

SECTION 09 68 00

CARPETING

PART 1 GENERAL

1.1 REFERENCES

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 D2859 (2016) Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials

ASTM E648 (2017a) Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source

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

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 2551 (1981) Machine-made Textile Floor Coverings - Determination of Dimensional Changes Due to the Effects of Varied Water and Heat Conditions

JAPANESE STANDARDS ASSOCIATION (JSA)

JIS A 1125 (2015) Methods Of Test For Moisture Content Of Aggregate And Surface Moisture In Aggregate By Drying

JIS K 2265-1 (2007) Determination of flash point - Part 1: Tag closed cup method

JIS K 7134 (1999) Cellular rubber and plastics - Determination of dynamic cushioning performance

JIS L 0805 (2005) Gray Scale for Assessing Staining

JIS L 0849 (2013) Test Methods for color fastness to rubbing

JIS L 1021-3 (2007) Textile floor coverings - Part 3: Determination of thickness

JIS L 1021-4	(2007)Textile floor coverings - Part 4: Methods for determination of mass
JIS L 1021-5	(2007)Textile floor coverings - Part 5: Determination of number of tufts and/or loops per unit.
JIS L 1021-10	(2007)Textiles floor coverings - Part 10: Test Methods for dimensional changes due to water and heat effects
JIS L 1021-13	(2007)Textile floor coverings - Part 13: Assessment of changes in appearance
JIS L 1902	(2015)Antimicrobial Fabric Test
JIS L 4405	(2008) Tufted Pile Carpet
JIS L 4406	(2008) Tile Carpet

MINISTRY OF LAND, INFRASTRUCTURE, TRANSPORT AND TOURISM (MLIT)

MLIT SS Chapter 19	(2019) Public Building Construction Standard Specifications Chapter 19: Interior Finishing Works
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1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.] [information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion in the Sustainability eNotebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Installation Drawings; G[, [_____]]

SD-10 Operation and Maintenance Data

Cleaning and Protection

Maintenance Service

Maintenance Service Information

SD-11 Closeout Submittals

Warranty

1.3 CERTIFICATIONS

1.3.1 Indoor Air Quality Certifications

1.3.1.1 Floor Covering Materials

Provide products certified to meet indoor air quality requirements by providing the certification or validation by other third-party program 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.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver materials to the site in the manufacturer's original wrappings and packages clearly labeled with the manufacturer's name, brand name, size, dye lot number, and related information. Remove materials from packaging and store them in a clean, dry, well ventilated area (100 percent outside air supply, minimum of 1.5 air changes per hour, and no recirculation), protected from damage, soiling, and moisture, and strong contaminant sources and residues, and maintain at a temperature above 16 degrees C for 2 days prior to installation. Do not store carpet or carpet tiles with materials which have high emissions of volatile organic compounds (VOCs) or other contaminants, including paints and adhesives. Do not store carpet near materials that may off gas or emit harmful fumes, such as kerosene heaters, fresh paint, or adhesives.

1.5 AMBIENT CONDITIONS

Maintain areas in which carpeting is to be installed at a temperature above 16 degrees C and below 32 degrees C for 2 days before installation, during installation, and for 2 days after installation. Provide temporary ventilation during work of this section. Maintain a minimum temperature of 13 degrees C thereafter for the duration of the contract.

1.6 WARRANTY

Provide manufacturer's standard performance guarantees or warranties including minimum ten year wear warranty, two year material and workmanship and ten year tuft bind and delamination.

PART 2 PRODUCTS

2.1 CARPET

Furnish first quality carpet that is free of visual blemishes, streaks, poorly dyed areas, fuzzing of pile yarn, spots or stains, and other physical and manufacturing defects. Provide carpet materials and treatments as reasonably nonallergenic and free of other recognized health hazards. Provide a static control construction on all grade carpets which gives adequate durability and performance. Submit manufacturer's catalog data and printed documentation stating physical characteristics, durability, resistance to fading, and flame resistance characteristics for each type of carpet material and installation accessory. Submit manufacturer's Product Data for 1) Carpet, 2) Moldings, and 3) Carpet Cushion. Also, submit Samples of the following:

- a. Carpet: [Two] [_____] "Production Quality" samples 450 by 450 mm of

each carpet proposed for use, showing quality, pattern, and color specified

b. Moldings: [Two] [_____] samples of each type minimum 300 mm long

c. Carpet Cushion: [Two] [_____] samples minimum 150 by 150 mm

2.1.1 Indoor Air Quality Requirements

Products must meet emissions requirements of CDPH SECTION 01350. Provide certification or validation of indoor air quality for carpet.

