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USACE / NAVFAC / AFCEA UFGS-09650 (November 2003)  
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Preparing Activity: USACE Superseding  
UFGS-09650 (October 2003)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 25 June 2004

Latest change indicated by CHG tags

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SECTION TABLE OF CONTENTS

DIVISION 09 - FINISHES

SECTION 09650

RESILIENT FLOORING

11/03

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 FIRE RESISTANCE REQUIREMENTS
- 1.3 SUBMITTALS
- 1.4 DELIVERY AND STORAGE
- 1.5 ENVIRONMENTAL REQUIREMENTS
- 1.6 SCHEDULING
- 1.7 WARRANTY
- 1.8 EXTRA MATERIALS

PART 2 PRODUCTS

- 2.1 VINYL COMPOSITION TILE [TYPE [A] [\_\_\_\_\_]]
- 2.2 SHEET VINYL FLOORING [TYPE [A] [\_\_\_\_\_]]
- 2.3 RUBBER TILE [TYPE [A] [\_\_\_\_\_]]
- 2.4 RUBBER SHEET FLOORING [TYPE [A] [\_\_\_\_\_]]
- 2.5 SOLID VINYL TILE [TYPE [A] [\_\_\_\_\_]]
- 2.6 SHEET LINOLEUM [TYPE [A] [\_\_\_\_\_]]
- 2.7 LINOLEUM TILE [TYPE [A] [\_\_\_\_\_]]
- 2.8 WALL BASE
- 2.9 INTEGRAL COVE BASE
- 2.10 STAIR TREADS, RISERS, AND STRINGERS
- 2.11 FEATURE STRIP
- 2.12 MOULDING
- 2.13 ADHESIVES
- 2.14 SURFACE PREPARATION MATERIALS
- 2.15 POLISH/FINISH
- 2.16 CAULKING AND SEALANTS
- 2.17 MANUFACTURER'S COLOR, PATTERN AND TEXTURE

PART 3 EXECUTION

- 3.1 EXAMINATION/VERIFICATION OF CONDITIONS

3.2	SURFACE PREPARATION
3.3	MOISTURE, ALKALINITY AND BOND TESTS
3.4	PLACING VINYL-COMPOSITION TILE, LINOLEUM TILE AND SOLID VINYL TILE
3.5	PLACING SHEET VINYL FLOORING
3.6	PLACING SHEET LINOLEUM FLOORING
3.7	PLACING RUBBER TILE
3.8	PLACING RUBBER SHEET FLOORING
3.9	PLACING FEATURE STRIPS
3.10	PLACING MOULDING
3.11	PLACING WALL BASE
3.12	PLACING STAIR TREADS, RISERS, AND STRINGERS
3.13	PLACING INTEGRAL COVED BASE
3.14	CLEANING
3.15	PROTECTION

-- End of Section Table of Contents --

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### SECTION 09650

#### RESILIENT FLOORING 11/03

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

Comments and suggestions on this guide specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

This guide specification includes tailoring options for vinyl composition tile, sheet vinyl flooring, rubber tile, rubber sheet flooring, solid vinyl tile, linoleum sheet flooring, linoleum tile, stair treads, risers, stringers, wall base, integral cove base, and feature strip. Selection or deselection of a tailoring option will include or exclude that option in the section, but editing the resulting section to fit the project is still required.

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## PART 1 GENERAL

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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 and cork tile are not included in this specification; appropriate wording must be added when those tiles are required.

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

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## 1.1 REFERENCES

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NOTE: Issue (date) of references included in project specifications need not be more current than provided by the latest guide specification. Use of SpecsIntact automated reference checking is recommended for projects based on older guide specifications.

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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.

