UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated July 2023
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SECTION 09 65 00

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08/10, CHG 3: 08/18

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SECTION 09 65 00

RESILIENT FLOORING
08/10, CHG 3: 08/18

****
NOTE: This guide specification covers the requirements for resilient floor coverings, base materials, and accessory items.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).
****

PART 1 GENERAL

****
NOTE: Resilient flooring may be used over wood subfloor provided that the subfloor underside is well ventilated and the installation conforms to the manufacturer's recommendations. Note that not all products are recommended for installation over panel type underlayment.

Flooring such as nonslip tile is not included in this specification; add appropriate wordingwhen it is required.

Show location of resilient flooring, including types, on the drawings.
****

1.1 REFERENCES

****

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

****

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN FOREST FOUNDATION (AFF)

ATFS STANDARDS	(2015) American Tree Farm System Standards of Sustainability 2015-2020

ASTM INTERNATIONAL (ASTM)

ASTM D4078	(2002; R 2015) Water Emulsion Floor Polish
ASTM D5603	(2001; R 2008) Rubber Compounding Materials - Recycled Vulcanizate Particulate Rubber
ASTM E648	(2019a) Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
ASTM F710	(2022) Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
ASTM F1066	(2004; R 2014; E 2014) Standard Specification for Vinyl Composition Floor Tile
ASTM F1303	(2004; R 2021) Standard Specification for Sheet Vinyl Floor Covering with Backing
ASTM F1344	(2021a) Standard Specification for Rubber Floor Tile

ASTM F1482	(2021) Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
ASTM F1700	(2020) Standard Specification for Solid Vinyl Floor Tile
ASTM F1859	(2021a) Standard Specification for Rubber Sheet Floor Covering Without Backing
ASTM F1860	(2021) Standard Specification for Rubber Sheet Floor Covering With Backing
ASTM F1861	(2021) Standard Specification for Resilient Wall Base
ASTM F1869	(2022) Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
ASTM F1913	(2004; R 2014) Vinyl Sheet Floor Covering Without Backing
ASTM F2034	(2008; R 2013) Sheet Linoleum Floor Covering
ASTM F2169	(2015; R 2020; E 2020) Standard Specification for Resilient Stair Treads
ASTM F2170	(2019a) Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
ASTM F2195	(2013) Linoleum Floor Tile

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH (CDPH)

CDPH SECTION 01350	(2017; Version 1.2) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources using Environmental Chambers

CSA GROUP (CSA)

CSA Z809-08	(R2013) Sustainable Forest Management

FOREST STEWARDSHIP COUNCIL (FSC)

FSC STD 01 001	(2015) Principles and Criteria for Forest Stewardship

GREEN SEAL (GS)

GS-36	(2013) Adhesives for Commercial Use

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 3813	(2004) Resilient Floor Coverings - Cork Floor Tiles

PROGRAMME FOR ENDORSEMENT OF FOREST CERTIFICATION (PEFC)

PEFC ST 2002:2013	(2015) PEFC International Standard Chain of Custody of Forest Based Products Requirements

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS	SCS Global Services (SCS) Indoor Advantage

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule 1168	(2017) Adhesive and Sealant Applications

SUSTAINABLE FOREST INITIATIVE (SFI)

SFI 2015-2019	(2015) Standards, Rules for Label Use, Procedures and Guidance

UNDERWRITERS LABORATORIES (UL)

UL 2818	(2022) GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings

1.2 SUBMITTALS

****

NOTE: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a “G” to an item, if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.
****

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Resilient Flooring and Accessories; G[, [_____]]

SD-03 Product Data

Resilient Flooring and Accessories; G[, [_____]]

Adhesives

Vinyl Composition Tile

[Recycled content for Vinyl Composition Tile; S]

Sheet Vinyl Flooring

[Recycled content for Sheet Vinyl Flooring; S]

Luxury Vinyl Tile

[Recycled content for Luxury Vinyl Tile; S]

Rubber Tile

Rubber Sheet Flooring

Solid Vinyl Tile

Cement-Fiber Board

Wall Base

Stair Treads, Risers and Stringers

[Sheet Linoleum]

[Recycled content for Sheet Linoleum; S]

[Bio-based content for Sheet Linoleum; S]

Linoleum Tile

[Recycled content for Linoleum Tile; S]

[Bio-based content for Linoleum Tile; S]

Cork Flooring

[Recycled content for Cork Flooring; S]

[Bio-based content for Cork Flooring; S]

SD-04 Samples

Resilient Flooring and Accessories; G[, [_____]]

SD-06 Test Reports

Moisture, Alkalinity and Bond Tests; G[, [_____]]

SD-07 Certificates

[Indoor Air Quality for Vinyl Composition Tile; S]

[Indoor Air Quality for Sheet Vinyl Flooring; S]

[Indoor Air Quality for Rubber Tile; S]

[Indoor Air Quality for Rubber Sheet Flooring; S]

[Indoor Air Quality for Luxury Vinyl Tile; S]

[Indoor Air Quality for Solid Vinyl Tile; S]

[Indoor Air Quality for Sheet Linoleum; S]

[Indoor Air Quality for Linoleum Tile; S]

[Indoor Air Quality for Cork Flooring; S]

[Indoor Air Quality for Wall Base; S]

Indoor Air Quality for Adhesives; S

[Certified Sustainably Harvested Cork Flooring; S]

SD-08 Manufacturer's Instructions

Surface Preparation; G[, [_____]]

Installation; G[, [_____]]

SD-10 Operation and Maintenance Data

Resilient Flooring and Accessories; G[, [_____]]

1.3 CERTIFICATES

1.3.1 Indoor Air Quality

Submit required indoor air quality certifications and validations in one submittal package.

