SECTION 09 65 00

RESILIENT FLOORING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. [Resilient sheet flooring.]
   2. [Resilient tile flooring.]
   3. [Resilient base.]
   4. [Resilient stair coverings.]
   5. Resilient accessories.

B. Related Sections:
   1. Section 09 29 00 - Gypsum Board.

1.02 REFERENCE STANDARDS

A. ASTM International:
   1. [ASTM D2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.]
   2. [ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.]
   3. [ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.]
   4. [ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile.]
   5. [ASTM F1861 - Standard Specification for Resilient Wall Base.]
   6. [ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing.]

B. South Coast Air Quality Management District:
   1. SCAQMD Rule #1168 - Adhesive and Sealant Applications.

1.03 DESIGN REQUIREMENTS

A. [University's Representative will determine laying pattern of resilient flooring. Verify laying pattern before installation.]

B. [Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door. Lay flooring continuous through doors and openings where adjacent rooms and areas have same finish and color.]

C. [Sheet Flooring Layout:]
   1. Install sheet flooring according to pattern indicated in the Drawings. Review the Drawings with University's Representative in the case of conflicts with the job.
   2. Lay panels crosswise to corridors and rooms.
   3. Lay sheets in the same direction.
   4. Install with fewest possible seams.
   5. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams.
   6. Lay out seams to avoid widths less than 1/3 of roll width; match patterns carefully at seams.
   7. Filler pieces should be at least 36 inches wide.

8. Where seams occur at right angle corners, cut pieces that butt each other from the same roll.

D. [Tile Flooring Layout:]
1. Install tile according to pattern indicated in the Drawings. Review Drawings with University's Representative in case of conflicts with the job.
2. Center field or patterns on room or area such that no border tile is less than 1/2 size of field tile.
3. Where floor finishes are different on opposite sides of door, terminate flooring under centerline of door. Lay flooring continuous through doors and openings where adjacent rooms and areas have same finish and color.

1.04 ADMINISTRATIVE REQUIREMENTS

A. [Coordination:]

B. [Preinstallation Meeting:]

C. [Sequencing:]

D. Scheduling:
1. Schedule installing products specified in this Section with other construction to minimize possibility of damage and soiling during remainder of construction period.

1.05 [SUSTAINABLE CHARACTERISTICS]

A. Section 01 35 63 - Sustainability Project Requirements: Requirements for sustainable design compliance.

B. Materials and Resources Characteristics:
1. [Recycled Content Materials: Furnish materials with maximum available recycled content including:

SPEC NOTE ***List materials specified in this section required to have recycled content.***

a. [Adhesives shall have no VOC or cyanide compounds.]
b. [Flooring shall not need waxing or stripping]

2. [Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project site.]

SPEC NOTE ***List materials specified in this section required to be regional materials.***

a. [_____.]

3. Certified Wood Materials: [Furnish wood materials]***--or--***[Use a minimum of 50 percent of wood-based materials and products] certified in accordance with FSC Guidelines.

C. Indoor Environmental Quality Characteristics:
1. [Interior] Adhesives: Maximum volatile organic compound content in accordance with SCAQMD Rule 1168.

1.06 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Certifications: Submit the following certifications indicating that:
1. Installer meets qualifications specified in this Section.

D. Installer Qualification: Certification of the installer's qualifications including list of projects.

E. Verification Samples:
   1. [Resilient Sheet Flooring: Submit 12 inch square Samples of each color and pattern selected for each resilient sheet flooring item specified.]
   2. [Resilient Tile Flooring: Submit four samples, 4 by 6 inch in size illustrating color and pattern selected for each resilient tile flooring item specified.]
   3. [Resilient Bases and Accessories: Submit 12 inch long Samples of each color selected of resilient.]
   4. Other Samples only as requested.]

