SECTION 090561 – WATER VAPOR EMISSION CONTROL SYSTEM FOR CONCRETE SLABS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Testing and application of systems for the reduction of moisture vapor transmission and alkalinity control for interior concrete slabs scheduled for floor finish of VCT, vinyl flooring, rubber flooring, wood, carpet, and/or epoxy flooring systems.

1.2 RELATED SECTIONS

A. Section 033000 - Cast-In Place Concrete: Installation and curing requirements according to ACI 302.

B. Section 096513 – Rubber stair treads.

C. Section 096520 – Tile Flooring Including Vinyl Enhanced Tile

1.3 REFERENCES

A. American Society of Testing and Materials (ASTM):

1. C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).

2. C 348 - Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars.

3. D 1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes.

4. E 96 - Standard Test Methods for Water Vapor Transmission of Materials.

5. F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Floor Using Anhydrous Calcium Chloride.

6. F 2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

B. International Concrete Repair Institute (ICRI) Guideline No. 03732 - Selecting and Specifying Concrete; Surface Preparation for Sealers, Coatings and Polymer Overlays.

1.4 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Manufacturer's specification.

2. Installation instructions.

3. Independent test data.

4. Certification requirements.

5. Warranty information.

C. Pre-Construction Testing: Submit anhydrous calcium chloride test results. Test shall be

performed according to ASTM F 1869. Test shall be performed by the General Contractor and submitted to the Architect, and manufacture's site representative.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Manufacturer shall have no less than five years experience in manufacturing water vapor reduction systems. The water vapor reduction system shall be specifically formulated and marketed for water vapor reduction and alkalinity control. System design shall provide protection from vapor emission rates less than or equal to 20 pounds per 1000 square feet per 24 hours and/or 98% relative humidity.

B. Installer Qualifications:

   1. Applicator shall be approved by the manufacturer, experienced in surface preparation and application of the material and shall be subject to inspection and control by the manufacturer.

   2. Installer shall have no less than five years experience installing the specified fluid based coating systems.

C. Product Performance History:
   1. Manufacturer shall provide independent lab test reports documenting performance per the following:

      a. ASTM E 96, Water Vapor Transmission (wet methods) Performance shall be documented by an independent testing laboratory indicating a minimum of 90 percent water vapor transmission reduction compared to untreated concrete.
      b. ASTM D 1308; Insensitivity to alkaline environment up to pH 14.
      c. Certify acceptance and exposure to continuous topical water contact after final cure.
   2. Submit list of product use and performance history, for the same formulation and system design, listing reference sources. Similar projects shall have documented minimum initial water vapor transmission rates of 20 lb per 1000 sf per 24 hours to 3 lb per 1000 sf per 24 hours, and have resulted in maintained water vapor reduction rate of less than 3 lb per 1000 sf per 24 hours when tested according to ASTM F1869.

D. Mock-up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

   1. Finish areas designated by Architect.

   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

   3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver products to the job site in their original unopened containers, clearly labeled with the manufacturer's name and brand designation.

B. Store products in an approved ventilated dry area; protect from dampness, freezing, and direct sun light. Product should not be stored in areas with temperatures in excess of 90 degrees F (32 degrees C) or below 50 degrees F (10 degrees C).

C. Handle product in a manner that will prevent breakage of containers and damage products.

1.7 PROJECT CONDITIONS

A. Select a floor covering system scheduled for the treated concrete substrate having the ability to withstand water vapor transmission levels up to 3 lb per 1000 sf (1.5 kg/100 sq. m) /24 hours.

B. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1. Do not apply moisture vapor reduction system to unprotected surfaces or when water is accumulated on the surface of the concrete.

2. Do not apply water vapor reduction system when temperature is lower than 50 degrees F (10 degrees C) or expected to fall below this temperature within 24 hours from time of application.

3. Allow continuous ventilation and indirect air movement at all times during application and curing process of the water vapor reduction system.

4. Protection: Protect water vapor reduction system to prevent damage from active rain or surface water for a minimum of 24 hours from time of application.

1.8 SCHEDULING

A. Before installation of VCT, sheet vinyl, rubber flooring, wood, carpet and/or epoxy flooring systems over the interior concrete slabs, anhydrous calcium chloride testing shall be performed per ASTM F 1869 or ASTM F 2170 by the General Contractor to determine the level of water vapor transmission or relative humidity in the slab and the application rate of the moisture vapor reduction system required.

B. The General Contractor will coordinate the scheduling of the water vapor reduction system testing, allowing adequate time to test, review results and determine the water vapor reduction system application rate before installation of floor finish is required.

C. The General Contractor will allow a reasonable period of time (Minimum of 3 days) for the concrete slab to cure and dry before performing anhydrous calcium chloride tests. All mastics, glues, curing compounds and contaminants shall be removed to provide a clean, sound, concrete substrate prior to performing anhydrous calcium chloride tests.

1.9 WARRANTY

A. Manufacturer shall provide the Owner with a system warranty including adhesives and surface preparation products for a period of no less than ten years at no additional cost.

B. Installer of water vapor reduction system shall provide standard installation warranty for workmanship.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design Manufacturer: CHAPCO / H.B. Fuller Construction Products Inc.: 1105 S. Frontenac Street, Aurora, IL 60504, email: charlie.renner@hbfuller.com, web: http://chapco-adhesive.com

B. Substitutions: As approved by Architect.

2.2 SYSTEM

A. Single Coat System: 2-component, VOC Compliant, Low viscosity, 100 percent solid epoxy formulated as a vapor barrier against high moisture and alkalinity in concrete substrates. The water vapor reduction system shall, after final cure, reduce vapor emissions from a maximum of 98 percent relative humidity and alkalinity reduction to acceptable pH levels.

1. Product: CHAPCO'S DEFENDER as manufactured by CHAPCO / H.B. Fuller Construction Products, Aurora, IL.

2. A Single Coat System consists of one coat of CHAPCO'S DEFENDER coating to be applied to a properly prepared concrete surface at an application rate determined by an anhydrous calcium chloride tests or RH in situ probes.

3. Mix Component A and B at a ratio per manufacturers strict instructions.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Inspect surfaces with manufacturer's representative to determine its suitability to receive the moisture vapor reduction system. Provide an uncontaminated, sound surface.

B. Clean surfaces to receive moisture vapor reduction system. Shot blast floors and clean surfaces to remove residue from the substrate. Remove defective materials, and foreign matter such as dust, adhesives, leveling compounds, paint, dirt, floor hardeners, bond breakers, oil, grease, curing agents, form release agents, efflorescence, laitance, shot blast abrasive residue, etc.

C. Repair cracks, expansion joint, control Joints, and open surface honeycombs.

1. Use CHAPCO'S DEFENDER mixed 1:1 by volume with clean, white fine silica sand. Force mixture into cracks and joints with a trowel or putty knife. Comply with requirements listed in manufacturer's technical data information. No exceptions. Consult with vapor reduction manufacturer.

D. Verify that surfaces to be treated with moisture vapor reduction system have not previously been treated with materials such as underlayments, screeds, penetrating sealants, etc.

1. Consult with vapor reduction system manufacturer prior to application.

E. Verify if concrete additives such as chlorides or other soluble compounds that may contaminate surfaces have been used in the concrete mix.

1. Consult with vapor reduction system manufacturer prior to application.

F. Do not acid etch surface.

G. Verify that the substrate surface does not deteriorate due to the presence of sulphurous compounds or alkaline aggregate/silica reaction encountered in certain areas.

1. Consult with vapor reduction system manufacturer prior to application.

2. Testing for concrete deficiencies / contamination such as alkaline silica reaction, untreated silicates, organic residue, etc. is the responsibility of the General Contractor.

H. The surface substrate shall remain uncontaminated, absorptive, and sound prior to receiving a water vapor reduction system. Comply with all requirements as listed in manufacturer's technical data information. No exceptions.

3.3 APPLICATION

A. Single Coat System Application:

1. The coverage rates for the Single Coat System are dependant on the surface texture and porosity of the substrate.

2. Required Application Rate Relative to Existing Levels of Moisture Vapor to Achieve 3 lb/1000 sf / 24 hours Moisture Levels:

a. Up to 20 lb/1000 sf / 24 hr: 130-180 s / gallon.

3. Apply one coat of CHAPCO'S DEFENDER™ Moisture Vapor Barrier using a squeegee. Allow 5 minutes for surface to "off gas". Back roll CHAPCO'S DEFENDER with a 3/8 inch (9.5 mm) nap roller to achieve uniform, continuos application of membrane. Allow the minimum cure time before installing the finish flooring.

3.4 TESTING

A. Initial Tests:

1. Anhydrous calcium chloride testing shall be performed by the installer.

2. Provide initial anhydrous calcium chloride tests according ASTM F 1869 to the prepared concrete surfaces. Tests shall be performed on properly prepared concrete. No exceptions!

3. Conduct calcium chloride tests at the same temperature and humidity as designed normal occupancy. If this is not possible, test conditions shall be 75 degrees F +/-10 degrees (24 degree C +/- 5 degrees) and 50 percent +/-10 percent relative humidity. Maintain these conditions 48 hours prior to and during tests. Water vapor transmission levels are directly affected by ambient room temperature and readings conducted without a sustained ambient temperature are not acceptable.

4. Installer shall provide test results with a marked up floor finish plan showing test results. General Contractor shall provide a written clarification on status of the ambient air temperature and humidity before and during the testing procedures.

5. Installer shall provide a marked up floor plan showing areas with vapor reduction system recommendations.

B. Post-Treatment / Pre-Flooring Tests:

1. Before installation of VCT, sheet vinyl, rubber flooring, wood, carpet, and / or epoxy flooring systems and after proper cure of the final coat of the water vapor reduction system provide anhydrous calcium chloride tests according ASTM F 1869. Allow the vapor mitigation system to cure 72 hours before performing test. Water vapor transmission and alkalinity tests shall be performed on properly treated concrete. No exceptions!

2. The installer shall provide test results of the level of water vapor transmission and alkalinity of the concrete slab to all parties involved. The flooring manufacturer and installer shall accept the floor condition and certify that the flooring application materials and methods are compatible with the test results and floor condition.

C. Adhesion

1. The flooring installer shall verify the usage of CHAPCO Multipurpose Primer prior to the installation of any patches or floor prep materials. Non permeable flooring systems require the application of a cementitious skim coat, such as CHAPCO SmoothFinish™, entirely covering CHAPCO'S DEFENDER and Multipurpose Primer prior to the installation of Floor Covering.