1.3.1.1 Floor Covering Materials

Provide [Vinyl Composition Tile][Sheet Vinyl Flooring][Rubber Tile][Rubber Sheet Flooring][Luxury Vinyl Tile][Solid Vinyl Tile][Sheet Linoleum][Linoleum Tile][Cork Flooring], and wall base products certified to meet indoor air quality requirements by FLOORSCORE, UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification by other third-party programs. Provide current product certification documentation from certification body.

1.3.1.2 Adhesives, Caulking and Sealants

Provide products certified to meet indoor air quality requirements by UL 2818 (Greenguard) Gold, SCS Global Services Indoor Advantage Gold or provide certification or validation by other third-party programs that products meet the requirements of this Section. Provide current product certification documentation from certification body. When product does not have certification, provide validation that product meets the indoor air quality product requirements cited herein.

[
****

NOTE: Include the following section when specifying cork flooring. Use certified sustainably harvested wood where suitable for application and cost effective. Sustainably Harvested Wood is a product which comes from a third-party Forest Certification Program and thus carries certain characteristics: 1) Protection of biodiversity, species at risk and wildlife habitat, sustainable harvest regeneration (such as, replanting and reforestation); 2) Third-party certification audits performed by accredited certification bodies; 3) publicly available certification audit summaries; 4) Multi-stakeholder involvement in a standards development process; 5) Complaints and appeals process.

Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying these sustainably harvested wood certifications - if these conditions are verified for the project locale, include the following section. For projects pursuing LEED, delete certification other than FSC; for all other projects pursuing third-party certification allow the entire list of third party certifications.

****

1.3.2 Certified Sustainably Harvested Wood

Provide wood certified as sustainably harvested by FSC STD 01 001[, ATFS STANDARDS, CSA Z809-08, SFI 2015-2019 Standards and Rules, or other third party program certified by PEFC ST 2002:2013]. Provide a letter of Certification of Sustainably Harvested Wood signed by the wood supplier. Identify certifying organization and their third party program name and indicate compliance with chain-of-custody program requirements. Submit sustainable wood certification data; identify each certified product on a line item basis. Submit copies of invoices bearing certification numbers.

]1.4 DELIVERY, STORAGE, AND HANDLING

****
NOTE: Materials which are woven, fibrous, or porous in nature have a high capacity to adsorb VOC emissions; for instance, acoustical ceilings, carpet, textiles, and unprimed gypsum wall board. If specifying porous materials include bracketed text and indicate materials to be protected.
****

Deliver materials to the building site in original unopened containers bearing the manufacturer's name, style name, pattern color name and number, production run, project identification, and handling instructions. Store materials in a clean, dry, secure, and well-ventilated area free from strong contaminant sources and residues with ambient air temperature maintained above 20 degrees C 68 degrees F and below 30 degrees C 85 degrees F, stacked according to manufacturer's recommendations. Remove resilient flooring products from packaging to allow ventilation prior to installation. Protect materials from the direct flow of heat from hot-air registers, radiators and other heating fixtures and appliances. Observe ventilation and safety procedures specified in the MSDS. Do not store rubber surface products with materials that have a high capacity to adsorb volatile organic compound (VOC) emissions, including [_____]. Do not store exposed rubber surface materials in occupied spaces. [Do not store [_____] near materials that may offgas or emit harmful fumes, such as kerosene heaters, fresh paint, or adhesives.]

1.5 ENVIRONMENTAL REQUIREMENTS

Maintain areas to receive resilient flooring at a temperature above 20 degrees C 68 degrees F and below 30 degrees C 85 degrees F for 3 days before application, during application and 2 days after application, unless otherwise directed by the flooring manufacturer for the flooring being installed. Maintain a minimum temperature of 13 degrees C 55 degrees F thereafter. Provide adequate ventilation to remove moisture from area and to comply with regulations limiting concentrations of hazardous vapors.

1.6 SCHEDULING

Schedule resilient flooring application after the completion of other work which would damage the finished surface of the flooring.

1.7 WARRANTY

Provide manufacturer's standard performance guarantees or warranties that extend beyond a one year period.

1.8 EXTRA MATERIALS

****
NOTE: To ensure matching flooring that may become damaged and require spot replacement, a supply of extra flooring of same types, colors and dye lot is recommended. Coordinate requirement for extra stock with customer; warehousing may not be available.