2.1.2 Physical Characteristics for [Broadloom] [Modular Tile] [Entrance] Carpet

2.1.2.1 Carpet Construction

[Tufted] [Woven] [Bonded] [Needlebond] [Needle Felt] [_____]

2.1.2.2 Type

[Broadloom [3.6] [1.8] m minimum usable carpet width [with exception of corridors] [and] [stairs] [_____] .][Modular tile [450 by 450] [500 by 500] [600 by 600] [914 by 305] [1219 by 305] [_____] mm square with 0.15 percent growth/shrink rate in accordance with ISO 2551 or JIS L 1021-10.] [Entrance [450 by 450] [_____] mm square [3.6] [1.8] m width [_____] mat size.]

2.1.2.3 Pile Type

[Level-loop] [Multilevel loop] [Cut and loop] [Frieze] [Cut pile] [Random sheared] [Level tip shear]

2.1.2.4 Pile Fiber

Commercial 100 percent branded (federally registered trademark) [nylon continuous filament] [nylon staple].

2.1.2.5 Gauge or Pitch

Minimum [_____] mm in accordance with JIS L 1021-5.

2.1.2.6 Stitches or Rows/Wires

Minimum [_____] per square meter

2.1.2.7 Surface Pile Weight

Minimum [_____] kg/square meter. This does not include weight of backings. Determine weight in accordance with JIS L 1021-4.

2.1.2.8 Pile Thickness

Minimum [_____] mm in accordance with JIS L 1021-3.

2.1.2.9 Pile Density

Minimum [_____]

2.1.2.10 Dye Method

[Solution dyed] [Stock dyed] [Yarn (or Skein) dyed] [Piece dyed] [Space dyed] [Continuous dyed]

2.1.2.11 Backing Materials

Provide primary backing materials like [those customarily used and accepted by the trade for each type of carpet] [polypropylene] [synthetic material] [rubber] [jute] [cotton] [_____]. Provide secondary backing to suit project requirements of those customarily used and accepted by the trade for each type of carpet.

2.1.2.12 Attached Cushion

Provide an attached cushion [chemically frothed polyurethane with minimum weight of 0.610 kg/sq. m, minimum density of 176 kg/cubic m] [mechanically frothed polyurethane with minimum weight of 0.745 kg/sq. m, minimum density of 224 kg/cubic m, minimum thickness of 2.5 mm, and maximum compression resistance of 34.5 kPa, and compression set of 15 percent in accordance with JIS K 7134]. Do not exceed the maximum ash content of 50 percent. Pass the accelerated aging test in accordance with [JIS K 7134] for the cushion.

2.2 PERFORMANCE REQUIREMENTS

2.2.1 Texture Appearance Retention Rating (TARR)

Provide carpet with a greater than or equal to [3.0 (Heavy)] [3.5 (Severe)] TARR traffic level classification in accordance with JIS L 1021-13.

2.2.2 Static Control

Provide static control to permanently regulate static buildup to less than [3.5] [2.0] [_____] kV when tested at 20 percent relative humidity and 21 degrees C in accordance with JIS L 4406.

2.2.3 Flammability and Critical Radiant Flux Requirements

Comply with ASTM D2859 or ASTM E648. Provide carpet in corridors and exits with a minimum average critical radiant flux of [0.22] [0.45] watts per square centimeter when tested in accordance with ASTM D2859 or ASTM E648. Flame time earlier than 20 seconds, burned yarn shorter than 10 mm in accordance with JIS L 4406. Carpet shall be flameproof in accordance with Japan Fire Defense Law and prescribed in Fire Service Act (Act No. 186 of 1948).

2.2.4 Tuft Bind

Comply with JIS L 4405 for tuft bind force required to pull a tuft or loop free from carpet backing with a minimum [40 N average force for loop pile broadloom] [18 N average force for cut pile broadloom] [36 N average force for modular carpet tile]. Provide tuft bind force required to pull a tuft or loop free from carpet backing with a minimum 24.5 N average force for loop pile in accordance with JIS L 4406.

2.2.5 Colorfastness to Crocking

Comply dry and wet crocking with JIS L 0849 for all colors.

2.2.6 Colorfastness to Light

Comply colorfastness to light with JIS L 0805/ JIS L 4406.

2.2.7 Colorfastness to Water

Comply colorfastness to water with JIS L 1021-10 and with a minimum 4.0 gray scale rating and a minimum 4.0 transfer scale rating.

2.2.8 Delamination Strength

Provide delamination strength for tufted carpet with a secondary back of minimum 440 N/m.

2.2.9 Antimicrobial

Nontoxic antimicrobial treatment in accordance with JIS L 1902 guaranteed by the carpet manufacturer to last the life of the carpet.

2.3 CARPET CUSHION

[2.3.1 Fiber Cushion

[Rubberized hair, mothproofed and sterilized] [Rubberized jute [with minimum 40 percent recycled content], mothproofed and sterilized] [Synthetic with minimum [____] percent recycled content] [Resinated, recycled textile].