### ASTM INTERNATIONAL (ASTM)

ASTM D 4078	(2002) Water Emulsion Floor Polish
ASTM E 648	(2003) Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
ASTM F 1066	(1999) Vinyl Composition Floor Tile
ASTM F 1303	(2002) Sheet Vinyl Floor Covering with Backing
ASTM F 1344	(2003a) Rubber Floor Tile
ASTM F 1482	(2003) Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
ASTM F 1700	(1999) Solid Vinyl Floor Tile
ASTM F 1859	(2003) Rubber Sheet Floor Covering Without Backing
ASTM F 1860	(2003) Rubber Sheet Floor Covering With Backing
ASTM F 1861	(2002) Resilient Wall Base
ASTM F 1869	(1998) Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
ASTM F 1913	(2002) Vinyl Sheet Floor Covering Without

## Backing

ASTM F 2034	(2003) Sheet Linoleum Floor Covering
ASTM F 2169	(2002) Resilient Stair Treads
ASTM F 2170	(2002) Determining Relative Humidity in Concrete Floor Slabs in situ Probes
ASTM F 2195	(2003) Linoleum Floor Tile
ASTM F 710	(2003) Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

## SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD)

SCAQMD Rule #1168	(2003) Adhesive and Sealant Applications
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### 1.2 FIRE RESISTANCE 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 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. Omit paragraph if not applicable.

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Flooring in corridors and exits shall have a minimum average critical radiant flux of [0.22] [0.45] watts per square centimeter when tested in accordance with ASTM E 648.

### 1.3 SUBMITTALS

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NOTE: Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item should be required.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only

delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation 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 projects.

Submittal items not designated with a "G" are considered as being for information only for Army projects and for Contractor Quality Control approval for Navy projects.

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Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.] [for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

#### SD-02 Shop Drawings

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**NOTE: Drawings are required for projects with floor patterns.**

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Resilient Flooring and Accessories[; G][; G, [\_\_\_\_]]

Scaled drawings indicating patterns (including location of patterns and colors) and dimensions.

#### SD-03 Product Data

Resilient Flooring and Accessories[; G][; G, [\_\_\_\_]]

Manufacturer's descriptive data.

#### Adhesives

Manufacturer's descriptive data, documentation stating physical characteristics, and mildew and germicidal characteristics. Material Safety Data Sheets (MSDS) for all primers and adhesives shall be provided to the Contracting Officer. Highlight VOC emissions.

#### SD-04 Samples

Resilient Flooring and Accessories[; G][; G, [\_\_\_\_]]

[Three] [\_\_\_\_] samples of each indicated color and type of flooring, base, mouldings, and accessories. Sample size shall be minimum 60 x 100 mm 2-1/2 x 4 inches.

#### SD-06 Test Reports

Moisture, Alkalinity and Bond Tests[; G][; G, [\_\_\_\_]]

Copy of test reports of moisture and alkalinity content of concrete slab, and bond test stating date of test, person conducting the test, and the area tested.

#### SD-08 Manufacturer's Instructions

Surface Preparation[; G][; G, [\_\_\_\_]]  
Installation[; G][; G, [\_\_\_\_]]

Manufacturer's printed installation instructions for all flooring materials and accessories, including preparation of substrate, seaming techniques, and recommended adhesives.

#### SD-10 Operation and Maintenance Data

Resilient Flooring and Accessories[; G][; G, [\_\_\_\_]]

Data Package 1 in accordance with Section 01781 OPERATION AND MAINTENANCE DATA.

### 1.4 DELIVERY AND STORAGE

Materials shall be delivered 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. Materials shall be stored in a clean dry area with temperature maintained above 20 degrees C 68 degrees F and below 30 degrees C 85 degrees F, and shall be stacked according to manufacturer's recommendations. Materials shall be protected from the direct flow of heat from hot-air registers, radiators and other heating fixtures and appliances. Do not open containers until materials are to be used, except for verification inspection. Observe ventilation and safety procedures specified in the MSDS.

### 1.5 ENVIRONMENTAL REQUIREMENTS

Areas to receive resilient flooring shall be maintained at a temperature above 20 degrees C 68 degrees F and below 30 degrees C 85 degrees F for 2 days before application, during application and 2 days after application, unless otherwise directed by the flooring manufacturer for the flooring being installed. A minimum temperature of 13 degrees C 55 degrees F shall be maintained thereafter. Observe ventilation and safety procedures specified in the MSDS. Provide adequate ventilation to remove moisture from area and to comply with regulations limiting concentrations of hazardous vapors.

## 1.6 SCHEDULING

Resilient flooring application shall be scheduled after the completion of other work which would damage the finished surface of the flooring.

## 1.7 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a one year period shall be provided.

## 1.8 EXTRA MATERIALS

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

## PART 2 PRODUCTS

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NOTE: Appropriate flooring material should be determined by:  
-Amount and type (foot, cart, wheelchair, etc.)  
of traffic  
-Abrasive-ness 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 manufacturers recommendations.

Sheet flooring should be considered for areas such as health care 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 09915 COLOR SCHEDULE. Delete reference to type symbol if not used.

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## 2.1 VINYL COMPOSITION TILE [TYPE [A] [\_\_\_\_]]

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NOTE: The 3.2 mm (1/8 inch) thick vinyl composition tile (VCT) should be utilized in high traffic commercial type installations. The 2.4 mm (3/32-inch) thick VCT should be considered for light to medium duty areas such as rooms in BEQ's and BOQ's.

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.

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Vinyl-composition tile shall conform to ASTM F 1066, [Class 1, (solid color tile),] [Class 2, (through pattern tile),] Composition 1, asbestos-free, and shall be [300] [\_\_\_\_] mm [12] [\_\_\_\_] inches square and [2.4] [3.2] mm [3/32] [1/8] inch thick. Tile shall have the color and pattern uniformly distributed throughout the thickness of the tile.

## 2.2 SHEET VINYL FLOORING [TYPE [A] [\_\_\_\_]]

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NOTE: Not all sheet vinyl flooring is available with chemically bonded and/or heat welded seams. Research available products and coordinate with facility requirements.

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Sheet vinyl flooring shall conform to [ASTM F 1303, 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 inches and minimum overall thickness 2 mm 0.080 inches) and shall not be less than [1800 mm 6 feet] [3660 mm 12 feet] wide.] [ASTM F 1303, Type II, Grade 1, without backing (minimum wear layer thickness 2 mm 0.080 inches and minimum overall thickness 2 mm 0.080 inches), and shall be not less than 1800 mm 6 feet wide. Color and pattern shall extend through the total thickness of the material.] [ASTM F 1303, 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 inches and minimum overall thickness 2 mm 0.080 inches) and shall be not less than 1800 mm 6 feet wide. Color and pattern shall extend throughout the thickness of the wearlayer.] [ASTM F 1913, (minimum wear layer thickness 1.9 mm 0.075 inches and minimum overall thickness 1.9 mm 0.075 inches) and shall be not less than 1800 mm 6 feet wide. Color and pattern shall extend through the total thickness of the

material.] As required, provide welding rods as recommended by the manufacturer for heat welding of joints.

### 2.3 RUBBER TILE [TYPE [A] [\_\_\_\_\_]]

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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. Manufacturers sizes vary and not all manufacturers offer all sizes.

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Rubber tile shall conform to ASTM F 1344 [Class 1 homogeneous] [Class 2 layered], [Type A (solid color)] [Type B (through mottled)], [300] [450] [600] [900] [\_\_\_\_\_] mm [12] [18] [24] [36] [\_\_\_\_\_] inches square. Surface shall be [smooth] [\_\_\_\_\_] [raised [round] [square] [diamond] studs with chamfered edges. Stud profile shall be [high] [low]]. Overall thickness shall be [3.2] [\_\_\_\_\_] mm [0.125] [\_\_\_\_\_] inch thick.

### 2.4 RUBBER SHEET FLOORING [TYPE [A] [\_\_\_\_\_]]

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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. Manufacturers widths vary and not all manufacturers offer all sizes.

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Rubber sheet flooring shall conform to [ASTM F 1859 (flooring without backing), [Type I homogeneous] [Type II layered]] [or] [ASTM F 1860 (flooring with backing), [Type I homogeneous] [Type II layered]], [minimum] [1 m 36 inches] [\_\_\_\_\_] wide. Surface shall be [smooth] [embossed] [\_\_\_\_\_] . Overall thickness shall be [2] [2.5] [3] [\_\_\_\_\_] mm [0.080] [0.100] [0.118] [\_\_\_\_\_] inch thick.

## 2.5 SOLID VINYL TILE [TYPE [A] [\_\_\_\_\_] ]

Solid vinyl tile shall conform to ASTM F 1700 [Class I monolithic (minimum wear layer thickness 3.2 mm 0.125 inches and minimum overall thickness 3.2 mm 0.125 inches) [Class III printed film (minimum wear layer thickness 0.50 mm 0.020 inches and minimum overall thickness 3.2 mm 0.125 inches)], Type [A (smooth)] [B (embossed)]. Tile shall be [300] [400] [450] [600] [900] [\_\_\_\_\_] mm [12] [16] [18] [24] [36] [\_\_\_\_\_] inches square.

## 2.6 SHEET LINOLEUM [TYPE [A] [\_\_\_\_\_] ]

Linoleum shall conform to ASTM F 2034 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. Linoleum shall not be less than 1800 mm 6 feet wide and overall thickness shall not be less than [2.0 mm 0.080 inches] [2.5 mm 0.100 inches] [3.2 mm 0.125 inches]. As required, provide welding rods as recommended by the manufacturer for heat welding of joints.

## 2.7 LINOLEUM TILE [TYPE [A] [\_\_\_\_\_] ]

Linoleum tile shall conform to ASTM F 2195 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. Linoleum tile shall not be less than [450 mm 18 inches] [\_\_\_\_\_] square and overall thickness shall not be less than [2.5 mm 0.100 inches] [\_\_\_\_\_] .

## 2.8 WALL BASE

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**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 1220 mm (4 feet) pieces to 30480 mm (100 feet) or 36576 mm (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 1220 mm (4 feet) lengths and not roll goods.

\*\*\*\*\*

Base shall conform to ASTM F 1861, [[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)]. Base shall be [100] [150] mm [4] [6] inches high and a minimum 3.175 mm 1/8 inch thick. [Preformed] [Job formed] corners in matching height, shape, and color shall be furnished.

## 2.9 INTEGRAL COVE BASE

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**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.**

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Integral coved base for [[sheet vinyl] [and] [sheet linoleum] flooring shall extend up the wall [100] [150] mm [4] [6] inches]. 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 shall be provided for integral coved bases [at perimeter and fixed vertical interruptions to flooring] [as shown]. Integral cove shall be 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.]

## 2.10 STAIR TREADS, RISERS, AND STRINGERS

Treads, risers, and stringers shall conform to ASTM F 2169 [[Type TS (vulcanized thermoset rubber)] [or] [Type TP (thermoplastic rubber)]] [, or] [Type TV (thermoplastic vinyl)]. Surface of treads shall conform to ASTM F 2169 [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]]. Nosing shall be [square] [or] [round]. Design shall be either a one piece nosing/tread/riser or a two piece nosing/tread with a matching coved riser.

## 2.11 FEATURE STRIP

Feature strips shall be [vinyl composition tile and conform to ASTM F 1066, [Class 1, (solid color tile),]] [rubber tile and conform to ASTM F 1344 [Class 1 homogeneous]] [\_\_\_\_\_] , and be [25 mm 1 inch] [50 mm 2 inch] [\_\_\_\_\_] wide, and of thickness to match the flooring.

## 2.12 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. Vertical lip on moulding shall not be greater than 6 mm 1/4 inch. Change in level between 6 and 13 mm 1/4 and 1/2 inch shall be beveled with a slope no greater than 1:2.

## 2.13 ADHESIVES

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NOTE: Conformance with South Coast Air Quality  
Management District (SCAQMD) Rule #1168 as noted  
complies with LEED and SPiRit requirements.  
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Adhesives for flooring, base and accessories shall be as recommended by the manufacturer and comply with local indoor air quality standards.[ VOC content must be less than the current VOC content limits of SCAQMD Rule #1168.]

## 2.14 SURFACE PREPARATION MATERIALS

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NOTE: Particleboard is not recommended for use as  
an underlayment. Panel type underlayments, such as  
plywood and hardboard, are specified in Sections  
06100N and 06100A ROUGH CARPENTRY. Coordinate  
underlayments requirements with the ROUGH CARPENTRY  
specifications.  
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Surface preparation materials, such as panel type underlayment, lining felt, and floor crack fillers shall be as recommended by the flooring manufacturer for the subfloor conditions. Panel type underlayment products shall comply with ASTM F 1482.

## 2.15 POLISH/FINISH

Polish shall be as recommended by the manufacturer and conform to ASTM D 4078.

## 2.16 CAULKING AND SEALANTS

Caulking and sealants shall be in accordance with Section 07920 JOINT SEALANTS.

## 2.17 MANUFACTURER'S COLOR, PATTERN AND TEXTURE

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NOTE: Editing of color reference sentence(s) shall  
be coordinated with the Government. Generally the  
09915 COLOR SCHEDULE or drawings are used when the  
project is designed by an Architect or Interior  
designer. Color shall be selected from  
manufacturers standard colors or identified in this  
specification only when the project has minimal  
finishes.

When the government directs that color be located in  
the drawings, a note will be added 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.

\*\*\*\*\*

Color, pattern and texture for resilient flooring and accessories shall be [in accordance with Section 09915 COLOR SCHEDULE] [as indicated on the drawings] [selected from manufacturers standard colors] [[\_\_\_\_]]. Color listed is not intended to limit the selection of equal colors from other manufacturers]. [ Floor patterns shall be as specified in the [drawings] [\_\_\_\_]]. Flooring in any one continuous area or replacement of damaged flooring in continuous area shall be from same production run with same shade and pattern.

### PART 3 EXECUTION

#### 3.1 EXAMINATION/VERIFICATION OF CONDITIONS

The Contractor shall examine and verify that site conditions are in agreement with the design package and shall report all conditions that will prevent a proper installation. The Contractor shall 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.

#### 3.2 SURFACE PREPARATION

Flooring shall be in a smooth, true, level plane, except where indicated as sloped. Floor shall be flat to within 4.75 in 3048 mm 3/16 inch in 10 feet.

Subfloor shall be prepared in accordance with flooring manufacturers recommended instructions. The surfaces of lightweight concrete slabs (as defined by the flooring manufacturer) shall be prepared as recommended by the flooring manufacturer. Concrete subfloor preparation shall comply with ASTM F 710. Floor fills or toppings may be required as recommended by the flooring manufacturer. Underlayments when required by the flooring manufacturer shall be installed in accordance with manufacturer's recommended installation instructions. Panel type underlayments shall comply with ASTM F 1482. Before any work under this section is begun, all defects such as rough or scaling concrete, chalk and dust, cracks, low spots, high spots, and uneven surfaces shall have been corrected, and all damaged portions of concrete slabs shall have been repaired as recommended by the flooring manufacturer. Concrete curing and sealer compounds, other than the type that does not adversely affect adhesion, shall be entirely removed from the slabs. Paint, varnish, oils, release agents, sealers, waxers, and adhesives shall be removed, as recommended by the flooring manufacturer.

#### 3.3 MOISTURE, ALKALINITY AND BOND TESTS

The suitability of the concrete subfloor for receiving the resilient flooring with regard to moisture content and pH level shall be determined by moisture and alkalinity tests and shall comply with manufacturers recommendations. Moisture testing shall be in accordance with ASTM F 1869

or ASTM F 2170 unless otherwise recommended by the flooring manufacturer. Alkalinity testing shall be as recommended by the flooring manufacturer. The compatibility of the resilient flooring adhesives to the concrete floors shall be determined by a bond test in accordance with the flooring manufacturers recommendations.

#### 3.4 PLACING VINYL-COMPOSITION TILE, LINOLEUM TILE AND SOLID VINYL TILE

Tile flooring and accessories shall be installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturer's directions. Tile lines and joints shall be kept square, symmetrical, tight, and even. Keep each floor in true, level plane, except where slope is indicated. Edge width shall vary as necessary to maintain full-size tiles in the field, but no edge tile shall be less than one-half the field tile size, except where irregular shaped rooms make it impossible. Flooring shall be cut to, and fitted around, all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Edge tile shall be cut, fitted, and scribed to walls and partitions after field flooring has been applied.

#### 3.5 PLACING SHEET VINYL FLOORING

Sheet vinyl flooring and accessories shall be installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturer's directions. Flooring lines and joints shall be square, symmetrical, tight, and even. Flooring with an integral pattern shall match at seams. Keep each floor in true, level plane, except where slope is indicated. Flooring shall be cut to, and fitted around, all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Flooring shall be cut, fitted, and scribed to walls and partitions after field flooring has been applied. [Seams and edges of sheet vinyl flooring [in rooms [\_\_\_\_]] [shown on the drawings] shall be [chemically bonded] [or] [heat welded] in accordance with the manufacturer's written installation instructions. Finish joints flush, free from voids, recesses, and raised areas.] [Flooring shall be installed with an integral coved base.]

#### 3.6 PLACING SHEET LINOLEUM FLOORING

Sheet linoleum flooring and accessories shall be installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturers directions. Flooring lines and joints shall be square, symmetrical, tight, and even. Keep each floor in true, level plane, except where slope is indicated. Flooring shall be cut to, and fitted around, all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Flooring shall be cut, fitted, and scribed to walls and partitions after field flooring has been applied. Seams shall be cut by overlapping or underscribing as recommended by the manufacturer. [Seams of sheet linoleum flooring [in rooms [\_\_\_\_]] [shown on the drawings] shall be heat welded in accordance with the manufacturer's written installation instructions. Finish joints flush, free from voids, recesses, and raised areas.] [Flooring shall be installed with an integral coved base.]

#### 3.7 PLACING RUBBER TILE

Rubber tile and accessories shall be installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturers directions. Flooring lines and

joints shall be square, symmetrical, tight, and even. 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, but no edge tile shall be less than one-half full size, except where irregular-shaped rooms makes it impossible. Flooring shall be cut to, and fitted around, all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Flooring shall be cut, fitted, and scribed to walls and partitions after field flooring has been applied.

### 3.8 PLACING RUBBER SHEET FLOORING

Rubber flooring and accessories shall be installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturers directions. Flooring lines and joints shall be square, symmetrical, tight, and even. Keep each floor in true, level plane, except where slope is indicated. Seams shall be cut by overlapping or underscribing as recommended by the manufacturer. Flooring shall be cut to, and fitted around, all permanent fixtures, built-in furniture and cabinets, pipes, and outlets. Flooring shall be cut, fitted, and scribed to walls and partitions after field flooring has been applied.

### 3.9 PLACING FEATURE STRIPS

Feature strips shall be installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturers directions.

### 3.10 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. [Moulding shall be secured with adhesive as recommended by the manufacturer. Adhesives shall be prepared and applied in accordance with manufacturers directions.] [Anchor aluminum moulding to floor surfaces as recommended by the manufacturer.]

### 3.11 PLACING WALL BASE

Wall base shall be installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturers directions. Base joints shall be tight and base shall be even with adjacent resilient flooring. Voids along the top edge of base at masonry walls shall be filled 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. Voids along the top edge of base at masonry walls shall be filled with caulk.

### 3.12 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.**  
\*\*\*\*\*

Stair treads, risers, and stringers shall be securely attached and

installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturers directions. Treads and risers shall cover [the full width of the stairs] [the surface of the stairs to within 150 mm 6 inches of the edges]. Stairs wider than manufacturer's standard lengths shall have equal length pieces butted together to cover the treads. [Installation shall include stringer angles on both the wall and banister sides, and landing trim.]

### 3.13 PLACING INTEGRAL COVED BASE

Integral cove base shall be installed in accordance with manufacturer's installation instructions. Adhesives shall be prepared and applied in accordance with manufacturers directions. Integral coved base shall be formed by extending the flooring material [100] [150] [\_\_\_\_\_] mm [4] [6] [\_\_\_\_\_] inches onto the wall surface. Cove shall be supported by a filler. A cap strip shall be provided at the top of the base. Voids along the top edge of base at masonry walls shall be filled with caulk.

### 3.14 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. Modify  
paragraph accordingly.**  
\*\*\*\*\*

Immediately upon completion of installation of flooring in a room or an area, flooring and adjacent surfaces shall be dry-cleaned to remove all surplus adhesive. Clean flooring as recommended in accordance with manufacturer's printed maintenance instructions. No sooner than 5 days after installation, flooring shall be washed with a nonalkaline cleaning solution, rinsed thoroughly with clear cold water, and, except for rubber flooring and stair treads, risers and stringers, vinyl and other flooring not requiring polish by manufacturer, given the number of coats of polish in accordance with manufacturers written instructions. All other flooring shall be cleaned and maintained as recommended by the manufacturer.

### 3.15 PROTECTION

From the time of laying until acceptance, flooring shall be protected from damage as recommended by the flooring manufacturer. Flooring which becomes damaged, loose, broken, or curled and wall base which is not tight to wall or securely adhered shall be removed and replaced.

-- End of Section --