****

Provide extra flooring material of each color and pattern at the rate of [[_____] [5] tiles for each 1000 tiles] [and] [[_____] [0.5] square m [5] square feet for each 92 square m 1000 square feet of sheet flooring] installed. Provide extra wall base material composed of 6 m 20 linear feet of each type, color and pattern. Package all extra materials in original properly marked containers bearing the manufacturer's name, brand name, pattern color name and number, production run, and handling instructions. Provide extra materials from the same lot as those installed. Leave extra stock at the site in location assigned by Contracting Officer.

PART 2 PRODUCTS

****

NOTE: Appropriate flooring material should be determined by:

-Amount and type (such as, foot, cart, wheelchair) of traffic

-Abrasiveness of local soil conditions

-Exposure to water, chemicals, grease, and burns

-Exposure to in-use damage (cuts, tears, gouges)

-Exposure to direct sunlight (fading potential)

-Anticipated type of and frequency of maintenance

-Cost of maintenance

-Appearance expectations

Verify proposed use of flooring with manufacturer's recommendations.

Sheet flooring should be considered for areas such as healthcare facilities due to the reduced amount of seams. Seam welded sheet flooring without backing provides a monolithic floor impervious to moisture penetration.

Specify special adhesive for resilient flooring installed on floors with radiant heating, wet areas and areas with heavy rolling loads.

If more than one type of resilient flooring is required, a separate paragraph for each type will be used. Each type will be designated with a letter or number symbol. Use the same symbols to key flooring to locations on the drawings and in Section 09 06 00 SCHEDULES FOR FINISHES. Delete reference to type symbol if not used.

****

2.1 VINYL COMPOSITION TILE [TYPE [A][_____]]

****

NOTE: When vinyl composition tile is used, 3.2 mm 1/8 inch thick should be utilized in high traffic commercial type installations.

Solid color tiles are tiles with uniform color throughout. These are recommended for use as an accent only in small quantities and not as the floor field color. These tiles do not hide soiling well

and show scratches easily.

Through pattern tiles are tiles with patterning distributed through the entire thickness.

****

Conform to ASTM F1066 [Class 1, (solid color tile),] [Class 2, (through pattern tile),] Composition 1, asbestos-free, [300] [_____] mm [12] [_____] inch square and [2.4] [3.2] mm [3/32] [1/8] inch thick. Provide color and pattern uniformly distributed throughout the thickness of the tile.

****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available from some US national manufacturers above the minimum recycled content shown. Some manufacturers do not offer recycled content.

****

[Provide Vinyl Composition Tile containing a minimum of 10 percent recycled content. Provide data identifying percentage of recycled content for Vinyl Composition Tile.]

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Vinyl Composition Tile.]

2.2 SHEET VINYL FLOORING [TYPE [A][_____]]

****

NOTE: Not all sheet vinyl flooring is available with chemically bonded or heat welded seams. Research available products.

****

Conform to [ASTM F1303, Type I, Grade 1, [Class A-non-asbestos formulated fibrous backing] [or] [Class B-nonfoamed plastic backing] (minimum wear layer thickness 0.5 mm 0.020 inch and minimum overall thickness 2 mm 0.080 inch) and a minimum [1800 mm 6 feet] [3660 mm 12 feet] wide.] [ASTM F1303, Type II, Grade 1, without backing (minimum wear layer thickness 2 mm 0.080 inch and minimum overall thickness 2 mm 0.080 inch), and a minimum 1800 mm 6 feet wide. Extend color and pattern through the total thickness of the material.] [ASTM F1303, Type II, Grade 1, [Class A non-asbestos formulated fibrous backing] [or] [Class B nonfoamed plastic backing] (minimum wear layer thickness 1.27 mm 0.050 inch and minimum overall thickness 2 mm 0.080 inch) and a minimum 1800 mm 6 feet wide. Extend color and pattern throughout the thickness of the wear layer.] [ASTM F1913, (minimum wear layer thickness 1.9 mm 0.075 inch and minimum overall thickness 1.9 mm 0.075 inch) and a minimum 1800 mm 6 feet wide. Extend

color and pattern through the total thickness of the material.] As required, provide welding rods as recommended by the manufacturer for heat welding of joints.

****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available from some US national manufacturers above the minimum recycled content shown. Some manufacturers do not offer recycled content.

****

[Provide Sheet Vinyl Flooring containing a minimum of 25 percent recycled content. Provide data identifying percentage of recycled content for Sheet Vinyl Flooring.]

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Sheet Vinyl Flooring.]

2.3 RUBBER TILE [TYPE [A][_____]]

****

NOTE: Rubber flooring provides slip resistance not usually found with other type floor tiles. Consider for areas such as stairwell landings and ramps. Rubber flooring has a cushioning quality that reduces leg weariness and fatigue.

Some rubber flooring is not resistant to oil and grease and can perform poorly against certain reagents and stain spills. Determine project needs, research available product and add verbiage to paragraph if rubber flooring needs to be resistant to oil and grease and perform against certain reagents and stain spills.

Research available sizes. Manufacturer's sizes vary and not all manufacturers offer all sizes.