3.5 CLEANING

A. Remove all debris resulting from water vapor reduction system installation from project site.

3.6 PROTECTION

A. Protect each coat during specified cure period from any kind of traffic, topical water and contaminants.

END OF SECTION 090561

SECTION 092900 – GYPSUM BOARD

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

1. Interior gypsum board.

2. Exterior gypsum board for ceilings and soffits.

B. Related Requirements:

1. Section 061000 "Rough Carpentry"

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

2. Textured Finishes: Manufacturer's standard size for each textured finish indicated and on same backing indicated for Work.

1.04 QUALITY ASSURANCE

A. Mockups: Before beginning gypsum board installation, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Install mockups for the following:

a. Each level of gypsum board finish indicated for use in exposed locations.
b. Each texture finish indicated.

2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.

3. Simulate finished lighting conditions for review of mockups.

4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.05 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.06 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Moisture- and Mold-Resistant Assemblies: Provide and install moisture- and mold-resistant glass-mat gypsum wallboard products with moisture-resistant surfaces complying with ASTM C 1658 and ASTM C 1177 where indicated on Drawings and in all locations which might be subject to moisture exposure during construction.Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

C. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

D. Low-Emitting Materials: For ceiling and wall assemblies, provide materials and construction identical to those tested in assembly and complying with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.02 GYPSUM BOARD, GENERAL

A. Recycled Content of Gypsum Panel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 50 percent.

B. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.03 INTERIOR GYPSUM BOARD

A. Basis-of-Design Product: The design for each type of gypsum board and related products is based on Georgia-Pacific Gypsum products named. Subject to compliance with requirements, provide the named product or a comparable product by one of the following:

1. American Gypsum.
2. CertainTeed Corp.
3. Lafarge North America Inc.
4. National Gypsum Company.
5. PABCO Gypsum.
6. Temple-Inland.
7. USG Corporation.

B. Gypsum Wallboard: ASTM C 1396/C 1396M.

1. Basis-of-Design Product: Georgia-Pacific Gypsum; DensArmor Plus High-Performance Interior Panel.
2. Thickness: 1/2 inch.
3. Long Edges: Tapered.

C. Gypsum Board, Type X: ASTM C 1396/C 1396M.

1. Basis-of-Design Product: Georgia-Pacific Gypsum; DensArmor Plus Fireguard High-Performance Interior Panel.
2. Thickness: 5/8 inch.
3. Long Edges: Tapered.

D. Abuse-Resistant Gypsum Board: ASTM C 1629/C 1629M.

1. Basis-of-Design Product: Georgia-Pacific Gypsum; DensArmor Plus Abuse-Resistant Panel
2. Thickness: 5/8 inch.
3. Long Edges: Tapered.

E. Impact-Resistant Gypsum Board: ASTM C 1629/C 1629M.

1. Basis-of-Design Product: Georgia-Pacific Gypsum; DensArmor Plus Impact-Resistant Panel.
2. Thickness: 5/8 inch.
3. Long Edges: Tapered.
4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.04 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized steel sheet.

2. Shapes:
   a. Cornerbead.
   b. Bullnose bead.

c. LC-Bead: J-shaped; exposed long flange receives joint compound.
d. L-Bead: L-shaped; exposed long flange receives joint compound.
e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
f. Expansion (control) joint.

B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Fry Reglet Corp.
b. Gordon, Inc.
c. Pittcon Industries.

2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.

3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.05 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Exterior Gypsum Soffit Board: Paper.
3. Exterior Glass Mat Gypsum Soffit: Fiberglass mesh.
4. Glass-Mat Gypsum Wallboard: 10-by-10 fiberglass meh.
5. Glass-Mat Gypsum Sheathing Board: 10-by-10 fiberglass mesh.
6. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints rounded or beveled panel edges and damaged surface areas, use setting-type taping compound.

a. Basis-of-Design Product: Georgia-Pacific Gypsum; ToughRock Setting Compound or ToughRock Sandable Setting Compound.

2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping or drying-type, all-purpose compound.

a. Basis-of-Design Product: Georgia-Pacific Gypsum; ToughRock Setting Compound, ToughRock Sandable Setting Compound, ToughRock Ready Mix All-Purpose Joint Compound.
b. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use setting-type, sandable topping or drying-type, all-purpose compound.

    a. Basis-of-Design Product: Georgia-Pacific Gypsum; ToughRock Setting Compound, ToughRock Sandable Setting Compound, ToughRock Ready Mix All-Purpose Joint Compound, ToughRock Ready Mix Topping Joint Compound.

4. Finish Coat: For third coat, use setting-type, sandable topping or drying-type, all-purpose compound.

    a. Basis-of-Design Product: Georgia-Pacific Gypsum; ToughRock Setting Compound, ToughRock Sandable Setting Compound, ToughRock Ready Mix All-Purpose Joint Compound, ToughRock Ready Mix Topping Joint Compound.

5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound, drying-type, all-purpose compound, high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

    a. Basis-of-Design Product: Georgia-Pacific Gypsum; ToughRock Setting Compound, ToughRock Sandable Setting Compound, ToughRock Ready Mix All-Purpose Joint Compound, ToughRock Ready Mix Topping Joint Compound.

2.06 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

1. Laminating adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2. Laminating adhesive shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.

2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

2. Recycled Content of Blankets: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 50 percent.

E. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
b. Grabber Construction Products; Acoustical Sealant GSC.
c. Pecora Corporation; [AC-20 FTR] [AIS-919].
d. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
e. USG Corporation; SHEETROCK Acoustical Sealant.

2. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

3. Acoustical joint sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.

2. Fit gypsum panels around ducts, pipes, and conduits.

3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.03 APPLYING INTERIOR GYPSUM BOARD

A. Install interior gypsum board in the following locations:

1. Wallboard Type: As indicated on Drawings.

2. Type X: As indicated on Drawings.

3. Abuse-Resistant Type: As indicated on Drawings.

4. Impact-Resistant Type As indicated on Drawings.

B. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.

2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
    b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.

3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.

4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.

2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.

3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.

4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.04 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners unless otherwise indicated.

2. Bullnose Bead: Use at outside corners.

3. LC-Bead: Use at exposed panel edges.

4. L-Bead: Use where indicated.

5. U-Bead: Use at exposed panel edges.

3.05 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints rounded or beveled edges and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.

2. Level 2: Panels that are substrate for tile.

3. Level 3: Where indicated on Drawings.

4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
   a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

5. Level 5: Where indicated on Drawings.
   a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.06 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093019 – PORCELAIN WALL TILE

PART 1 - GENERAL

1.1 SUMMARY

1.2 SECTION INCLUDES

A. Porcelain wall tile

1.3 REFERENCE STANDARDS

A. ANSI A108.1A -- American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar.

B. ANSI A108.4 -- Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile Setting Epoxy Adhesive.

C. ANSI A108.6 -- Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy.

D. ANSI A108.10 -- Installation of Grout in Tilework.

E. ANSI A118.3 -- American National Standard Specifications for Chemical Resistant, Water Cleanable Tile Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive.

F. ANSI A118.6 -- American National Standard Specifications for Ceramic Tile Grouts.

G. ANSI A118.8 -- American National Standard Specifications for Modified Epoxy Emulsion Mortar/Grout.

H. ANSI A136.1 -- American National Standard for Organic Adhesives for Installation of Ceramic Tile.

I. ANSI A137.1 -- American National Standard Specifications for Ceramic Tile.

J. ASTM A 82 -- Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

K. ASTM A 185 -- Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.

L. ASTM C 503 -- Standard Specification for Marble Dimension Stone (Exterior).

M. ASTM C 920 -- Standard Specification for Elastomeric Joint Sealant.

N. ASTM E 90 -- Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

O. Handbook for Ceramic Tile Installation; Tile Council of America, Inc. (TCA).

1.4 SUBMITTALS

A. Submit samples of each type/style/finish/size/color of porcelain tile under provisions of Section 013300 & 014000.

B. Submit the following Samples for Verification Purposes:

1. Submit each tile type selected mounted on a minimum 24-inch square board with joints filled using selected grout.
2. Trim and accessories: Samples of actual units in selected color.
3. Saddles and/or thresholds: 6-inch-long samples.
4. Edge strips: 6-inch long samples.

C. Submit manufacturers' installation instructions under provisions of Section 013300 & 014000.

D. Shop Drawings: Showing tile layout and details of expansion joints in tile work and underlying construction.

E. Submit manufacturer's certification that materials supplied conform to ANSI A137.1.

F. Submit proof of warranty.

G. Qualifications Documentation: Written confirmation that companies executing work in this section comply with experience requirements.

1.5 QUALITY ASSURANCE

A. Tile Manufacturer: Company or Affiliate Company specializing in ceramic tile, mosaics, pavers, trim units and/or thresholds with five (5) years minimum experience. Obtain tile from a single source with resources to provide products of consistent quality in appearance and physical properties.

B. Installer: A company with not less than (20) installations of tile work similar in size and complexity to the work of this project.

1.6 MOCK-UPS

A. Provide mock-up of each type/style/finish/size/color of ceramic tile, mosaics, pavers, trim unit and threshold, along with respective installation adhesives, mortars, grouts and other installation materials, under provisions of Section 013300 & 014000.

1.7 PRE-INSTALLATION CONFERENCE

A. Pre-installation conference: At least three weeks prior to commencing the work attend a meeting at the jobsite to discuss conformance with requirements of specification and job site conditions.

B. Representatives of owner, architect, general contractor, tile subcontractor, and any other parties who are involved in the scope of this installation must attend the meeting.

1.8 DELIVERY, STORAGE AND HANDLING

A. Acceptance at Site: deliver and store packaged materials in original containers with seals unbroken and labels, including grade seal, intact until time of use, in accordance with manufacturer's instructions.

B. Store porcelain tile and installation system materials in a dry location; handle in a manner to prevent chipping, breakage, and contamination.

1.9 MAINTENANCE

A. Submit maintenance data under provisions of Section 01730. Include cleaning methods, cleaning solutions recommended, stain removal methods, as well as polishes and waxes recommended.

1.10 EXTRA MATERIALS STOCK

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

PART 2 - PRODUCTS

2.01 TILE MANUFACTURERS

Basis of Design: Provide products by the following manufacturers or a preapproved equivalent:

A. Manufacturer: Aphelion Collection
Phone: 844-245-0686
Email: sales@aphelioncollection.com
Website: www.aphelioncollection.com
B. Contact: Christopher Capobianco – Spartan Surfaces
christpher@spartansurfaces.com

2.02 WALL TILE

A. Brand: Aphelion
B. Style: Bianca
C. Colors: Jupiter, Atmosphere, Interstellar, Titan, Stardust
D. Finish: matte
E. Field tile sizes: 6” x 24, 12” x 24”
F. Trim: Bullnose 3” x 12”

2.03 SETTING MATERIALS

C. Portland Cement Mortar Installation Materials: ANSI A108.1A.

1. Setting bed reinforcing: Galvanized welded wire fabric, 2 inches by 2 inches, ASTM A 185; with W0.3 by W0.3, 0.0625 inch diameter, wire, ASTM A 82 except for minimum wire size.