2.3.1.1 Weight

[____] g/sq.m

2.3.1.2 Thickness

[____] mm plus 5 percent maximum

2.3.1.3 Density

[____] kg/cu.m

]2.3.2 Rubber Cushion

[Flat] [Rippled waffle] [Textured flat] [Reinforced] [, with minimum 60 percent recycled content.]

2.3.2.1 Weight

[____] g/sq.m

2.3.2.2 Thickness

[____] mm plus 5 percent maximum

2.3.2.3 Density

[_____] kg/cu.m

]2.3.3 Polyurethane-Foam Cushion

[Grafted prime] [Densified] [Bonded] [Mechanically frothed] [, with minimum 15 percent recycled content].

2.3.3.1 Thickness

[_____] mm plus 5 percent maximum

2.3.3.2 Density

[_____] kg/cu.m

]2.3.4 Performance Requirements - Critical Radiant Flux

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

2.4 ADHESIVES AND CONCRETE PRIMER

Comply with applicable regulations regarding toxic and hazardous materials. Provide water resistant, mildew resistant, nonflammable, and nonstaining adhesives and concrete primers for carpet installation as required by the carpet manufacturer. Provide release adhesive for modular tile carpet as recommended by the carpet manufacturer. Provide adhesives flashpoint of minimum 60 degrees C in accordance with JIS K 2265-1. Non-aerosol adhesive, aerosol adhesives, and concrete primer products used on the interior of the building (defined as inside of the weatherproofing system) must meet emission requirements of F 4-Star.

2.5 MOLDINGS

Provide carpet moldings where floor covering material changes or carpet edge does not abut a vertical surface. Provide [a heavy-duty [vinyl] [rubber] molding designed for the type of carpet being installed. Provide floor flange of a minimum [38 mm] wide. Provide color to match [resilient base] [_____] [an aluminum molding, pinless clamp-down type, designed for the type of carpet being installed. Provide [natural color anodized] [prefinished color [_____] finish. Provide a floor flange of a minimum 38 mm wide and face a minimum 16 mm wide.]]

2.6 TAPE

Provide tape for seams as recommended by the carpet manufacturer for the type of seam used in broadloom installation. Seam sealant must have a maximum VOC content of no more than 50 grams/liter. Do not use sealants that contain 1,1,1-trichloroethane or toluene.

2.7 COLOR, TEXTURE, AND PATTERN

Provide color, texture, and pattern in accordance with this section or as indicated on the drawings.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

Do not install carpet on surfaces that are unsuitable and will prevent a proper installation. Prepare subfloor in accordance with flooring manufacturer's recommended instructions. Repair holes, cracks, depressions, or rough areas using material recommended by the carpet or adhesive manufacturer. Free floor of any foreign materials and sweep clean. Before beginning work, test subfloor with glue and carpet to determine "open time" and bond. Submit [three] [_____] copies of the manufacturer's printed Installation instructions for the carpet, including Surface Preparation, seaming techniques, and recommended adhesives and tapes.

3.2 MOISTURE AND ALKALINITY TESTS

Test concrete slab for moisture content in accordance with JIS A 1125. Conform to manufacturer recommendations for pH level and alkalinity of the concrete substrate. Submit [three] [_____] copies of reports of Moisture and Alkalinity Tests including content of concrete slab stating date of test, person conducting the test, and the area tested.

3.3 PREPARATION OF CONCRETE SUBFLOOR

Do not commence installation of the carpeting until concrete substrate is at least 90 days old. Prepare the concrete surfaces in accordance with the carpet manufacturer's instructions. Match carpet, when required, and adhesives to prevent off-gassing to a type of curing compounds, leveling agents, and concrete sealer.

3.4 INSTALLATION

Installation shall comply with MLIT SS Chapter 19. Isolate area of installation from rest of building. Perform all work by manufacturer's approved installers. Conduct installation in accordance with the manufacturer's printed instructions. Protect edges of carpet meeting hard surface flooring with molding and install in accordance with the molding manufacturer's printed instructions. Use autofoam mothproofing system for wool carpets. Follow ventilation, personal protection, and other safety precautions recommended by the adhesive manufacturer. Continue ventilation during installation and for at least 72 hours following installation. Do not permit traffic or movement of furniture or equipment in carpeted area for 24 hours after installation. Complete other work which would damage the carpet prior to installation of carpet. Submit [three] [_____] copies of Installation Drawings for 1) Carpet, 2) Carpet Cushion, and 3) Moldings indicating areas receiving carpet, carpet types, patterns, direction of pile, location of seams, and locations of edge molding.

