material design basis: Stonkote CE4
- i. Resin: Epoxy.
- j. Formulation Description: (2) two-component 100 percent solids.
- k. Type: clear.
- l. Finish: standard.
- m. Number of Coats: one.

1. Topcoat:

- n. Material design basis: Stonseal SK6 or Stonseal CF7
- o. Resin: Urethane.
- p. Formulation Description: (2) two-component 100 percent solids.

- q. Type: clear.
- r. Finish: High gloss lightly textured (SK6-GT), Satin micro-texture (SK6-SF), Matte (CF7).
- s. Number of Coats: one (SK6) or two (CF7).

Note: Components listed above are the basis of design intent; all bids will be compared to this standard including resin chemistry, color, wearing surface, thickness, and installation procedures, including the number of coats. The Contractor shall be required to comply with all the requirements of the Specifications and all of the components required by the Specifications, whether or not such products are specifically listed above.

F. System Physical Properties: Provide a resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:

1. Compressive Strength: 10,000 psi after 7 days per ASTM C 579.
2. Tensile Strength: 1,750 psi per ASTM C 307.
3. Flexural Strength: 4,000 psi per ASTM C 580.
4. Flexural Modulus of Elasticity: 2.0×10^6 psi per ASTM C-580
5. Hardness: .85 to .90, Shore D per ASTM D 2240.
1. Impact Resistance: > 160 in. lbs. per ASTM D 2794.
2. Abrasion Resistance: 0.1 gm
3. Flammability: Class 1 per ASTM E-648.
4. Thermal Coefficient of Linear Expansion: 1.4×10^{-5} in./in. °F per ASTM C-531
10. Water Absorption: < 0.2% per ASTM C 413.
11. VOC Content: per ASTM D-2369, Method E.
 - Stoncrete EFX Base; 4 g/l
 - Stoncrete Groutcoat: 52 g/l
 - Stoncoat CE4: 34 g/l
 - Stonseal CF7: 50 g/l
 - Stonseal SK6: 85 g/l
12. Cure Rate @ 75°F/25°C24: hours for normal operations.

2.2 ACCESSORY MATERIALS

- A. Patching, Leveling, and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by the manufacturer for application indicated.
- B. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated. Allowances should be included for Stonflex MP7 joint fill material.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Prepare and clean substrates according to the resinous flooring manufacturer's written instructions for the substrate indicated. Provide a clean, and dry substrate for resinous flooring application.

- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
1. Mechanically prepare substrates as follows:
 - a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup or Diamond grind with a dust-free system.
 2. Repair damaged and deteriorated concrete according to the resinous flooring manufacturer's written recommendations.
 3. Verify that concrete substrates meet the following requirements.
 - a. Perform in situ probe test, ASTM F 2170. Proceed with the application only after substrates do not exceed a maximum potential equilibrium relative humidity of 85 percent.
 - b. Perform an anhydrous calcium chloride test, ASTM F 1869. Proceed with the application only after substrates have a maximum moisture-vapor-emission rate of 6 lb of water/1000 sq. ft. of the slab in 24 hours.
- C. Use patching and fill material to fill holes and depressions in substrates according to the manufacturer's written instructions.
- D. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to the manufacturer's written recommendations. Allowances should be included for Stonflex MP7 joint fill material, and CT5 concrete crack treatment.

3.2 APPLICATION

- A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
1. Coordinate application of components to provide optimum adhesion of resinous flooring system to the substrate, and optimum inter-coat adhesion.
 2. Cure resinous flooring components according to the manufacturer's written instructions. Prevent contamination during application and curing processes.
 3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.
 - a. Apply joint sealant to comply with the manufacturer's written recommendations.
- B. Apply primer where required by the resinous system, over the prepared substrate at the manufacturer's recommended spreading rate.
- C. Integral Cove Base: Stonclad GS mortar, apply cove base mix to wall surfaces before applying the flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, of cove base. Round internal and external corners.

1. Integral Cove Base: <TBD> inches high.
- D. Apply metal trowel single mortar coat in thickness indicated for flooring system. Hand or power trowel and grout to fill voids. When cured, sand to remove trowel marks and roughness.
 - E. Apply topcoat(s) in the number of coats indicated for the flooring system and at spreading rates recommended in writing by the manufacturer.

3.3 TERMINATIONS

- B. Chase edges to "lock" the flooring system into the concrete substrate along lines of termination.
- C. Penetration Treatment: Lap and seal the resinous system onto the perimeter of the penetrating item by bridging over compatible elastomer at the interface to compensate for possible movement.
- A. Trenches: Continue the flooring system into trenches to maintain monolithic protection. Treat cold joints to assure bridging of potential cracks.
- B. Treat floor drains by chasing the flooring system to lock in place at the point of termination.

3.4 JOINTS AND CRACKS

- D. Treat control joints to bridge potential cracks and to maintain monolithic protection.
- E. Treat cold joints and construction joints and to maintain monolithic protection on horizontal and vertical surfaces as well as horizontal and vertical interfaces.
- F. Vertical and horizontal contraction and expansion joints are treated by installing a backer rod and compatible sealant after the coating installation is completed. Provide sealant type recommended by the manufacturer for traffic conditions and chemical exposures to be encountered.

3.5 FIELD QUALITY CONTROL

- A. Material Sampling: Owner may at any time and any numbers of times during resinous flooring application require material samples for testing for compliance with requirements.
 1. The Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in the presence of the Contractor.
 2. An independent testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in the manufacturer's product data.
 3. If test results show that applied materials do not comply with specified requirements, pay for testing, remove non-complying materials, prepare surfaces

coated with unacceptable materials, and reapply flooring materials to comply with requirements.

3.6 CLEANING, PROTECTING, AND CURING

- A. Cure resinous flooring materials in compliance with the manufacturer's directions, taking care to prevent contamination during stages of application and before completion of the curing process. Close area of application for a minimum of 24 hours.
- B. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with the manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection.
- C. Cleaning: Remove the temporary covering and clean resinous flooring just before the final inspection. Use cleaning materials and procedures recommended by the resinous flooring manufacturer. The General Contractor is responsible for cleaning before the inspection.

END OF SECTION 096723