B. Chemical-Resistant, Water-Cleanable Porcelain Tile Setting and Grouting Epoxy: ANSI A118.3.

1. Service temperature: Product recommended and certified by manufacturer to resist anticipated ambient temperature range, but not less than 140 F degrees on a continuous basis.

2. Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
a. American Olean Tile Company.
b. Boiardi Products Corporation.
c. C-Cure Corporation.
d. Mapei Corporation.
e Laticrete International, Inc.
f. Southern Grouts & Mortars, Inc.
g. Summitville Tiles, Inc.
h. Tamms Industries.

C. Organic Adhesive: ANSI A136.1 for Type I and Type II, as each applies to the indicated installation.

1. Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
   a. American Olean Tile Company.
   b. Boiardi Products Corporation.
   c. Bostik Inc.
   d. Custom Building Products.
   e. C-Cure Corporation.
   f. Tec Incorporated/H. B. Fuller Company.
   g. Jamo, Inc.
   h. Mapei Corporation.
   i. Southern Grouts & Mortars, Inc.
   j. Tamms Industries.

2.04 WATERPROOFING MATERIALS

A. Sheet Membrane: 0.030 inch thick chlorinated polyethylene (CPE) sheet with nonwoven polyester laminated to both sides, 60 inches wide.

1. Products: The following products, provided they comply with requirements of the contract documents, will be among those considered acceptable:
   a. "NobleSeal TS"; The Noble Company.
   b. "Dal-Seal TS"; Dal-Tile Corporation.
   c. “Redgard” by Custom Building Products

2.05 GROUTING MATERIALS

A. Sand-Portland Cement Grout: ANSI A108.10.

B. Chemical-Resistant Epoxy Grout: ANSI A118.3.

1. Service temperature: Product recommended and certified by manufacturer to resist anticipated ambient temperature range, but not less than 140 F degrees on a continuous basis.

2. Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
   a. American Olean Tile Company.
   b. Atlas Mineral & Chemicals, Inc.
   c. Boiardi Products Corporation.
   d. Bostik Inc.
   e. C-Cure Corporation.
   f. Mapei Corporation.
   g. Laticrete International, Inc.
   h Southern Grouts & Mortars, Inc.
   i. Summitville Tiles, Inc.
   j. Tamms Industries.

2.06 ELASTOMERIC SEALANTS

A. Compatibility: Provide sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates for project performance conditions.

B. Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and O (for nonporous substrates) with added fungicide.
   1. Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
      a. Dow Corning Corporation.
      b. GE Silicones.
      c. Pecora Corporation.
      d. Tremco, Inc.

C. Urethane Sealant: ASTM C 920, Grade P; Class 25; Uses T, M, and A.

   1. Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
      a. Bostik Inc.
      b. Mameco International, Inc.
      c. Pecora Corporation.
      d. Tremco, Inc.

D. Chemical-Resistant Sealants: Sealants recommended by tile setting materials manufacturer to be compatible with and have similar chemical resistant performance as the chemical-resistant mortar and grout.

   1. Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
      a. Atlas Mineral & Chemicals, Inc.

2.07 MISCELLANEOUS MATERIALS

A. Edge strips; fabricated from the following material with 1/8 inch wide exposed edge, and means for securing strip to substrate:

   1. Zinc alloy.
   2. Stainless steel.

B. Tile Cleaner: Product specifically acceptable to tile manufacturer and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation or Ceramic Tile Institute.

   1. Manufacturers: Products of the following manufacturers, provided they comply with requirements of the contract documents, will be among those considered acceptable:
      a. Hillyard, Inc.
      b. Mapei Corporation.

2.08 MIXING MORTAR AND GROUT

A. Mix mortar and grout to comply with referenced standards and manufacturer's mixing procedures.

PART 3 – EXECUTION

3.1 SUBSTRATE EXAMINATION

A. Verify that surfaces to be covered with tie are:

1. Sound, rigid and conform to good design/engineering practices;

2. With maximum deflection under all live, dead and impact loads, including concentrated loads, of L/360 for ceramic tile, mosaics, pavers or brick;

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

4. Not leveled with gypsum or asphalt-based compounds;

5. In accordance with ANSI 108.01 – Subsurfaces and Preparation by Other trades.

3.2 SURFACE PREPARATION

A. GENERAL PREPARATION

1. Building temperature of 70^0F to have been maintained for 5 days prior to the start of installation and all material is to have been acclimatized in the building for 72 hours.

3.3 INSTALLATION – TILE

A. General: Install in accordance with current versions of American National Standards Institute, Inc. (ANSI) “A108 American National Standard for Installation of Ceramic Tile” and TCA “Handbook for Ceramic Tile Installation both to be the most current version.” Cut and fit ceramic tile, brick or stone neatly around corners, fittings, and obstructions. Perimeter pieces to be minimum half tile, brick or stone. Chipped, cracked, split pieces and edges are not acceptable. Make joints even, straight, plumb and of uniform width to tolerance +/- 1/16 over 8' (1.5mm in 2.4m). Install divider strips at junction of flooring and dissimilar materials.

B. Per Tile Council of North America (TCNA) Handbook.

C. Tile to be installed in a running bond offset at a maximum of 33% with minimum 3/16” grout joint.

3.5 CLEANING

A. Clean excess mortar/epoxy from veneer surfaces with water before they harden and as work progresses. Do not contaminate open grout/caulk joints while cleaning. Sponge and wash veneers diagonally across joints. Do not use acids for cleaning. Polish with clean dry cloth. Remove surplus materials and leave premises broom clean.

B. Follow manufacturer’s recommendation for protection during installation and grouting as well as recommendations for routine and heavy-duty maintenance of porcelain tiles.

PART 4 – HEALTH AND SAFETY

A. The use of personal protection such as rubber gloves, suitable dust masks, safety glasses and industrial clothing is highly recommended. Discarded packaging, product wash and waste water should be disposed of as per local, state or federal regulations.

END OF SECTION 093019

SECTION 095000 – DIRECT APPLY ACCOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes

1. Acoustical ceiling panels
2. Fasteners

B. Related Sections

1. Section 09 51 13 - Acoustical Ceilings
2. Section 09 8439 – Acoustical Ceiling Clouds
5. Divisions 23 - HVAC Air Distribution
6. Division 26 - Electrical

C. Alternates

1. As approved by Architect per Division 1 requirements.

1.3 REFERENCES

American Society for Testing and Materials (ASTM):

1)ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

2)ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

3)ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

4)ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems

5)ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum

6)ASTM E 1264 Classification for Acoustical Ceiling Products

International Building Code

ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality

NFPA 70 National Electrical Code

ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010

LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings

International Well Building Standard

Mindful Materials

Living Building Challenge

U.S. Department of Agriculture BioPreferred program (USDA BioPreffered).

1.4 SYSTEM DESCRIPTION

Exposed Structure

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.

B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel.

C. Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.

D. Acoustical Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

a. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.6 SUSTAINABLE MATERIALS

Transparency: Manufacturers will be given preference when they provide documentation to support sustainable requirements for the following: Material ingredient transparency, Removal of Red List Ingredients per LBCV3, Life Cycle impact information, Low-Emitting Materials, and Clean Air performance.

1. Health Product Declaration. The end use product has a published, complete Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.

2. Declare Label. The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Free or Compliant (less than 1% proprietary ingredients).

3. Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide emissions data showing their products meet CDHP Standard Method v1.1 (Section 01350).

4. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.

5. End of Life Programs/Recycling: Where applicable, manufacturers that provide the option for recycling of their products into new products at end-of-life through take-back programs will be preferred.

6. Products meeting LEED V4 requirements including:

Storage & Collection of Recyclables

Construction and Demolition Waste Management Planning

Building Life-Cycle Impact Reduction

Building Product Disclosure and Optimization Environmental Product Declarations

Building Product Disclosure and Optimization Sourcing of Raw Materials

Building Product Disclosure and Optimization Material Ingredients

Construction and Demolition Waste Management

1.7 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

1. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

2. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.

B. Acoustical Panels: As with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.

C. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.9 PROJECT CONDITIONS

A. Site Conditions: Ensure site condition relative humidity is less than 70%. Building areas to receive ceilings shall be free of construction dust and debris. The area of installation, adhesive, and panels should be conditioned at 65°F or above for 48 hours prior, during, and 48 hours after the installation is complete.

B.: Lyra PB panels attached to the deck with adhesives must be installed where the building is enclosed and the HVAC system is functioning and in continuous operations for the life of the product. All wet work (plastering, concrete, etc.) must be complete and dry. These products are not recommended for exterior applications where standing water is present, or where moisture will come into direct contact with the ceiling.

1.10 ALTERNATE CONSTRUCTION WASTE DISPOSAL

A. Ceiling material being reclaimed must be kept dry and free from debris.

B. Contact the Armstrong Recycle Center a consultant will verify the condition of the material and that it meets the Armstrong requirements for recycling. The Armstrong consultant with provide assistance to facilitate the recycling of the ceiling.

C. Recycling may qualify for LEED Credits:

a. LEED 2009 - Category 4: Material and Resources (MR)

i. Credit MRc2: Construction Waste Management

b. LEEDv4 - MRp2 - Construction Waste Management Planning Qualifies as a material stream (non-structural) targeted for diversion. Ceilings will be source-separated and diverted through the Armstrong Ceiling Recycling Program.

c. LEEDv4-MRc5 -

i. Option 1: Divert ceilings to qualify for one of the 3 material streams (50%)

ii. Option 2: Divert ceilings to qualify for one of the 4 material streams (75%)

1.11 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:

1. Acoustical Panels: Sagging and warping

B. Warranty Period:

1. Acoustical panels: Ten (10) years from date of substantial completion

C. the Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.12 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Ceiling:

1. Armstrong World Industries, Inc. Lyra PB Direct-Apply Panel

2.2.1 ACOUSTICAL CEILING UNITS

1. Surface Texture: Smooth
2. Composition: Fiberglass Plant Based
3. Color: White
4. Size(inches): As shown on plans (24 x 96 x 1 item)
5. Edge Profile: Square Edge, Painted Edge
6. Noise Reduction Coefficient(NRC): 0.80 installed with A moulding (direct to hard surface)
7. Ceiling Attenuation Class (CAC) :
8. Sabin: N/A
9. Flame Spread: ASTM E 1264; Class A (UL)
10. Light Reflectance (LR) White Panel: ASTM E 1477; 0.88
11. Dimensional Stability: HumiGuard Plus
12. Recycle Content: Post-Consumer - 12% Pre-Consumer - 59%
13. Material Ingredient Transparency: Health Product Declaration (HPD); Declare Label
14. Life Cycle Assessment: Third Party Certified Environment Product Declaration (EPD)
15. Acceptable Product: Armstrong LYRA Plant Based (PB) Direct-Apply as manufactured by Armstrong World Industries

B. Accessories

1. Recommended Adhesive (by other) –Titebond ® GREENchoice Acoustical Ceiling Tile Adhesive

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations. (Exception: HumiGuard Max Ceilings)

3.2 PREPARATION

A. Area Preparation: Surfaces must be dry and free of dust, grease, oil, dirt or any other material that may deter adhesion. If the paint is flaking or peeling it must be removed. Existing finish paint must be well-bonded and not flaking or peeling.