F. Shop Drawings: Provide seaming plan.

G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.07 [SUSTAINABLE DESIGN SUBMITTALS]

A. Section 01 35 63 - Sustainability Project Requirements: Requirements for sustainable design submittals.

B. Manufacturer's Certificate: Certify products meet or exceed specified sustainable design requirements.
   1. Materials Resources Certificates:
      a. Certify recycled material content for recycled content products.
      b. Certify source for regional materials and distance from Project site.
   2. Indoor Air Quality Certificates:
      a. Certify volatile organic compound content for each interior adhesive and related primer.
         1) Provide product data for adhesives, primers and aerosol adhesives used in the interior of the building highlighting VOC content of each product used. Adhesives and sealants must meet or exceed the VOC limits of SCAQMD Rule #1168. Refer to the LEED 2009 for New Construction and Major Renovations for acceptable VOC limits
         2) Provide a listing of each indoor adhesive, primers, and aerosol adhesive product used in the interior of the project. Include manufacture's name, product name, specific VOC data (g/L less water) for each product, and the corresponding allowable VOC from the referenced standard.

C. Product Cost Data: Submit cost of products to verify compliance with Project sustainable design requirements. Exclude cost of labor and equipment to install products.
   1. Provide cost data for the following products:
      a. Products with recycled material content.
      b. Regional products.

1.08 QUALITY ASSURANCE

A. Installer's Qualifications: Installer of resilient sheet and tile flooring shall be licensed or otherwise certified by resilient sheet and tile flooring manufacturer and shall have been regularly providing installations of the types required for no less than five years and proving a background of not less than three years of installations of comparable size to that herein specified.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Comply with minimum requirements of Section 01 60 00 - Product Requirements.

B. Deliver packaged materials to the project site in manufacturer's original, unopened containers with seals unbroken and labels indicating brand names, color, and patterns, and quality designations legible and intact.

C. Do not open containers or remove labels until materials have been inspected and accepted.

D. Store and protect accepted materials in accordance with manufacturer's directions and recommendations.

E. Store resilient materials areas to receive resilient materials for not less than 48 hours prior to installation to achieve temperature stability.

1.10 SITE CONDITIONS

A. Environmental Conditions:
   1. Maintain temperature in storage area between 55 and 90 degrees Fahrenheit.
   2. Preheat the areas to receive resilient materials to 68 degrees Fahrenheit minimum for at least 72 hours prior to installation.
   3. Once that installation has begun, the above criteria are to be observed 24 hours a day seven days a week until completion of the installation, and for a minimum of 72 hours following the installation. Thereafter maintain minimum temperature of 55 degrees Fahrenheit.

B. Close spaces to traffic during installation of products specified in this Section.

C. Provide for continuous ventilation during installation using as close to 100 percent outside air as possible.

PART 2 PRODUCTS

2.01 RESILIENT SHEET FLOORING

A. [Type _____,]Sheet Vinyl Flooring:
   1. Description:
      a. Composition: Homogenous mixture of polyvinyl chloride, plasticizer, color pigments, stabilizers, and fillers.
      b. Meet requirements of ASTM F1913.
      c. Total Thickness and Wear Layer Thickness: 0.080 inch nominal.
      d. Sheet Width: 72 inch minimum.
      e. Seaming Method: Welding rod weld method for seamless joints.
      f. Flammability: Meet requirements of Class 1 critical radiant flux (0.45 or more) when tested in accordance with ASTM E648.
      g. Slip Resistance: Static coefficient of friction of 0.60 or greater, when tested in accordance with ASTM D2047.
   2. Product: Armstrong World Industries, Inc.'s "Medintech"; or equal.
   3. Color and Pattern: As indicated on Drawings.

B. Vinyl Welding Rod:
   1. Solid vinyl bead produced by manufacturer of vinyl flooring for heat welding seams.
   2. Color and Pattern: As indicated on Drawings.

2.02 RESILIENT TILE FLOORING

A. [Type _____,]Vinyl Composition Tile Flooring:

1. Description:
   a. Meet requirements of ASTM F1066 Composition 1, Class 2.
   b. Size: 12 by 12 inches.
   c. Thickness: 1/8 inch.
2. Product: Armstrong World Industries Inc.'s "Standard Excelon Imperial Textured"; or equal.
3. Color and Pattern: As indicated on Drawings.