Ingredients in rubber flooring may include either natural rubber or synthetic materials. Natural rubber is a renewable raw material that is extracted from the sap of the tropical rubber plant without harming the plant. Typically, no waxes are required to maintain rubber floors.

****

Conform to ASTM F1344 [Class 1 homogeneous] [Class 2 layered], [Type A (solid color)] [Type B (through mottled)], [300] [450] [600] [900] [_____]

mm [12] [18] [24] [36] [_____] inch square. Provide [smooth] [_____] [raised [round] [square] [diamond] surface studs with chamfered edges. Provide [high] [low]] stud profile. Provide [3.2] [_____] mm [0.125] [_____] inch overall thickness. [With Vulcanizate Particulate Rubber, use recycled tire treads in accordance with ASTM D5603, fine mesh size particulate, [Grade 1, 2, or 3] [Grade 4] [Grade 5] [Grade 6]].

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Rubber Tile.]

2.4 RUBBER SHEET FLOORING [TYPE [A] [_____]]

****

NOTE: Rubber sheet flooring provides slip resistance not usually found with other type floor tiles. Consider for areas such as stairwell landings and ramps. Rubber flooring has a cushioning quality that reduces leg weariness and fatigue.

Some rubber flooring is not resistant to oil and grease and can perform poorly against certain reagents and stain spills. Determine project needs, research available product and add verbiage to paragraph if rubber flooring needs to be resistant to oil and grease and perform against certain reagents and stain spills.

The following thicknesses of rubber flooring are recommended for the traffic type shown: 2.0 mm 0.080 inch thickness - low traffic; 2.5 mm 0.100 inch thickness - medium traffic; 3 mm 0.118 inch thickness or greater - heavy traffic.

Research available widths. Manufacturer's widths vary and not all manufacturers offer all sizes.

****

Conform to [ASTM F1859 (flooring without backing), [Type I homogeneous] [Type II layered]] [or] [ASTM F1860 (flooring with backing), [Type I homogeneous] [Type II layered]], [minimum] [1 m 36 inch] [_____] wide. Provide [smooth] [embossed] [_____] surface. Provide [2] [2.5] [3] [_____] mm [0.080] [0.100] [0.118] [_____] inch overall thickness.[With Vulcanizate Particulate Rubber, use recycled tire treads in accordance with ASTM D5603, fine mesh size particulate, [Grade 1, 2, or 3] [Grade 4] [Grade 5] [Grade 6].]

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Rubber Sheet Flooring.]

2.5 LUXURY VINYL TILE [TYPE [A][_____]]

Conform to ASTM F1700 Class III printed film with a minimum wear layer thickness [0.50 mm 0.020 inch (20 mil)][0.70 mm 0.030 inch (30 mil)][_____] and minimum overall thickness [[2.5 mm 0.098 inch] [or] [3 mm 0.118 inch]] [5 mm 0.197 inch[with non slip/skid backing]], Type [A (smooth)] [B (embossed)]. Provide[[300 by 600] [_____] mm [12 by 24] [_____] inch][[300] [400] [450] [600] [900] [_____] mm [12] [16] [18] [24] [36] [_____] inch square][_____] tile.[Provide tile with a factory protective finish that enhances cleanability and durability.]

****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available from some US national manufacturers above the minimum recycled content shown. Some manufacturers do not offer recycled content.

****

[Provide Luxury Vinyl Tile containing a minimum of 35 percent recycled content. Provide data identifying percentage of recycled content for Luxury Vinyl Tile.]

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Luxury Vinyl Tile.]

2.6 SOLID VINYL TILE [TYPE [A][_____]]

Conform to ASTM F1700 Class I monolithic (minimum wear layer thickness 3 mm 0.125 inch and minimum overall thickness 3 mm 0.125 inch, Type [A (smooth)] [B (embossed)]. Provide [300] [400] [450] [600] [900] [_____] mm [12] [16] [18] [24] [36] [_____] inch square tile.

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Solid Vinyl Tile.]

2.7 SHEET LINOLEUM [TYPE [A][_____]]

Conform to ASTM F2034 and consist of a homogeneous layer of a mixture of linoleum cement (binder in linoleum consisting of a mixture of linseed oil, pine rosin, fossil, or other resins or rosins, or an equivalent oxidized oleoresinous binder), cork and/or wood flour, mineral fillers, and pigments bonded to a jute backing. Provide a minimum 1800 mm 6 feet

wide and overall thickness not less than [2.0 mm 0.080 inch] [2.5 mm 0.100 inch] [3.2 mm 0.125 inch] for linoleum. As required, provide welding rods as recommended by the manufacturer for heat welding of joints.

Provide Sheet Linoleum containing a minimum of 30 percent recycled content. Provide data identifying percentage of recycled content for Sheet Linoleum.

Provide Sheet Linoleum products with minimum 95 percent bio-based content. Submit data identifying percentage of bio-based content for Sheet Linoleum.

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Sheet Linoleum.]