B. Painted Surfaces: Avoid applying to a newly painted ceiling. Glossy painted surfaces must be abraded. For painted or sealed surfaces, install a small test area and observe after 12 hours. For plaster ceilings, plaster must be painted, non-chipping, and smooth.

C. Surface Flatness: To ensure a finished installation that is level, it is recommended that the ceiling surface for attachment be free of irregularities and be level within 1/4" in 12'

D. Panel Layout: Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.

E. Coordination: Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 INSTALLATION

A. Follow manufacturer installation instructions.

B. Replace damaged and broken panels.

C. Clean exposed surfaces of acoustical ceilings. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

END OF SECTION 095000

SECTION 095113 – ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes acoustical tiles for ceilings and the following:

1. Concealed suspension systems.

B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete at ceilings.

1.03 DEFINITIONS

A. CAC: Ceiling Attenuation Class.

B. LR: Light Reflectance coefficient.

C. NRC: Noise Reduction Coefficient.

1.04 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:

1. Ceiling suspension assembly members.

2. Method of attaching hangers to building structure.

a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.

3. Size and location of initial access modules for acoustical tile.

4. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

5. Minimum Drawing Scale: 1/8 inch = 1 foot (1:96).

C. Samples for Initial Selection: For components with factory-applied color finishes.

D. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.

1. Acoustical Tile: Set of full-size Samples of each type, color, pattern, and texture.

2. Concealed Suspension System Members: 12-inch- (300-mm-) long Sample of each type.

3. Exposed Moldings and Trim: Set of 12-inch- (300-mm-) long Samples of each type and color.

E. Qualification Data: For testing agency.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical tile ceiling.

G. Research/Evaluation Reports: For acoustical tile ceiling and components and anchor type.

H. Maintenance Data: For finishes to include in maintenance manuals.

1.05 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications: An independent testing laboratory, or an NVLAP-accredited laboratory, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548. NVLAP-accredited laboratories must document accreditation, based on a "Certificate of Accreditation" and a "Scope of Accreditation" listing the test methods specified.

B. Source Limitations:

1. Acoustical Ceiling Tile: Obtain each type through one source from a single manufacturer.

2. Suspension System: Obtain each type through one source from a single manufacturer.

C. Acoustics: Acoustical Ceiling Tiles provided for classrooms and meeting rooms shall have a minimum NRC rating of .65

D. Fire-Test-Response Characteristics: Provide acoustical tile ceilings that comply with the following requirements:

1. Fire-Resistance Characteristics: Where indicated, provide acoustical tile ceilings identical to those of assemblies tested for fire resistance per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

a. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
b. Identify materials with appropriate markings of applicable testing and inspecting agency.

2. Surface-Burning Characteristics: Provide acoustical tiles with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:

a. Smoke-Developed Index: 450 or less.

E. Seismic Standard: Provide acoustical tile ceilings designed and installed to withstand the effects of earthquake motions according to the following:

1. 2015 International Building Code New York Edition.

F. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.

1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

G. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical tiles, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical tiles, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical tiles carefully to avoid chipping edges or damaging units in any way.

1.07 COORDINATION

A. Coordinate layout and installation of acoustical tiles and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.08 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Ceiling Units: Full-size units equal to 5.0 percent of quantity installed.

2. Suspension System Components: Quantity of each concealed grid and exposed component equal to 2.0 percent of quantity installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:

1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.02 ACOUSTICAL TILES, GENERAL

A. Acoustical Tile Standard: Provide manufacturer's standard tiles of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.

1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface per ASTM E 795.

B. Acoustical Tile Colors and Patterns: Match appearance characteristics indicated for each product type.

1. Where appearance characteristics of acoustical tiles are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

C. Tile-Based Antimicrobial Treatment: Provide acoustical tiles treated with manufacturer's standard antimicrobial solution that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria.

D. All finishes as scheduled on Drawing A5.00 for ceiling types.

2.03 ACOUSTICAL TILES TYPES

A. Refer to Drawing A5.00 for Ceiling Types.

2.04 METAL SUSPENSION SYSTEMS

A. Components: Main beams and cross tees, base metal and end detail, fabricated from commercial quality hot dipped galvanized steel complying with ASTM A 653. Main beams and cross tees are double-web steel construction with exposed flange design. Exposed surfaces chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.

1. Structural Classification: ASTM C 635 Intermediate Duty.

2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise in specifications or on drawings.

B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft annealed, with a yield stress load of at least time three design load, but not less than 12 gauge.

D. Basis of Design Product:

E. Prelude XL 15/16" Exposed Tee as manufactured by Armstrong World Industries.

F. Basis of Design Product: Superfine 9/16” Exposed Tee as manufactured by Armstrong World Industries.

G. Basis of Design Product: Armstrong Drywall Grid Suspension System.

H. Or Equal Products by the following:

1. Chicago Metallic Corporation.
2. Fry Reglet Corporation.
3. Gordon, Inc.
4. MM Systems, Inc.
5. USG Interiors, Inc.

I. Roll-Formed Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical tile edge details and suspension systems indicated; formed from sheet metal of same material and finish as that used for exposed flanges of suspension system runners.

1. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

J. Extruded-Aluminum Edge Moldings and Trim: Where indicated, provide manufacturer's extruded-aluminum edge moldings and trim of profile indicated or referenced by manufacturer's designations, including splice plates, corner pieces, and attachment and other clips, complying with the following requirements:

1. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating, and painting.

a. Organic Coating: Thermosetting, enamel primer/topcoat system with a minimum dry film thickness of 0.8 to 1.2 mils (0.02 to 0.03 mm).

2.05 ACOUSTICAL SEALANT

A. Products:

1. Acoustical Sealant for Exposed and Concealed Joints:

a. Pecora Corp; AC-20 FTR Acoustical and Insulation Sealant.
b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

2. Acoustical Sealant for Concealed Joints:

a. OSI Sealants, Inc.; Pro-Series SC-170 Rubber Base Sound Sealant.
b. OSI Sealants, Inc.; Pro-Series SC-175 Rubber Base Sound Sealant.
c. Pecora Corp.; BA-98.
d. Tremco, Inc.; Tremco Acoustical Sealant.

B. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), complying with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

2.06 MISCELLANEOUS MATERIALS

A. Tile Adhesive: Type recommended by tile manufacturer, bearing UL label for Class 0-25 flame spread.

1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Staples: 5/16-inch- (8-mm-) long, divergent-point staples.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing and substrates to which acoustical tile ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical tile ceilings.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Testing Substrates: Before installing adhesively applied tiles on wet-placed substrates such as cast-in-place concrete or plaster, test and verify that moisture level is below tile manufacturer's recommended limits.

B. Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders, and comply with layout shown on reflected ceiling plans.

3.03 INSTALLATION, SUSPENDED ACOUSTICAL TILE CEILINGS

A. General: Install acoustical tile ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

3. Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

4. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension

members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.

5. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.

6. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both structure to which hangers are attached and type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.

7. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.

8. Do not attach hangers to steel deck tabs.

9. Do not attach hangers to steel roof deck. Attach hangers to structural members.

10. Space hangers not more than 48 inches (1200 mm) o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches (200 mm) from ends of each member.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

D. Install edge moldings and trim of type indicated at perimeter of acoustical tile ceiling area and where necessary to conceal edges of acoustical units.

1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

2. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.66 m). Miter corners accurately and connect securely.

3. Do not use exposed fasteners, including pop rivets, on moldings and trim.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Arrange directionally patterned acoustical tiles as follows:

1. As indicated on reflected ceiling plans.

2. Install tiles with pattern running in one direction parallel to long axis of space.

3. Install tiles with pattern running in one direction parallel to short axis of space.

4. Install tiles in a basket-weave pattern.

G. Install acoustical tiles in coordination with suspension system and exposed moldings and trim. Place splines or suspension system flanges into kerfed edges so tile-to-tile joints are closed by double lap of material.

1. Fit adjoining tile to form flush, tight joints. Scribe and cut tile for accurate fit at borders and around penetrations through tile.

2. Hold tile field in compression by inserting leaf-type, spring-steel spacers between tile and moldings, spaced 12 inches (305 mm) o.c.

3. Protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.

3.04 CLEANING

A. Clean exposed surfaces of acoustical tile ceilings, including trim and edge moldings. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace tiles and other ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 095133 – ACOUSTICAL METAL PAN CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes:
    1. Metal ceiling panels.
    2. Exposed grid suspension system.
    3. Wire hangers, fasteners, main runners, cross tees, wall angle moldings and accessories.
B. Related Sections:
    1. Section 09 51 13 - Acoustical Ceilings
    2. Section 09 29 00 - Plaster and Gypsum Board
    3. Divisions 23 Sections - HVAC
    4. Division 26 Sections - Electrical Work
C. Alternates
    1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products which have not been approved by Addenda, the specified products shall be provided without additional compensation.
    2. Submittals which do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Factory Mutual classified acoustical performance, panel design, size, composition, color, and finish; suspension system component profiles and sizes; compliance with the referenced standards.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
    1. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
    2. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot- Dip Process.
    3. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
    4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
    5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
    6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
    7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
    8. ASTM E 1264 Classification for Acoustical Ceiling Products.

9. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of ceiling unit and suspension system required.
B. Installation Instructions: Submit manufacturer's installation instructions as referenced in Part 3, Installation.
C. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
D. Shop Drawings: Layout and details of ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
E. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC and AC.
F. If the material supplied by the acoustical subcontractor does not have a Factory Mutual classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.5 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide ceiling panel units and grid components by a single manufacturer.
B. Fire Performance Characteristics: Identify ceiling components with appropriate markings of applicable testing and inspecting organization.
    1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
        a. Flame Spread: 25 or less
        b. Smoke Developed: 50 or less
C. Coordination of Work: Coordinate ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store the ceiling panels in a dry, interior location and keep in cartons prior to installation to avoid damage.
B. Exercise care in moving and opening cartons to prevent damage to the panel face.

1.7 WARRANTY

A. Ceiling Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to:
    1. Ceiling Panels: Sagging and warping
    2. Grid System: Rusting and manufacturer's defects
B. Warranty Period:
    1. Ceiling panels: One (1) years from date of substantial completion.
    2. Grid: Ten (10) years from date of substantial completion.