2.03 RESILIENT BASE

A. [Type _____,][Smooth]Resilient Bases:
   1. Description:
      a. ASTM F1861, Type TP, Group 1.
      b. Smooth thermoplastic rubber, top set cove type at resilient flooring and straight (toeless) at carpet.
      c. Height: Nominal 4 inches or 6 inches high as scheduled in Drawings.
      d. Thickness: 0.125 inch.
      e. Length: Four feet.
      f. Accessories: Preformed end stops.
   2. Product: Johnsonite Inc.'s "Traditional Wall Base"; or equal.
   3. Color and Pattern: As indicated on Drawings.

2.04 RESILIENT STAIR COVERING

A. [Stair Tread and Riser, Typical:
   1. Description: One piece stair and riser, raised disc pattern.
   2. Product: Johnsonite Inc.'s "Roundel Rubber Stair Tread, RTR Round"; Marley Floors Inc.'s "Heavy Duty Radial II, One-Piece Stair Tread Type 1700"; or equal.
   3. Color and Pattern: As indicated on Drawings.

B. [Stair Tread and Riser (Top landing and bottom tread of each stair):
   1. Description: One piece stair and riser, raised disc pattern with black visually-impaired stripping.
   2. Product: Johnsonite Inc.'s "Roundel Rubber Stair Tread, VIRTR Round"; Marley Floors Inc.'s "Heavy Duty Radial II, One-Piece Stair Tread Type 1705"; or equal.
   3. Color and Pattern: As indicated on Drawings.

2.05 RESILIENT ACCESSORIES

A. Edge (Reducer) Strips:
   1. Description: Vinyl; color as selected from manufacturer's standard range.
   2. Product: Burke Flooring's "Tile Reducer No. 633"; Johnsonite Inc.'s "Johnsonite Reducer Strip RRS-XX Series"; or equal.
   3. Color and Pattern: As indicated on Drawings.

B. Adaptors (Carpet to Resilient):
   1. Description: Vinyl adapter for transition between carpet and resilient flooring.
   2. Product: Johnsonite Inc.'s "Johnsonite Adaptor No. CTA-XX-A Series"; or equal.
   3. Color and Pattern: As indicated on Drawings.

C. Edge Moldings and Transition Strips (Between Resilient Flooring and Other Flooring Materials that are Not Carpet):
   1. Description: Vinyl; profiles as indicated on Drawings or as required for adjoining floor surfaces.
   2. Manufacturer: Burke Flooring; Johnsonite Inc.'s; or equal.

3. Color: As selected from manufacturer's standard range to match or be compatible with darker flooring color.

D. Adaptors (Ceramic Tile to Resilient):
1. Description: Vinyl adapter for transition between ceramic tile and resilient flooring.
2. Product: Johnsonite Inc.'s "Johnsonite Adaptor No. CTA-XX-H Series"; or equal.
3. Color and Pattern: As indicated on Drawings.

E. Divider Strips:
1. Product: [Plastic,]—*or*—[Brass,]—*or*—[Zinc,]—*or*—[_____,] type as noted.
2. Manufacturer: Schulter Systems; Manhattan American Terrazzo Strip Co.; Rudel Floor Strip Co.; or equal.

2.06 RELATED MATERIALS

A. Leveling and Underlayment Compound: Latex cementitious type as recommended by adhesive manufacturer, having minimum density of 4,000 psi after 28 days.

B. Adhesives: Adhesive must meet the following requirements:
1. Solvent-free, water-resistant, mildew-resistant, non-flammable, low odor adhesive to suit resilient sheet flooring, resilient tie flooring, resilient base][base, resilient stair covering,]and accessories and substrate conditions indicated.
2. [Have VOC content of less than 100 g/L.]
3. [Meet all applicable air quality requirements.]
4. Meet or exceed VOC limits for adhesives and sealants. Adhesives must meet or exceed the VOC limits of SCAQMD Rule #1168 by, and all sealants used as filler must meet or exceed Bay Area Air Quality Management District Reg. 8, Rule 51.]
5. Recommended by resilient sheet flooring, resilient tie flooring, resilient base][base, resilient stair covering,]and accessories manufacturers.