2.8 LINOLEUM TILE [TYPE [A][_____]]

Conform to ASTM F2195 and consist of a homogeneous layer of a mixture of linoleum cement (binder in linoleum consisting of a mixture of linseed oil, pine rosin, fossil, or other resins or rosins, or an equivalent oxidized oleoresinous binder), cork or wood flour, mineral fillers, and pigments bonded to a [polyester] [_____] backing. Provide square tiles a minimum [450 mm 18 inch] [_____] square and overall thickness [2.0 mm 0.08 inch] [_____] minimum for linoleum tile.

Provide Linoleum Tile containing a minimum of 30 percent recycled content. Provide data identifying percentage of recycled content for Linoleum Tile.

Provide Linoleum Tile with minimum 90 percent bio-based content. Submit data identifying percentage of bio-based content for Linoleum Tile.

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms.

****

[Provide certification of indoor air quality for Linoleum Tile.]

2.9 CORK FLOORING

****

NOTE: Cork granules used for cork flooring and linoleum are by-products from bottle-cork manufacturing. Some cork floors use synthetic binders in the manufacturing process and synthetic finishes to provide more durable walking surfaces. Typically available only in tile form, cork usually provides better sound absorption characteristics than most vinyl flooring but is less durable than commercial vinyl and rubber flooring.

****

Conform to ISO 3813, and be [300] [_____] mm [12] [_____] inches square and [0.05] [_____] m [3/16][_____] inches to [0.08] [_____] m [5/16] [_____] inches thick. [Provide cork-faced MDF tongue-and-groove planks with cork facing.] Do not use products made with urea-formaldehyde binder.

****

NOTE: Use materials with recycled content where appropriate for use. Verify suitability, availability within the region, cost effectiveness and adequate competition before specifying product recycled content requirements.

Research shows the product is available from some US national manufacturers above the minimum recycled content shown. Some manufacturers do not offer recycled content.

****

[Provide Cork Flooring containing a minimum of 95 percent recycled content. Provide data identifying percentage of recycled content for Cork Flooring.]

Provide Cork Flooring with minimum 100 percent bio-based content. Submit data identifying percentage of bio-based content for Cork Flooring.

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms. Research shows that the product is available from some US national manufacturers with the following certification.

****

[Provide certification of indoor air quality for Cork Flooring.]

****

NOTE: Use certified sustainably harvested wood where suitable for application and cost effective. Verify availability within the region, cost effectiveness, and adequate competition before specifying these certifications.

****

[Provide certified sustainably harvested Cork Flooring.]

2.10 WALL BASE

****

NOTE: Job formed corners are recommended. The return on preformed corners is not always long enough to hold the piece in place and the corners can be knocked off during vacuuming and other cleaning operations.

Base is available in different lengths ranging from 1.22 m 4 feet pieces to 30.48 m 100 feet or 36.58 m 120 feet rolls. Availability and roll lengths vary dependent on manufacturer. Identify required length

if it impacts design intent. Some manufacturers of Type TS (vulcanized thermoset rubber) base offer only 1.22 m 4 feet lengths and not roll goods.

****

Conform to ASTM F1861, [[Type TS (vulcanized thermoset rubber)] [or] [Type TP (thermoplastic rubber)]] [, or] [Type TV (thermoplastic vinyl)], [Style A (straight - installed with carpet)] [,] [and] [Style B (coved - installed with resilient flooring)] [,] [and] [Style C (butt toe cove installed with 3 mm 1/8 inch thick flooring)]. Provide [100] [150] mm [4] [6] inch high and a minimum 3.175 mm 1/8 inch thick wall base. Provide [preformed] [job formed] corners in matching height, shape, and color. [With Vulcanizate Particulate Rubber, use recycled tire treads in accordance with ASTM D5603, fine mesh size particulate, [Grade 1, 2, or 3] [Grade 4] [Grade 5] [Grade 6].]

****

NOTE: Include the last bracketed sentence requiring products with indoor air quality certifications when product will be located in offices or classrooms. Research shows that the product is available from some US national manufacturers with the following certification.

****

[Provide certification of indoor air quality for Wall Base.]

2.11 INTEGRAL COVE BASE

****

NOTE: Integral coves can be used in many situations in which sheet vinyl and linoleum flooring are used to enhance the sanitary capacity inherent in seamless construction.

Consider specifying corner protectors in high traffic areas and areas that may receive some abuse.

Corner protectors are preferred in naval installations.

****

Extend integral coved base for [[sheet vinyl] [and] [sheet linoleum] flooring up the wall [100] [150] mm [4] [6] inch]. Provide a [vinyl] [or] [rubber] [clear anodized aluminum], [square] [round] cap strip and vinyl, rubber, or wood fillet strip with a minimum radius of 19 mm 3/4 inch for integral coved bases [at perimeter and fixed vertical interruptions to flooring] [as shown]. Provide integral cove of the same material as flooring. [Provide inside and outside corner protectors of [[_____]-colored anodized aluminum] [clear anodized aluminum] [or] [plastic] approved by flooring manufacturer.]

2.12 STAIR TREADS, RISERS AND STRINGERS

Conform to ASTM F2169, [[Type TS (vulcanized thermoset rubber)] [or] [Type TP (thermoplastic rubber)]] [or] [Type TV (thermoplastic vinyl)]. Conform to ASTM F2169 for surface of treads [Class 1 smooth] [[Class 2 raised [round] [square] [diamond] stud] [ribbed] pattern] [and have [Group 1 abrasive non-slip strip] [Group 2 strip for visually impaired of

contrasting [_____] color of [same] [abrasive] material]]. Provide [square] [or] [round] nosing. Provide either a one piece nosing/tread/riser or a two piece nosing/tread design with a matching coved riser.[With Vulcanizate Particulate Rubber, use recycled tire treads in accordance with ASTM D5603, fine mesh size particulate, [Grade 1, 2, or 3] [Grade 4] [Grade 5] [Grade 6].]

2.13 MOULDING

Provide tapered mouldings of [[vinyl] [or] [rubber]] [[_____]-colored anodized aluminum] [clear anodized aluminum] and types as recommended by flooring manufacturer for both edges and transitions of flooring materials specified. Provide vertical lip on moulding of maximum 6 mm 1/4 inch. Provide bevel change in level between 6 and 13 mm 1/4 and 1/2 inch with a slope no greater than 1:2.

2.14 ADHESIVES

****
NOTE:
Adhesives may be a source of VOCs. Some styles of plastic flooring are available in loose-laid design (puzzle pieces that are tapped together with a rubber mallet) that can be installed without adhesive.
****

Provide adhesives for flooring, base and accessories as recommended by the manufacturer and comply with local indoor air quality standards. Submit manufacturer's descriptive data, documentation stating physical characteristics, and mildew and germicidal characteristics.

Provide non-aerosol adhesive products used on the interior of the building (defined as inside of the weatherproofing system) that meet either emissions requirements of CDPH SECTION 01350 (limit requirements for either office or classroom spaces regardless of space type) or VOC content requirements of SCAQMD Rule 1168. Provide aerosol adhesives used on the interior of the building that meet either emissions requirements of CDPH SECTION 01350 (use the office or classroom requirements, regardless of space type) or VOC content requirements of GS-36. Provide certification or validation of indoor air quality for adhesives.

2.15 SURFACE PREPARATION MATERIALS

****
NOTE: Panel type underlayments, such as plywood and hardboard, are specified in Section 06 10 00 ROUGH CARPENTRY. Coordinate underlayments requirements with the ROUGH CARPENTRY specifications.
****

Provide surface preparation materials, such as panel type underlayment, lining felt, and floor crack fillers as recommended by the flooring manufacturer for the subfloor conditions. Comply with ASTM F1482 for panel type underlayment products. Use one of the following substrates:

[a. Particleboard: As specified in Section 06 10 00 ROUGH CARPENTRY.]

[b. Fiberboard: As specified in Section 06 10 00 ROUGH CARPENTRY.]

[c. Cork: As specified in Section 06 10 00 ROUGH CARPENTRY.]

[d. Cement-fiber board: As specified in Section 09 29 00 GYPSUM BOARD.]

[e. Plywood: As specified in Section 06 10 00 ROUGH CARPENTRY.]

[f. Concrete.]

2.16 POLISH/FINISH

Provide polish finish as recommended by the manufacturer and conform to ASTM D4078 for polish.

2.17 CAULKING AND SEALANTS

Provide caulking and sealants in accordance with Section 07 92 00 JOINT SEALANTS.

2.18 MANUFACTURER'S COLOR, PATTERN AND TEXTURE

****

NOTE: Coordinate color reference sentence(s) with the Government. Generally the Section 09 06 00 SCHEDULES FOR FINISHES or drawings are used when the project is designed by an Architect or Interior designer. Select color from manufacturer's standard colors or identify in this specification.

When the government directs that color be located in the drawings, add a note that states: "Where color is shown as being specific to one manufacturer, an equivalent color by another manufacturer may be submitted for approval. Manufacturers and materials specified are not intended to limit the selection of equal colors from other manufacturers. The word "color" as used herein includes surface color and pattern."

When more than one type, pattern or color is specified identify location.

When a manufacturer's name, stock number, pattern, and color is specified for color, be certain that the product conforms to the specification, as edited.

NOTE: Drawings are required for projects with floor patterns.

****

Provide color, pattern and texture for resilient flooring and accessories [in accordance with Section 09 06 00 SCHEDULES FOR FINISHES] [as indicated on the drawings] [selected from manufacturer's standard colors] [[_____]. Color listed is not intended to limit the selection of equal colors from other manufacturers].[Provide floor patterns as specified on the [drawings Sheet No. [_____]] [_____].] Provide flooring in any one continuous area or replacement of damaged flooring in continuous area from same production run with same shade and pattern. Submit scaled drawings indicating patterns (including location of patterns and colors) and

dimensions. Submit manufacturer's descriptive data and [three] [_____] samples of each indicated color and type of flooring, base, mouldings, and accessories sized a minimum 60 by 100 mm 2-1/2 by 4 inch. Submit Data Package 1 in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

2.19 FIRE RESISTANCE TESTING REQUIREMENTS

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NOTE: Choice of critical radiant flux level as it applies to building type and area of application will be made in accordance with the latest edition of UFC 3-600-01 and NFPA 101. Wherever the use of Class II (0.22) watts finish is required, Class I (0.45) watts will be permitted. Critical radiant flux will be a minimum average of 0.45 watts when used in corridors in bachelor enlisted quarters, bachelor officer quarters, hospital, child care centers, temporary lodging facilities, and new construction of detention and correctional facilities. Generally the critical radiant flux will be a minimum of 0.22 for corridors of other type facilities. Where an approved automatic sprinkler system is installed, Class II interior floor finish may be used where Class I floor finish is required, and where Class II is required, no critical radiant flux rating is required.

****

Provide a minimum average critical radiant flux of [0.22][0.45] watts per square centimeter for flooring in corridors and exits when tested in accordance with ASTM E648.

PART 3 EXECUTION

3.1 EXAMINATION

Examine and verify that site conditions are in agreement with the design package. Report all conditions that will prevent a proper installation. Do not take any corrective action without written permission from the Government. Work will proceed only when conditions have been corrected and accepted by the installer. Submit manufacturer's printed installation instructions for all flooring materials and accessories, including preparation of substrate, seaming techniques, and recommended adhesives.

3.2 SURFACE PREPARATION

Provide a smooth, true, level plane for surface preparation of the flooring, except where indicated as sloped. Floor to be flat to within 4.75 in 3048 mm 3/16 inch in 10 feet. Prepare subfloor in accordance with flooring manufacturer's recommended instructions. Prepare the surfaces of lightweight concrete slabs (as defined by the flooring manufacturer) as recommended by the flooring manufacturer. Comply with ASTM F710 for concrete subfloor preparation. Floor fills or toppings may be required as recommended by the flooring manufacturer. Install underlayments, when required by the flooring manufacturer, in accordance with manufacturer's recommended printed installation instructions. Comply with ASTM F1482 for panel type underlayments. Before any work under this section is begun, correct all defects such as rough or scaling concrete, chalk and dust,

cracks, low spots, high spots, and uneven surfaces. Repair all damaged portions of concrete slabs as recommended by the flooring manufacturer. Remove concrete curing and sealer compounds from the slabs, other than the type that does not adversely affect adhesion. Remove paint, varnish, oils, release agents, sealers, waxes, and adhesives, as required by the flooring product in accordance with manufacturer's printed installation instructions.

3.3 MOISTURE, ALKALINITY AND BOND TESTS

Determine the suitability of the concrete subfloor for receiving the resilient flooring with regard to moisture content and pH level by moisture and alkalinity tests. Conduct moisture testing in accordance with ASTM F1869 or ASTM F2170, unless otherwise recommended by the flooring manufacturer. Conduct alkalinity testing as recommended by the flooring manufacturer. Determine the compatibility of the resilient flooring adhesives to the concrete floors by a bond test in accordance with the flooring manufacturer's recommendations. Submit copy of test reports for moisture and alkalinity content of concrete slab, and bond test stating date of test, person conducting the test, and the area tested.

3.4 GENERAL INSTALLATION

Do not install building construction materials that show visual evidence of biological growth.

3.5 PLACING VINYL COMPOSITION, LINOLEUM AND SOLID VINYL TILES

Install tile flooring and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's directions. Keep tile lines and joints square, symmetrical, tight, and even. Keep each floor in true, level plane, except where slope is indicated. Vary edge width as necessary to maintain full-size tiles in the field, no edge tile to be less than one-half the field tile size, except where irregular shaped rooms make it impossible. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Cut, fit, and scribe edge tile to walls and partitions after field flooring has been applied.

3.6 PLACING LUXURY VINYL TILES

****

NOTE: Most LVT flooring is installed using conventional glue down installation. LVT flooring that is 5 mm 0.197 inch thick can be installed loose lay or adhesive dependent on the project requirements. Glue down installation is typically required in areas with high traffic and rolling loads. Coordinate recommended installation methods with flooring manufacturers.

****

[Install luxury vinyl tile flooring using [glue down] [loose lay (room perimter adhesive only)] installation.]Install flooring and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's directions for installation method specified. Keep tile lines and joints square, symmetrical, tight, and even. Keep each floor in true, level plane, except where slope is indicated. Vary edge width as necessary to maintain

full-size tiles in the field, no edge tile to be less than one-half the field tile size, except where irregular shaped rooms make it impossible. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Cut, fit, and scribe edge tile to walls and partitions after field flooring has been applied.

3.7 PLACING SHEET VINYL FLOORING

****
NOTE: Determine if welded seams are necessary to meet project requirements.
****

Install sheet vinyl flooring and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Provide square, symmetrical, tight, and even flooring lines and joints. Keep each floor in true, level plane, except where slope is indicated. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Lay out sheets to minimize waste. Cut, fit, and scribe flooring to walls and partitions after field flooring has been applied.[Provide [chemically bonded] [or] [heat welded] seams and edges [in rooms [_____]] [shown on the drawings] in accordance with the manufacturer's written installation instructions. Finish joints flush, free from voids, recesses, and raised areas.] [Install flooring with an integral coved base.]

3.8 PLACING SHEET LINOLEUM FLOORING

****
NOTE: Determine if welded seams are necessary to meet project requirements.
****

Install sheet linoleum flooring and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Provide square, symmetrical, tight, and even flooring lines and joints. Keep each floor in true, level plane, except where slope is indicated. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Lay out sheets to minimize waste. Cut, fit, and scribe flooring to walls and partitions after field flooring has been applied. Cut seams by overlapping or underscribing as recommended by the manufacturer. [Provide heat welded seams [in rooms [_____]] [as shown on the drawings] in accordance with there manufacturer's written installation instructions.] Finish joints flush, free from voids, recesses, and raised areas. [Install flooring with an integral coved base.]

3.9 PLACING RUBBER TILE

Install rubber tile and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Provide square, symmetrical, tight, and even flooring lines and joints. Keep each floor in true, level plane, except where slope is indicated. Vary width of edge tiles as necessary to maintain full-size tiles, except where irregular-shaped rooms makes it impossible. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Cut, fit, and scribe flooring to walls and partitions after

field flooring has been applied.

3.10 PLACING RUBBER SHEET FLOORING

Install rubber sheet flooring and accessories in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Provide square, symmetrical, tight, and even flooring lines and joints. Keep each floor in true, level plane, except where slope is indicated. Cut seams by overlapping or underscribing as recommended by the manufacturer. Lay out sheets to minimize waste. Cut flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Cut, fit, and scribe flooring to walls and partitions after field flooring has been applied.

3.11 PLACING CORK FLOORING

Install cork [tile] [plank flooring] and accessories in accordance with manufacturer's installation instructions. Prepare and apply adhesives in accordance with manufacturer's directions. Provide square, symmetrical, tight, and even flooring lines and joints except where slope is indicated. Keep each floor in true, level plane, except where slope is indicated. [Vary width of edge tiles as necessary to maintain full-size tiles in field, while keeping edge tiles larger than one-half full size, except where irregular-shaped rooms make it impossible.] Cut and fit flooring around all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Cut, fit and scribe flooring to walls and partitions after field flooring has been applied.

3.12 PLACING FEATURE STRIPS

Install feature strips in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions.

3.13 PLACING MOULDING

Provide moulding where flooring termination is higher than the adjacent finished flooring and at transitions between different flooring materials. When required, locate moulding under door centerline. Moulding is not required at doorways where thresholds are provided. [Secure moulding with adhesive as recommended by the manufacturer. Prepare and apply adhesives in accordance with manufacturer's printed directions.] [Anchor aluminum moulding to floor surfaces as recommended by the manufacturer.]

3.14 PLACING WALL BASE

Install wall base in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Tighten base joints and make even with adjacent resilient flooring. Fill voids along the top edge of base at masonry walls with caulk. Roll entire vertical surface of base with hand roller, and press toe of base with a straight piece of wood to ensure proper alignment. Avoid excess adhesive in corners.

3.15 PLACING STAIR TREADS, RISERS, AND STRINGERS

****

NOTE: Installation of stringers can be labor intensive. Dependent on the project requirements consider other stringer finish alternatives, an example would be a painted stringer.
****

Secure and install stair treads, risers, and stringers in accordance with manufacturer's printed installation instructions. Cover the surface of treads and risers[the full width of the stairs][within 150 mm6 inch to the stair edges]. Provide equal length pieces butted together to cover the treads and risers for stairs wider than manufacturer's standard lengths. [Provide stringer angles on both the wall and banister sides of the stairs, and landing trim.]

3.16 PLACING INTEGRAL COVED BASE

Install integral cove base in accordance with manufacturer's printed installation instructions. Prepare and apply adhesives in accordance with manufacturer's printed directions. Shape integral coved base by extending the flooring material [100] [150] [_____] mm [4] [6] [_____] inch onto the wall surface. Support cove by a filler. Provide a cap strip at the top of the base. Fill voids along the top edge of base at masonry walls with caulk.

3.17 CLEANING

****
NOTE: Some activities prefer no-wax maintenance; others prefer waxing. Pre-waxed flooring and flooring that does not require wax need not be waxed after installation if properly protected. Coordinate any requirements for application of polish/floor finish with the end user. Modify paragraph accordingly.
****

Immediately upon completion of installation of flooring in a room or an area, dry and clean the flooring and adjacent surfaces to remove all surplus adhesive. Clean flooring as recommended in accordance with manufacturer's printed maintenance instructions and within the recommended time frame. As required by the manufacturer, apply the recommended number of coats and type of polish and finish in accordance with manufacturer's written instructions.

3.18 PROTECTION

From the time of installation until acceptance, protect flooring from damage as recommended by the flooring manufacturer. Remove and replace flooring which becomes damaged, loose, broken, or curled and wall base which is not tight to wall or securely adhered.

-- End of Section --