C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.8 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
   1. Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
   2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

2.1 MANUFACTURERS

A. Ceiling Panels and Suspension Systems:
   1. Armstrong World Industries, Inc.

2.2 METAL CEILINGS PANELS

A. Metal Ceiling Panels

1. Acceptable Product: MetalWorks Tin, Item# 56007, as manufactured by Armstrong World Industries.
2. Surface Texture: Smooth
3. Material: Metal
4. Surface Finish: Tin White
5. Size: 24inch X 48inch Nail Up
6. Edge Profile: 24inch X 48inch Nail Up
7. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, (N/A Unperforated)
8. Flame Spread: ASTM E 1264; Class A (FM)
9. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.77 (White Only)
10. Dimensional Stability: Standard

B. Border/Fillers

1. Acceptable Product: MetalWorks Tin, Item# 6575 Nail-up Borders/Fillers, as manufactured by Armstrong World Industries.

C. Cornices

1. Acceptable Product: MetalWorks Tin, Item# 56055 Nail-up cornice, as manufactured by Armstrong World Industries.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.

3.3 INSTALLATION

A. Install suspension system and panels in compliance with ASTM C636, with the authorities having jurisdiction, and in accordance with the manufacturer's installation instructions:
    1. MetalWorks Tin Installation Instructions, LA-297442.
        a. 24inch X 48inch panels are for nail up installation. Refer to MetalWorks Tin Installation Instructions, LA-297442.
B. Suspend main beam from overhead construction with hanger wires spaced 4 feet on center along the length of the main runner. Install hanger wires plumb and straight.
C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.

3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.
B. Clean exposed surfaces of ceilings panels, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095133

SECTION 096240 – MODULAR ATHLETIC FLOORING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope

1. The complete installation of modular sports surfacing system including the interlocking suspended high-impact polypropylene copolymer tile of proprietary formulation, supportive acoustical/resilient underlayment and striping.

B. Related work specified under other sections.

1. CONCRETE SUBFLOORS - SECTION 033000

a. The general contractor shall furnish and install the concrete subfloors.
b. The slab shall be steel troweled to a medium-dense finish to a tolerance of ±1/8" (3.2mm) in any 10' (3m) radius. Floor Flatness and Floor Levelness (FF and FL) numbers are not recognized. High spots shall be ground level and low spots filled with approved leveling compound.

1.2 REFERENCES

A. ASTM (American Society for Testing & Materials)

1. ASTM G-21

B. DIN (Deutsches Institut fur Normung)

1. DIN 18032-2

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's current printed product literature, specifications, installation instructions, and field reports in accordance with Section 01330 - Submittal Procedures.

B. One sample of specified system, if requested by Architect.

C. Installation Guide.

D. Maintenance Guide.

E. Warranty.

1.4 QUALITY ASSURANCE

A. MATERIAL SUPPLIER:

1. Basis of Design: Connor Sport Court International, Inc. (manufacturer).

2. Manufacturer must be ISO 9001:2008 and ISO 14001:2004 Certified to assure proper

quality and environmental control.

3. Manufacturer shall be a Zero Waste company.

4. Manufacturer shall have produced sports surfaces for a longer period of time than their stated warranty.

5. Surfaces must be certified for competition by the international federations for basketball (FIBA), volleyball (FIVB), handball (IHF) and badminton (BWF).

B. INSTALLER:

1. The complete installation of the flooring system as described in these specifications shall be carried out by an experienced installer (Flooring Contractor), and the work shall be performed in accordance with current Manufacturers installation instructions.

2. Installer (Flooring Contractor) shall be liable for all matters related to installation for a period of one year after the floor has been substantially installed and completed.

3. Successful bidder must submit a minimum of five (5) completed modular projects of similar magnitude and complexity within the last two (2) years.

4. Bidder must provide all sample tile, accessory products, and documentation.

1.5 DELIVERY, STORAGE AND HANDLING

A. Materials must be delivered in manufacturer's original, unopened and undamaged packaging with identification labels intact.

B. Store material on a clean, dry, and flat surface, protected from exposure to harmful weather conditions or possible damage.

C. Storage conditions shall be 55°F to 80°F (13°C to 27°C).

1.6 SITE CONDITIONS

A. In order to prevent damage and not void the warranty, installation of modular materials shall not commence until all other finishes and overhead mechanical trades have completed their work in the modular floor areas.

B. Permanent heat, light and ventilation shall be installed and operating during and after installation.

C. Subfloors shall be clean, dry and free from dirt, dust, oil, grease, paint, old adhesive residue or other foreign materials.

D. Flooring installation shall not begin until the levelness requirements of concrete subfloors have been met.

E. The installation area shall be closed to all traffic and activity for a period to be set by the flooring contractor.

F. Product shall be conditioned at temperatures between 55°F to 80°F (13°C to 27°C) and shall be maintained for 72 hours prior to, during, and 72 hours after installation.

G. Environmental Limitations

1. Comply with the Manufacturers requirements.

2. Adhere to all MSDS requirements for materials employed in the work.

3. Protect all persons from exposure to hazardous materials at all times.

H. After modular floors are installed and the game lines painted, the area is to be closed to allow curing time for the system, typically 3-5 days. No other trades or personnel are allowed on the floor until it has been accepted by the owner.

1.7 WARRANTY

A. Manufacturer provides a limited warranty of fifteen (15) years on the materials it has supplied. (A copy of the full warranty, with its Terms and Exclusions, is available from the authorized Manufacturers Dealer.) This 15-Year Limited Warranty is subject to the Indoor Modular Flooring Warranty and all of its provisions. This warranty is expressly limited to the flooring materials (goods) supplied by Manufacturer. During the period covered under this Indoor Modular Flooring Warranty, The manufacturer shall repair/replace any defective tiles with the same or substantially similar product according to the schedule in the Indoor Modular Flooring Warranty. The Indoor Modular Flooring Warranty does not cover floor damage caused (wholly or in part) by fire, winds, floods, moisture, other unfavorable atmospheric conditions or chemical action, nor does it apply to damage caused by ordinary wear, misuse, abuse, negligent or intentional misconduct, aging, faulty building construction, concrete slab separation, faulty or unsuitable subsurface or site preparation, settlement of the building walls or faulty or unprofessional installation of The flooring systems.

B. The Manufacturer shall not be liable for incidental or consequential losses, damages or expenses directly or indirectly arising from the sale, handling or use of the materials (goods) or from any other cause relating thereto, and their liability hereunder in any case is expressly limited to the replacement of materials (goods) not complying with this agreement or, at their election, to the repayment of, or crediting buyer with, an amount equal to the purchase price of such materials (goods), whether such claims are for breach of warranty or negligence. Any claim shall be deemed waived by buyer unless submitted to The Manufacturer in writing within 30 days from the date buyer discovered, or should have discovered, any claimed breach.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Basis of Design: Sport Court Response™ Patented Suspended Flooring shall be:

1. Solid-top design.

2. Metric-sized: 25cm x 25cm x 12.7mm (9.842” x 9.842” x ½”).

3. High-impact polypropylene copolymer suspended modules.

4. 281 individual hexagonal cell support structure.

5. The tile shall have a patented positive locking system.

B. Standard Colors: Pearl Gold, Pearl Burgundy, Pearl Royal Blue, Silver, Ultra Red, Black, Pearl

Graphite, Pearl Beige, Pearl Evergreen, Pearl Navy Blue, Pearl Orange, Pearl Shamrock Green, Pearl Purple, Ice Blue, Pearl Silver Blue, Yellow

C. Color Consistency: □ECMC < 1.0

D. Weight - 0.61 ± 0.01 lbs. (278 ± 5 grams).

E. Packaging: Product is shipped in pre-assembled sheets (2x4 modules per sheet, 6 sheets per box).

F. Product Test Results

1. Force Reduction (DIN 18032-2): 0.06" (1.5mm) – 10% - 15%

0.12" (3mm) – 20% - 25%

0.20" (5mm) – 25% - 30%

0.35" (7mm) – 30% - 35%

2. Ball Rebound (DIN 18032-2): 0.06" (1.5mm) – 10% - 15%

0.12" (3mm) – >95%

0.20" (5mm) – >95%

0.35" (7mm) – >95%

3. Flatness: 0.0" +0.029" /-0.0" (0.0mm +0.74mm /-0.0mm)

4. Lateral Forgiveness™: +0.045" / -0.0" (+1.14mm / -0.0mm)

G. Load Bearing Capacity: 220 psi (1.52 MPa)

H. Dynamic Load: All systems must be able to show verification of passing a minimum 1,000,000 cycles in dynamic load testing with minimum 200 lbs. (91 kg) loading without deviation from flatness specification.

I. Underlayment – Multi-purpose recycled rubber underlayment having a thickness of 0.06" (1.5mm), 0.12" (3mm), 0.20" (5mm), or 0.28" (7mm), and a Durometer of 60 ± 5 on the Shore A scale.

J. Retrofit – existing floor systems, such as synthetic floors, must not exceed a maximum thickness of 0.35" (9mm). Product must have a minimum durometer of 60 ± 5 on the Shore A scale. Flooring representative shall verify that the existing floor system meets these requirements by submitting core samples to the respective manufacturer for analysis and approval.

K. Sanitary Information

1. Resistance to fungi (when tested in compliance with ASTM G-21 and MIL standard 810-D procedure 508.3). All basic organisms tested (ATCC #6205-11797) and were found to have zero growth.

2. Resistance to the following:

a. Bacteria and mildew resistance

b. Gram-positive bacterial Staphylococcus Aureus

c. Gram-negative Klebsiella Pneumoniae

d. Pink-staining organism

e. STV Reticulum

f. Surface fungi growth prior to and following leaching

L. Game Line Paint

1. Manufacturers adhesion promoter – proprietary adhesion promoter as supplied by The manufacturer.

2. Paint – aliphatic polyurethane as supplied by The manufacturer. Select from standard colors.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect concrete slab for contamination, dryness and levelness. Report any discrepancies to the general contractor.

B. Concrete slab shall be broom cleaned, mopped and dust free by the general contractor.

C. Installer (Flooring Contractor) shall document all working conditions as specified in PART 1 – GENERAL prior to starting installation. Report any discrepancies to the general contractor.

3.2 INSTALLATION

A. Underlayment – Rubber underlayment shall be unrolled and allowed to relax. All butt joints shall be properly trimmed, fitted, and seamed together with an approved all-purpose tape.

B. Floor shall be installed to the pre-approved layout.

C. Proper expansion must be at all vertical obstructions minimum of ¾ Inch (19mm).

D. Floor surface shall be clean and dust free.

E. Game Lines

1. Use only high quality masking tape approved by The manufacturer.

2. Lines shall be primed and painted using The manufacturers proprietary adhesion promoter and recommended aliphatic polyurethane paint.

3. Provide game lines as indicated on drawings.

4. Room temperature shall be >55°F (13°C) and rising during paint installation.

F. Wall Base (optional) - Install cove base anchored to walls with base cement.

G. Remove all excess and waste materials from the area of work. Dispose of empty containers in accordance with federal and local statutes.

END OF SECTION 096240

SECTION 096500 – RESILIENT FLOORING

Forest Rx, Strait Rx, Cosmos Rx and Infinity Rx Vulcanized Composition Rubber Backed Sheet Vinyl

Unbacked Forest 2mm, Strait 2mm, Cosmos 2mm and Infinity 2mm Sheet Vinyl

PART 1.0 - GENERAL

1.1 SUMMARY

A. The work of this section includes:

1. Vulcanized Composition Rubber-backed sheet vinyl:
   - Forest Rx, Strait Rx, Cosmos Rx and Infinity Rx
2. Unbacked 2mm – Sheet vinyl:
   - Forest 2mm, Strait 2mm, Cosmos 2mm and Infinity 2mm
3. Sanitary Base
4. Weld rod
5. Adhesives:
   - E-Grip III, E-Grip Evolve and Gerbert 2300

B. Related Sections: Section(s) related to this section include:

1. Concrete Substrate: Division 3 Concrete Section(s)
2. Plywood Substrate: Division 6

1.2 REFERENCES

A. Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

B. American Society for Testing and Materials (ASTM):

1. ASTM F970 Standard Test Method for Static Load Limit
2. ASTM F2753 Standard test Method for Dynamic Rolling Load
3. ASTM F1303-99 Standard Test Method for Resistance to Chemicals of Resilient Flooring
4. ASTM F1514 Resistance to heat.
5. ASTM F1515 Resistance to light.

6. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as measured by the James Machine.

7. ASTM E648 Behavior to fire.

8. ASTM F2199 Dimensional stability.

9. ASTM E2129 Standard Practice for Data Collection for Sustainability Assessment of Building Products.

10. ASTM D5116 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products.

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

12. ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

13. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

C. European Committee for Standardization (EN)

1. EN649 / EN ISO 10582 Resilient Floor Coverings Heterogeneous polyvinyl chloride floor coverings – Specification for Abrasion Resistance.

D. International organization for Standardization (ISO)

1. ISO 105-B02 Textiles – Test for color fastness.

E. Collaborative of High Performance Schools (CHPS) Section 01350

1. Low-emitting materials criteria for use in a typical classroom

F. South Coast Air Quality Management District (SCAQMD) Rule #1168

1. VOC standards for adhesive and sealant applications

G. Leadership in Energy and Environmental Design – LEED™

1. International Organization for Standardization™ document, ISO 14021 - Provides guidance on the terminology, symbols, testing and verification methodologies that an organization should use for self-declaration of the environmental aspects of its products and services.

1.3 SYSTEM DESCRIPTION

A. Performance Requirements: Provide rubber back sheet vinyl resilient flooring, which has been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.4 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.

B. LEED: Provide documentation of how the requirements for credit will be met.

1. List of proposed materials with recycled content. Indicate pre-consumer and post-consumer content.

2. Product data and certification letter indicating percentage of recycled content for both pre-consumer and post-consumer content.

3. Recycled content is defined in accordance with the International Organization for Standardization document, ISO 14021 Environmental labels and declarations.

a. Post-consumer material - waste materials diverted from the waste stream after consumer or commercial use.
b. Pre-consumer material - materials diverted from the waste stream during the manufacturing process. Excluded are regrind, rework, and scrap.

C. Product Data: Submit product data, including manufacturer's guide specifications product sheet, for specified products.

D. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures.

E. Samples: Submit selection and verification samples for finishes, colors and textures.

F. Quality Assurance Submittals: Submit the following:

1. Certificates: If required, certification of performance characteristics specified in this document shall be provided by the manufacturer.

2. Manufacturer's Instructions: Manufacturer's installation instructions.

3. Manufacturer's Field Reports: Manufacturer's field reports specified herein.

G. Closeout Submittals: Submit the following:

1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operational Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

2. Warranty: Warranty documents specified herein.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

a. Certificate: When requested, submit certificate indicating qualification.

2. Manufacturer's Qualifications: Manufacturer capable of providing field service representation during construction and approving application method.

B. Mock-Ups: Install at project site a job mock-up using acceptable products and manufacturer-approved installation methods. Obtain Owner and Architect's acceptance of finish color, texture and pattern, and workmanship standard. Comply with Division 1

Quality Control (Mock-Up Requirements) Section.

1. Mock-Up Size: [specify mock-up size].

2. Maintenance: Maintain mock-up during construction for workmanship comparison; remove and legally dispose of mock-up when no longer required.

3. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

C. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

D. Pre-installation Testing: Conduct pre-installation testing as follows: [specify substrate testing; consult with flooring manufacturer].

1.6 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

D. Storage and Protection: Store materials at temperature and humidity conditions recommended by manufacturer and protect from exposure to harmful weather conditions.

1.7 PROJECT CONDITIONS

A. Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during and after installation as recommended by manufacturer.

B. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.8 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. 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 not a limitation of, other rights Owner may have under Contract Documents.

1. Warranty Period: Specify 5 years commencing on Date of Substantial Completion.

1.9 MAINTENANCE

A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.

1. Quantity: Furnish quantity of resilient flooring units equal to [specify %] of amount installed.

2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra materials.

PART 2.0 - PROPRIETARY MANUFACTURER/PRODUCTS

2.1 MANUFACTURER: Ecore International™

A. Address: 715 Fountain Ave., Lancaster, PA 17601; Telephone: (800) 322-1923, (717) 295-3400; Fax: (717) 295-3414; Email: info@Ecoreintl.com

2.2 DISTRIBUTOR: ECORE Commercial

A. Address: 715 Fountain Ave., Lancaster, PA: (877) 258-0843, Email: contact@Ecorecommercial.com

2.3 PROPRIETARY PRODUCT(S)

A. ECORE Commercial and adhesives manufactured by Ecore International for commercial applications.

1. Forest Rx, Strait Rx, Cosmos Rx or Infinity Rx Vulcanized Composition Rubber-backed resilient sheet vinyl flooring and accessories.

2. Forest 2mm, Strait 2mm, Cosmos 2mm and Infinity 2mm Sheet Vinyl flooring and accessories

3. E-Grip™ III a single-component, zero-VOC, urethane adhesive

4. E-Grip Evolve vinyl acrylic adhesive

5. Gerbert 2300 Premium Two-Part Urethane Adhesive

2.3.1 Forest Rx, Strait Rx, Cosmos Rx and Infinity Rx – Vulcanized Composition Rubber-Backed Sheet Vinyl

A. Product Name: The fusion bonded, double-ply, Vulcanized Composition Rubber backed vinyl surface furnished under this specification shall be Ecore's Forest Rx, Strait Rx, Cosmos Rx or Infinity Rx, distributed by Ecore Commercial

B. Material: Made from a formulation of Vulcanized Composition Rubber granules encapsulated in a wear and water-resistant elastomeric network fusion bonded to a heterogeneous, PUR enhanced, vinyl wear layer

C. Sheet Dimension: Forest Rx, Strait Rx, Cosmos Rx or Infinity Rx Vulcanized Composition Rubber backed sheet vinyl will have an overall thickness of 7mm, consisting of a 5mm 6015H Vulcanized Composition Rubber backing, fusion bonded to a 2mm vinyl surface layer. Surface wear layer 0.7mm Standard roll sizes 6 ft wide by 30 LF [1.828 m by 9.144 m]

D. Sheet Weight: 1.26 lb/ft^2 [6130 g/m^2]

E. Sheet Standard Tolerances: Width: +¾" - 0" | Length: +1% - 0" | Thickness: ± .4 mm

F. Colors: Specify color from manufacturer's standard colors.

G. Static Load Limit (ASTM F970): Pass

H. Dynamic Rolling Load 10,000 cycles: No Damage, No Change (ASTM F2753)

I. Coefficient of Friction: > 0.6 (ASTM D2047)

J. Chemical Resistance: Excellent (ASTM F1303-99)

K. Abrasion resistance: Group T / Type 1
(EN 649/EN ISO 10582)

L. Dimensional Stability: ± 0.40%
(ASTM F-2199)

M. Behavior to Fire: Class I
(ASTM E-648)

N. Light Fastness: > 6 ISO 105-B02
(Method 3)

O. Resistance to Light: Pass
(ASTM F-1515)

P. Resistance to Heat: Pass
(ASTM F-1514)

Q. Floor Score: Pass

R. CHPS/CA 01350 (ASTM D5116): Pass

2.3.2 Unbacked Forest 2mm, Strait 2mm, Cosmos 2mm and Infinity 2mm Sheet Vinyl

A. Product Name: The vinyl surface furnished under this specification shall be Ecore's Forest 2mm, Strait 2mm, Cosmos 2mm or Infinity 2mm distributed by Ecore Commercial

B. Material: Sheet vinyl with a heterogeneous PUR enhanced vinyl wear layer.

C. Sheet Dimension: Forest 2mm, Strait 2mm, Cosmos 2mm and Infinity 2mm sheet vinyl will have an overall thickness of 2mm. It shall have a 0.7mm (0.028") print film layer and a 1.23mm (0.048") backing ply.
Standard roll size 74" ft wide x 30 LF [1.88 m by 9.14 m]

D.	Sheet Weight:	0.89 lb/ft^2 [4.34 kg/m^2]
E.	Colors:	Specify color from manufacturer's standard colors.
F.	Static Load Limit (ASTM F970):	750
G.	Coefficient of Friction: (ASTM D2047)	> 0.6
H.	Chemical Resistance: (ASTM F1303-99)	Excellent
I.	Abrasion resistance: (EN 649/EN ISO 10582)	Group T / Type 1
J.	Indentation Recovery: (EN 433)	< 0.10mm (<0.003")
K.	Behavior to Fire: (ASTM E-648)	Class I
L.	Light Fastness: ISO 105-B02 (Method 3)	> 6

2.3.3 Weld Rod

A.	Product Name:	Welding rod under this specification shall be weld rod distributed by Ecore Commercial.
B.	Material:	Vinyl
C.	Colors:	Specify color from Ecore Commercial standard colors.
D.	Dimensions:	Standard lengths of 328 LF [100 M] by 3mm in thickness. Custom lengths not available.
E.	Spool Weight:	11.023 lbs [5kg]

2.3.4 Sanitary Wall Base

A.	Product Name:	Sanitary Wall base under this specification shall be Sanitary Wall Base distributed by Ecore Commercial.
B.	Material:	Proprietary thermoplastic rubber formulation
C.	Colors:	Specify color from Ecore Commercial colors
D.	Dimensions:	4" (10.16 cm) high with 2" (5.0 cm) toe. Thickness of .110" (2.8 mm) Length: 25 ft. (7.62 M) coils. Custom lengths not available
E.	ASTM F-1861	Meets Type TP, Group 1 (solid) Standard Specification for Wall Resilient Wall Base
F.	Coil Weight:	11.5 lbs (5.2 kgs.)/ coil

G. Behavior to Fire: Class B
(ASTM E 84/NFPA 255)

H. Behavior to Fire: Class I
(ASTM E-648 /NFPA 253)

2.3.5 E-Grip III one-component urethane adhesive for Forest Rx, Strait Rx, Cosmos Rx and Infinity Rx

A. Product Name: The one-part urethane adhesive under this specification shall be Ecore's E-Grip™ III one-component urethane adhesive.

B. Material: E-Grip III is a one-component urethane moisture cured, non-sag, permanently elastic adhesive that has excellent adhesion to elastomers, concrete and wood and is engineered for indoor and outdoor applications.

C. Adhesive Type: One-component urethane

D. Adhesive Cure System: Moisture cured

E. Weight: 4 gallon pail-56 lbs
2 gallon pail-28 lbs
10.1 oz cartridge – 1.3 lbs.

F. Color: medium grey

G. VOC Content: 0 lb/gal calculated

H. Freeze/Thaw: stable

I. Application Temperature: 40° F - 100° F

J. Relative Humidity (RH) Test (ASTM F2170) Maximum 85%

K. Flashpoint: > 500° F

L. Shelf Life: 12 months

M. Working Time: 30-40 minutes

N. Trowel: 1/16" x 1/16" x 1/16" square notch

O. Coverage Rate: 95 ft^2 / gal. – 1/16" x 1/16" x 1/16"

P. SCAQMD Rule #1168 0 lb./gal. calculated

2.3.6 E-Grip Evolve vinyl acrylic adhesive for Forest Unbacked 2mm, Strait 2mm, Cosmos 2mm and Infinity 2mm

A. Product Name: The one-component vinyl acrylic wet-set adhesive under this specification shall be Ecore's E-Grip Evolve.

B. Material: E-Grip Evolve is a one-component acrylic wet-set adhesive designed specifically for vinyl, LVT and sound underlayment for indoor applications on wood and concrete

C.	Adhesive Type:	One-component acrylic, hard-set, wet-lay transitional
D.	Adhesive Cure System:	Transitional vinyl acrylic
E.	Weight:	4 gallon pail – 33.2 lbs.
F.	Color:	Off-white
G.	VOC Content:	Less than .28 lbs/gal (34 g/l)
H.	Freeze/Thaw:	Stable
I.	Application Temperature:	65° F - 90° F
J.	Relative Humidity (RH) Test (ASTM F2170)	Maximum 80%
K.	Flashpoint:	> 212° F
L.	Shelf Life:	2 years
M.	Working Time:	30 minutes
N.	Trowel:	1/32" x 1/16" x 1/32" square notch 1/16" x 1/16" x 1/16" square notch.
O.	Coverage Rate:	150 ft^2 / gal. 200 ft^2/ gal

2.3.7 Ecore's Gerbert 2300 Premium Two-Part Urethane Adhesive for Unbacked Forest 2mm, Strait 2mm, Cosmos 2mm and Infinity 2mm

A.	Product Name:	The two-part urethane adhesive under this specification shall be Ecore's Gerbert 2300 Premium Two-Part Urethane adhesive.
B.	Material:	Gerbert 2300 is a two-part reactive adhesive with low volatile organic compounds, designed for indoor and outdoor flooring installations, with excellent adhesion to concrete, wood, and vinyl flooring and tile, suitable for extra heavy traffic and rolling loads, as well as freezer and surface water-spray areas.
C.	Adhesive Cure System:	Epoxy two-part reactive urethane
D.	Weight:	1 gallon two-part kit - 13 lbs.
E.	Color:	Off-white
F.	VOCs SCAQMD Rule #1168	10 g/L
G.	Freeze/Thaw:	Stable
H.	Application Temperature:	50° F - 90° F
I.	Relative Humidity (RH) Test	Maximum 80% (ASTM F2170)
J.	Flashpoint:	Part A >200°F (93°C) Part B >200°F (93°C)

K. Shelf Life: 2 years

L. Working Time: 30 minutes

M. Trowel (typical): 1/32" x 1/16" x 1/32"

N. Coverage Rate: 185 to 245 sq. ft. / U.S. gal. (1/32" x 1/16" x 1/32" trowel)

2.4 PRODUCT SUBSTITUTIONS

A. Substitutions: No substitutions permitted.

2.5 RELATED MATERIALS

A. Related Materials: Refer to other sections listed in Related Sections paragraph herein for related materials.

2.6 SOURCE QUALITY

A. Source Quality: Obtain Vulcanized Composition Recycled resilient flooring materials from a single manufacturer.

PART 3.0 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.2 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.3 PREPARATION

A. Surface Preparation: [specify applicable product preparation requirements].

3.4 ERECTION/INSTALLATION/APPLICATION/CONSTRUCTION

A. Vulcanized Composition Rubber Flooring Installation: Comply with ECOsurfaces Technical Manual for installation procedures and techniques for ECOsurfaces Vulcanized Composition Rubber resilient flooring installation.

B. Finish Color/Textures/Patterns: [specify installation finishes coordinated with finishes specified in Part 2 Products].

C. Related Products Installation: Refer to other sections listed in Related Sections paragraph herein for related products installation.

3.5 FIELD QUALITY REQUIREMENTS

A. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

1. Site Visits: [specify number and duration of periodic site visits].

3.6 CLEANING

A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.

3.7 PROTECTION

A. Protection: Protect installed product and finish surfaces from damage during construction.

3.8 SCHEDULES

A. Schedules: [Specify reference to applicable schedules].

END OF SECTION 096500

SECTION 096513 – RESILIENT BASE AND ACCESSORIES

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. Section Includes:

1. Resilient base.
2. Resilient molding accessories.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

C. Samples for Initial Selection: For each type of product indicated.

D. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches long.

E. Product Schedule: For resilient base and accessory products. Use same designations indicated on Drawings.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 20 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 QUALITY ASSURANCE

A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Coordinate mockups in this Section with mockups specified in other Sections.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.7 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 THERMOPLASTIC-RUBBER BASE

A. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).

1. Group: I (solid, homogeneous) or II (layered).
2. Style and Location:

a. Style A, Straight: Provide in areas with carpet.
b. Style B, Cove: Provide in areas with resilient flooring.

1) Profile: As indicated

B. Thickness: 0.125 inch

C. Height: As indicated on Drawings.

D. Lengths: Coils in manufacturer's standard length.

E. Outside Corners: Job formed or preformed.

F. Inside Corners: Job formed or preformed.

G. Colors: As selected by Architect from full range of industry colors.

H. Basis of Design Product: Tarkett/ Johnsonite

2.2 VINYL BASE

A. Product Standard: ASTM F 1861, Type TV (vinyl, thermoplastic).

1. Group: I (solid, homogeneous) or II (layered).
2. Style and Location:

a. Style A, Straight: Provide in areas with carpet.
b. Style B, Cove: Provide in areas with resilient flooring.

1) Profile: As indicated

B. Thickness: 0.125 inch

C. Height: As indicated on Drawings.

D. Lengths: Coils in manufacturer's standard length.

E. Outside Corners: Job formed or preformed.

F. Inside Corners: Job formed or preformed.

G. Colors: As selected by Architect from full range of industry colors.

2.3 RUBBER MOLDING ACCESSORY

A. Description: Rubber reducer strip for resilient flooring, joiner for tile and carpet, transition strips

B. Profile and Dimensions: As indicated

C. Locations: Provide rubber molding accessories as required

D. Colors and Patterns: As selected by Architect from full range of industry colors

2.4 VINYL MOLDING ACCESSORY

A. Description: Vinyl reducer strip for resilient flooring, joiner for tile and carpet, transition strips

B. Profile and Dimensions: As indicated.

C. Locations: Provide vinyl molding accessories as required

D. Colors and Patterns: As selected by Architect from full range of industry colors

2.5 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

1. Adhesives shall have a VOC content of 50 g/L or less.
2. Adhesives shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours.

D. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of flooring, and in maximum available lengths to minimize running joints.

E. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:

a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.

b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until they are the same temperature as the space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 6 inches in length.

a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 6” in length.

a. Miter or cope corners to minimize open joints.

3.4 RESILIENT ACCESSORY INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient accessories.

B. Resilient Stair Accessories:

1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
2. Tightly adhere to substrates throughout length of each piece.
3. For treads installed as separate, equal-length units, install to produce a flush joint between units.

C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Perform the following operations immediately after completing resilient-product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum horizontal surfaces thoroughly.
3. Damp-mop horizontal surfaces to remove marks and soil.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from resilient stair treads before applying liquid floor polish.

1. Apply one coat.

E. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 096514 – STAIR LANDINGS, RISERS, TREADS & RAMPS

PART 1 – GENERAL INFORMATION

1.01 SUMMARY

A. This section deals with resilient flooring found in the drawings and schedules of the contract that meet the requirements of this section.

1.02 RELATED SECTIONS

A. Section 3 – Cement: not covered in this section.

B. Section 6 – Wood and plastic: not covered in this section.

C. Section 7 – Thermal and humidity protection: not covered in this section.

D. Section 9 – Other sections containing information related to floor finishes: not covered in this section.

1.03 REFERENCES (INDUSTRY STANDARDS)

A. ASTM F 710: Practice for Preparing Concrete Floors to Receive Resilient Flooring.

B. ASTM E 648: Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

C. ASTM E 662: Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

D. ASTM F 1869: Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

E. ASTM F 2170: Determining Relative Humidity in Concrete Floor Slabs Using in Situ Probes.

1.04 ITEMS TO DELIVER

A. Provide the product's Technical Specifications data sheet as well as all Installation and Maintenance Instructions.

B. When required, supply floor drawings and installation plans.

C. Supply a set of samples measuring at least 7.5 cm (3 in.) by 15 cm (6 in.) of the complete range of colors and finishes chosen for the project.

D. When required, provide American Biltrite's attestation, certified by an independent laboratory, confirming that the flooring complies with the fire standards of the following tests:

1. ASTM E 648; Critical Radiant Flux: 0.45 watts/cm^2 or more;

2. ASTM E 662; Smoke Density: 450 or less.

E. Provide American Biltrite's Warranty Certificate.

1.05 QUALITY ASSURANCE

A. Have American Biltrite flooring installed by a qualified installer of this type of flooring.

B. In accordance with the technical instructions in the Installation Instructions, use all the accessories recommended by American Biltrite when installing its flooring.