C. Integral Sheet Vinyl Coved Base Accessories:
1. Fillet Strip for Coved Base: Vinyl or wood; profile as shown.
2. [Vinyl Cove Cap:
a. Description: Resilient vinyl cove cap for coved sheet goods.
b. Product: Johnsonite Inc.'s "Cove Cap SCC-XX-A"; or equal.
c. Color: [Johnsonite Inc.'s _____.]]
3. [Metal Cap Strip:
a. Description: Extruded aluminum, clear anodized.
b. Product: B & T Metal Co.'s "Chromedge No. 81-B"; Kinkead Industries, Inc.'s No. R1500B; Bonnell Co. Inc.'s "Trimedge No. A-1604-S"; or equal.]
4. [Metal Base Trim: B & T Metals Co.'s "Chromedge, Dur-Abrite Finish"; or equal.
a. Inside Corners: B & T No. 6600 IV C or No. 6450 IC.
b. Outside Corners: B & T No. 6600 OC or No. 6450 OC.
c. Cap Strip: B & T No. 81-B.]

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas, conditions, and surfaces under which work of this Section will be performed and verify that:
1. Sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive resilient flooring.
2. Wall surfaces are smooth and flat within the tolerances specified for that type of work, are

dust-free, and are ready to receive resilient base.
3. Sub-floor surfaces are dust-free and free of substances which would impair bonding of adhesive materials to sub-floor surfaces.
4. Concrete sub-floor surfaces are ready for resilient flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F710; obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.
5. Required floor-mounted utilities are in correct location.

B. Correct conditions detrimental to timely and proper completion of the Work.

C. Do not start installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. [Remove and dispose of existing materials designated for removal.]

B. [Application over Existing Floor Material:]
1. Use a liquid stripper in removing old polish, dirt, dust, oils, grease, and any deleterious materials that will effect proper installation.
2. Repair minor floor irregularities with underlayment material.

C. Remove sub-floor ridges and bumps.

D. Underlayment:
1. Apply according to manufacturer's directions wherever subfloor presents uneven surface and bring to true level surface.
2. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
3. Level existing substrate surfaces to acceptable flatness tolerances.
4. Apply underlayment to 1/8 inch maximum thickness and allow to cure prior to application of succeeding layers.
5. Do not install latex type underlayment in excess of 3/8 inch total thickness.
6. Include floated ramps, at slopes not to exceed 1:36, at doors and other locations where resilient sheet flooring adjoins higher dissimilar flooring as follows:
   a. Resilient sheet flooring shall finish 1/8 inch below adjoining carpet.
   b. Unless otherwise noted in the Drawings, resilient sheet flooring shall finish flush with all other dissimilar flooring, sills, and similar items.
7. Prohibit traffic until filler is cured.

E. Clean substrate.

F. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

G. Roll out sheet flooring flat, weight down ends, and leave lying for not less than 36 hours prior to bonding.

H. Provide sufficient lighting for installation operations.

I. Perform extensive floor preparation to ensure a tight tolerance for flatness and smoothness. Prior to installation of the material, sub floor is to be inspected by the University's Representative for approval.

3.03 INSTALLATION - SHEET FLOORING

A. Install in accordance with manufacturer's instructions.

B. Lay flooring with joints and seams [in accordance with seaming plan][parallel to longer room dimension, to produce minimum number of seams].

C. Lay flooring with tight and straight joints, level and true, free from waves, blisters, buckles, cracks, projecting edges, or other imperfections, and aligned exactly parallel to building lines to produce symmetrical tile pattern.

D. Double cut sheets. Lay flooring with heat welded seams using welding rods].

E. Spread adhesive evenly in quantity recommended by manufacturer to ensure adhesion over entire area of installation. Spread only enough adhesive to permit installation of flooring before initial set. Where adhesives with a limited “pot life” are used, give special attention to assuring that the flooring materials are completely installed within the allowable time limits.

F. Exercise care to avoid applying excessive amount of adhesive to the sub-floor. Bleeding of adhesive on finished floor will result in rejection and require removal of flooring and adhesive and relaying of flooring at no additional expense to University.

G. Set flooring in place; press with heavy roller to attain full adhesion.

H. Finished flooring to be fully bonded to substrate, free from damage, flaws, or other defects detrimental to appearance, have tightly fitted joints, uniform in pattern, spacing, margin, and finish.