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

3.4.1 Broadloom Installation

Install broadloom carpet [direct glue down] [pre-applied adhesive glue down] smooth, uniform, and secure, with a minimum of seams. Apply regular, unnoticeable, and treated seams with a seam adhesive. Run side seams toward the light, where practical, and where such layout does not

increase the number of seams. Install breadths parallel, with carpet pile in the same direction. Match patterns accurately. Neatly cut and fit cutouts, at door jambs, columns and ducts securely. Locate seams at doorways parallel to and centered directly under doors. Do not make seams perpendicular to doors or at pivot points. Provide seams at changes in directions of corridors to follow the wall line parallel to the carpet direction. Lay the carpet lengthwise down the corridors with widths less than 1.8 m.

3.4.2 Modular Tile Installation

Install modular tiles with [releasable] [manufacturer approved adhesive tab system] [permanent vinyl-compatible] [_____] adhesive and snug joints. Use [monolithic] [1/4 turn] [ashlar] [brick] [herringbone] [random] [_____] installation method. Comply with manufacturer installation instructions for required drying time of releasable adhesive so it sets up properly. Provide accessibility to the subfloor where required. Carpet tile on stairs and sloped surfaces must be installed with a more permanent installation method in accordance with the manufacturer's instructions and with manufacturer recommended adhesives for this application.

3.4.3 Entrance Carpet Installation

[Install tiles with [permanent vinyl-compatible] [releasable] adhesive and snug joints. Use [monolithic] [1/4 turn] [ashlar] [brick] [random] installation method.] [Install roll goods [direct glue down] [pre-applied adhesive glue down] and smooth, uniform, and secure, with a minimum of seams. Prepare regular, unnoticeable, and treated seams with a seam adhesive. Install breadths parallel, with carpet pile in the same direction. Match patterns accurately. Neatly cut and fit, securely, cutouts at door jambs, columns, and ducts. Locate seams at doorways parallel to and centered directly under doors. Do not make seams perpendicular to doors or at pivot points.] [Cut mats to specified size and finish them with a tapered vinyl edge that is glued and sewn on.]

[3.4.4 Stretch-in Installation

Provide carpet tack strips wherever carpeting abuts vertical surfaces. Install tackless carpet stripping by nailing. Place carpet cushion face-up, as recommended by cushion manufacturer, over entire floor area to be carpeted with joints butted. Do not use adhesives to attach carpet, cushion, or substrate. Comply with carpet manufacturer's instructions for installation. Attach rubber or metal edge strip to substrate with adhesive for transition when carpet meets other flooring materials or to finish carpet edge when required.

]3.5 CLEANING AND PROTECTION

Submit [three] [_____] copies of carpet manufacturer's maintenance instructions describing recommended type of cleaning equipment and material, spotting and cleaning methods, and cleaning cycles.

3.5.1 Cleaning

As specified in Section 01 78 00 CLOSEOUT SUBMITTALS. After installation of the carpet, remove debris, scraps, and other foreign matter. Remove soiled spots and adhesive from the face of the carpet with appropriate spot remover. Cut off and remove protruding face yarn. Vacuum carpet

clean with a high-efficiency particulate air (HEPA) filtration vacuum.

3.5.2 Protection

Protect the installed carpet from soiling and damage with heavy, reinforced, nonstaining kraft paper, plywood, or hardboard sheets. Lap and secure edges of kraft paper protection to provide a continuous cover. Restrict traffic for at least 48 hours. Remove protective covering when directed by the Contracting Officer.

3.6 REMNANTS

Manage waste as specified in the Waste Management Plan. [Provide remnants remaining from the installation, consisting of scrap pieces more than 600 mm in dimension with more than 0.6 square meters total [to the Government] [to local non-profit such as Habitat for Humanity as directed by the Government]]. [Set aside and return non-retained scraps to manufacturer for recycling into new product] [Remove non-retained scraps from site and recycle appropriately].

3.7 MAINTENANCE

3.7.1 Extra Materials

Provide extra material from same dye lot consisting of [full width continuous broadloom] [and] [uncut carpet tiles] for future maintenance. Provide a minimum of [three] [____] percent of total square meters of each carpet type, pattern, and color. [Furnish [three] [____] percent extra of total adhesive tabs.]

3.7.2 Maintenance Service Information

Collect Maintenance Service information from the manufacturer about [maintenance agreement] [green lease] options, and submit to Contracting Officer. Service options must reclaim materials for recycling and/or reuse. Service options must not landfill or burn reclaimed materials. When such a service is not available, seek local recyclers to reclaim the materials. Submit documentation of manufacturer's [maintenance agreement] [take-back program] [green lease] for carpet. Include contact information, summary of procedures, and the limitations and conditions applicable to the project. Indicate manufacturer's commitment to reclaim materials for recycling and reuse.

-- End of Section --