C. Follow the instructions specified in the most recent version of American Biltrite's Installation Instructions.

1.06 DELIVERY, HANDLING, STORAGE

A. Deliver the flooring to the installation site in American Biltrite's original packaging. Indicate the project name and handling instructions on the outside of the boxes.

B. Advise the carrier of any damaged material and indicate it on the packing slip.

C. Store the flooring inside, sheltered from extreme hot or cold temperatures. Place the material on a smooth level floor or where there is uniform solid support in a clean, dry well-ventilated area. Unstack the palettes. The long-term storage temperature must be maintained between 18°C (65°F) and 24°C (75°F). Protect adhesive and treads from freezing, extreme heat and direct sun exposure.

D. Acclimatize the subfloor, all flooring material and adhesive for 48 hours before, during and after the installation by maintaining the room temperature between 18°C (65°F) and 24°C (75°F). The palettes should be unstacked 24 hours prior to use.

E. Afterwards, maintain the room temperature between 18°C (65°F) and 29°C (85°F). Protect the material from direct sources of heat such as air vents and other types of heaters.

F. Install the treads after all other finishing work, including painting, have been completed.

PART 2 – PRODUCTS

2.01 MANUFACTURER

A. American Biltrite
200 Bank Street
Sherbrooke, QC, Canada, J1H 4K3
Telephone: 819-829-3300
Toll free: 1-800-437-8743
Internet: www.american-biltrite.com

2.02 RESILIENT FLOORING AND STAIR TREADS

A. One-Piece Stair Treads:

1. ABPURE® One-piece Stair Treads with Riser (OPM) with Carborundum Strip
2. Finish: Hammered
3. Stair Tread Color: To be Selected by Architect from Manufacturer full range
4. Carborundum Strip Color: To be Selected by Architect from Manufacturer full range
5. Gauge: 317 mm
6. One-piece: 0.914 m (36"), 1.219 m (48"), 1.828 m (72")
7. Depth/Regular: 314.33 mm (12-3/8")
8. Depth/One-Piece: 482.6 mm (19")
9. Nosing Depth: 47.63 mm (1-7/8" ADA Compliant)
10. Nosing Radius: 6 mm (1/4" ADA Compliant)
11. Complies with ASTM F 2169 Type TS, class 2.
12. Refer to the product's Technical Specifications data sheet for detailed specifications.

13. Choose from any of American Biltrite's complete line of colors (indicate the item number) for treads and detectable warning strips

14. ABPURE® has FloorScore certification.

B. Rubber Tile (Landings):

1. ABPURE® Tile

2. Finish: Slate Profile: ABF = Chips or ABA = No Chips

3. Gauge: 3 mm

4. Tile Size: 17 13/16" x 17 13/16" or 35 11/16" x 35 11/16"

5. Complies with ASTM F 1515 colorfastness test.

6. Refer to the product's Technical Specifications data sheet for detailed specifications.

7. Choose from any of American Biltrite's complete line of colors (indicate the item number)

8. ABPURE® has FloorScore certification.

2.03 ADHESIVES

A. Use either American Biltrite's AD-777 or AD-535 adhesive. AD-777 and AD-535 both cover 18.6 sq. m/3.8 litres (200 sq. ft. /gallon) when applied with the recommended notched trowel.

B. NC-888 epoxy nosing compound shall be applied along the inside of the tread nosing angle section AND where the tread and riser intersect. This will fill any voids in the steps.

2.04 OTHER MATERIAL

A. Subfloor repairs: use a good-quality Portland cement-based compound modified with latex that has a minimal resistance to compression of 246 kg/cm^2 (3,500 lbs/sq. in.) to fill, smooth or level subfloor imperfections.

B. Self-levelling underlayment: use a Portland cement-based self-levelling underlayment modified with a polymer that has a minimal resistance to compression of 246 kg/cm^2 (3,500 lbs/sq. in.).

PART 3 – EXECUTION

3.01 SITE INSPECTION

A. Examine the subfloor before installation to ensure that the surface is clean, dry, smooth, structurally sound and free from foreign substances that may adversely affect adhesion or cause discoloration. Furthermore, ensure that the subfloor is free of paint, varnish, adhesive, oil, grease, solvent and other foreign substances, including treatment compounds, sealers and curing compounds that may adversely affect adhesion or alter the appearance or durability of the vinyl flooring.

B. Verify the surface to ensure there is no powder, scaling or mold. If there is, remove it with a mechanical sander and level with a good-quality cement-based Portland primer.

C. Slabs that have been either using a curing agent or a sealer will have to be treated to insure that the adhesion has not been impaired.

D. Do not install on cement slabs that have been subjected to adhesive chemical abatement, unless an approved remediation system was used afterwards.

E. Report and rectify all unsatisfactory conditions. Do not start flooring installation until all rectifications have been completed.

3.02 SUBFLOOR PREPARATION

A. Level all rough surfaces and fill cracks and marks with a Portland cement-based patching compound modified with latex.

B. Mechanically remove all surface contaminants such as paint, oil, grease, varnish, adhesive as well as various other products such as treatment compounds.

C. Measure the humidity and pH levels in the cement in compliance with the following standards before installation:

1. ASTM F 1869, Anhydrous Calcium Chloride test for Moisture levels. The maximum allowable reading is:
    - 5 lbs/1,000 sq. ft./24 hours (2.26 kg/92.9 sq. m/24 hours) for the AD-777 and AD-535 adhesives;
2. ASTM F 2170, Relative Humidity (RH) test using in situ probes. The maximum allowable reading is 80% RH for AD-777 and 85%RH with AD-535 (to use in situation where RH goes up to 100% refer to the remediation document);
3. ASTM F 710, pH levels (test procedure 5.3.1). The readings should be between 8 and 10;
4. The ASTM test frequency recommendation is 3 measures for the first 1,000 sq. ft. (92.9 sq. m) and one measure for each additional 1,000 sq. ft. (92.9 sq. m).

D. Ensure Moisture, Relative Humidity and pH tests have all been conducted and measurements meet manufacturer's recommendations.

E. In case of doubt, test the adhesion on the cement subfloor or other surface that will be covered by the flooring. Do the test using the specified flooring and recommended adhesive.

3.03 RESILIENT FLOORING INSTALLATION

A. Install the flooring according to the latest version of American Biltrite's Installation Instructions. Use the tools, adhesives, trowel types and procedures recommended in the instructions.

B. Acclimatize the subfloor, all flooring material and adhesive for 48 hours before, during and after the installation by maintaining the room temperature between 18°C (65°F) and 24°C (75°F). Afterwards, maintain the temperature between 18°C (65°F) and 29°C (85°F).

3.04 CLEANING AND PROTECTION

A. Remove all excess adhesive immediately after installation as recommended in American Biltrite's Installation Instructions.

B. Before allowing traffic after installation, consult and follow the recommendations in American Biltrite's Installation Instructions.

C. Follow the instructions in American Biltrite's Maintenance Instructions when performing initial and regular maintenance procedures.

END OF SECTION 096514

SECTION 096519 – VINYL TILE FLOORING

PART 1 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES:

1. Luxury Vinyl Tile (LVT) / Luxury Vinyl Plank (LVP)
2. Adhesives

B. RELATED SECTIONS

1. Section 03300 - Cast-In-Place Concrete Floor substrate requirements.
2. Section 06200 - Rough Carpentry: Floor substrate requirements.

1.2 REFERENCES

A. American Concrete Institute (ACI):

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

B. American Society for Testing and Materials (ASTM):

1. ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
3. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
4. ASTM E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
5. ASTM F137 - Standard Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus.
6. ASTM F141 - Standard Terminology Relating to Resilient Floor Coverings
7. ASTM F373 – Standard Test Method for Embossed Depth of Resilient Floor Covering
8. ASTM F386 – Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces
9. ASTM F410 – Standard Test Method for Wear Layer Thickness of Resilient Floor Coverings by Optical Measurement
10. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
11. ASTM F925 - Standard Test Method for Resistance to Chemicals of Resilient Flooring.

12. ASTM F970 - Standard Test Method for Static Load Limit.

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

14. ASTM F1514 - Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change.

15. ASTM F1515 – Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change

16. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

17. ASTM F1914 - Standard Test Methods for Short-Term Indentation and Residual Indentation of Resilient Floor Covering.

18. ASTM F2055 – Standard Test Method for Size and Squareness of Resilient Floor Tile

19. ASTM F2199 - Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat.

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

21. ASTM F2471 – Standard Practice for Installation of Thick Poured Lightweight Cellular Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring.

C. State of California (CA)

1. CA Section 01350 – Special Environmental Requirements (Indoor Air Quality)

D. California Department of Public Health (CDPH)

1. CDPH Standard Method v 1.2 - Standard Method for Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers

E. California High Performance Schools (CHPS)

1. CHPS Section 01350 - Low-Emitting Materials Criteria for Use in Classrooms.

F. Declare™

1. Product material disclosure labeling program.

G. FloorScore®

1. Indoor Air Quality (IAQ) certification for flooring materials, adhesives and underlayments.

H. Health Product Declaration Collaborative (HPDC)

1. Health Product Declaration (HPD) material disclosure list.

I. International Standards Organization (ISO)

1. ISO 9001 – Quality Management Systems (QMS)

2. ISO 14001 – Environmental Management Systems (EMS)

3. ISO 14025 – Environmental Labels and Declarations

J. Living Building Challenge (LBC)

1. LBC Chemical Red List Version 3.0.

K. National Fire Protection Association (NFPA)

1. NFPA 80 – Fire Safety Code.

2. NFPA 253 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.

3. NFPA 255 - Standard Test Method for Surface Burning Characteristics of Building Materials.

4. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

L. Occupational Health and Safety Administration

1. OHSAS 180001 – Occupational Health and Safety Management

M. Resilient Floor Covering Institute (RFCI)

1. Recommended Work Practices for Removal of Resilient Floor Coverings

N. Underwriters Laboratories (UL) Environment

1. Certified body of Environmental Product Declaration (EPD) and Environmental Management Systems (EMS), verified in accordance with ISO 9001, ISO 14001, ISO 14025 and OHSAS 18001.

1.3 SUBMITTALS

A. General: Submittals must be submitted the under provisions of Section 01300.

B. Product Data: Manufacturer's published documents on each product to be used, including:

1. Storage and handling requirements.

2. Installation instructions and initial maintenance instructions per Technical Data Sheets.

3. Maintenance and initial finish application instructions per Care & Maintenance documents.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square or one full tile, representing actual product, color, and patterns.

1.4 SUSTAINABILITY REQUIREMENTS

A. CA Section 01350 / CHPS Section 01350