I. Neatly scribe flooring to walls, columns, floor outlets, and other appurtenances to produce true, clean joints.

J. Fit joints tightly and keep in alignment.

K. Heat Welded Seams:
   1. Use equipment and procedures developed by the flooring manufacturer.
   2. General procedures consist of routing out the joint, inserting welding rod of proper size into routed space, and thermally fusing rod and each adjacent flooring material into a homogeneous, seamless floor.
   3. Fusion of Material: Fuse welding rod and flooring at least 65 percent through thickness of material.
   4. Upon completion of welding, remove excess welding rod material. Finished surface across joint to be flush, free from recessed or raised areas.
   5. Correct unwelded joints at no additional expense to University.
   6. Seam adhesive welds are not permitted.

L. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated. After installation of flooring, secure metal strips with stainless steel screws. Secure resilient strips by adhesive.

M. Coved Base: Install as detailed on drawings, using coved base filler as backing at floor to wall junction. Extend sheet flooring vertically to height indicated, and cover top edge with metal cap strip.

N. Install flooring in recessed floor access covers. Maintain floor pattern.

O. At movable partitions, install flooring under partitions without interrupting floor pattern.

P. Install feature strips and floor markings where indicated. Fit joints tightly.

3.04 INSTALLATION - TILE FLOORING

A. Install in accordance with manufacturer's instructions.

B. Open floor tile cartons, enough to cover each area, and mix tile from container to ensure shade variations do not occur within any one area.

C. Spread adhesive evenly in quantity recommended by manufacturer to ensure adhesion over entire area of installation. Spread only enough adhesive to permit installation of flooring before initial set. Where adhesives with a limited “pot life” are used, give special attention to assuring that the flooring materials are completely installed within the allowable time limits.

D. Exercise care to avoid applying excessive amount of adhesive to the sub-floor. Bleeding of adhesive on finished floor will result in rejection and require removal of flooring and adhesive and relaying of flooring at no additional expense to University.

E. Set flooring in place, press with heavy roller to attain full adhesion.

F. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

G. Install tile to ashlar pattern. Allow minimum 1/2 full size tile width at room or area perimeter.

H. Neatly scribe flooring to walls, columns, floor outlets, and other appurtenances to produce true, clean joints.

I. Install flooring in recessed floor access covers. Maintain floor pattern.

J. At movable partitions, install flooring under partitions without interrupting floor pattern.

K. Install feature strips and floor markings where indicated. Fit joints tightly.

3.05 INSTALLATION - BASE

A. Install resilient wall base in lengths as long as practicable. Maintain minimum dimension of 18 inches between joints.

B. Maintain minimum dimension of 72 inches between joints.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

E. Install resilient wall base without gaps at seams and with tops of adjacent pieces aligned.

F. Fit joints tightly and make vertical.

G. Install straight and level to variations of plus or minus 1/8 inch over 10 feet.

H. Tightly adhere wall base to solid backing through length of each piece, with base in continuous contact with horizontal and vertical substrates.

I. Miter internal corners.

J. At external corners 'V' cut back of base strip to 2/3 of its thickness and fold.

K. [Install continuous base at 180 degree corners in lieu of preformed outside corners.]

L. At exposed ends use premolded units.

M. Scribe and fit bases to abutting surfaces.

3.06 STAIR COVERING

A. Install stair treads and risers in one piece full width of tread.

B. Adhere over entire surface.

3.07 ACCESSORIES

A. Install resilient accessories so they are butted to adjacent materials of type indicated and bond to substrates with adhesive.

B. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated. After installation of flooring, secure metal strips with stainless steel screws.

C. Install divider strips where indicated.

3.08 PATCHING

A. Prior to completion of work, remove and replace any scratched or damaged resilient sheet flooring not acceptable to University's Representative.

3.09 CLEANING

A. As the installation progresses, clean off all visible adhesive and marks produced by work of this section, from resilient surfaces and from adjacent surfaces.

B. After installation has been completed, clean resilient surfaces as recommended by manufacturer of resilient materials.

C. Remove excess adhesive from floor, base, and wall surfaces without damage.

D. Clean, seal, and wax resilient flooring products in accordance with manufacturer's instructions.

3.10 PROTECTION OF INSTALLED WORK

A. Protect installed Work under provisions of Section 01 76 00 - Protecting Installed Work.

B. Protect finished work from damage.

C. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION