
USACE / NAVFAC / AFCEA / NASA UFGS-09 68 00 (May 2010)

Preparing Activity: USACE Superseding
UFGS-09 68 00 (January 2007)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMR L dated January 2012

SECTION TABLE OF CONTENTS

DIVISION 09 - FINISHES

SECTION 09 68 00

CARPET

05/10

PART 1 GENERAL

- 1.1 REFERENCES
- 1.2 SYSTEM DESCRIPTION
 - 1.2.1 Local/Regional Materials
 - 1.2.2 Environmental Data
 - 1.2.3 Scheduling
- 1.3 SUBMITTALS
- 1.4 QUALITY ASSURANCE
- 1.5 DELIVERY, STORAGE, AND HANDLING
- 1.6 AMBIENT CONDITIONS
- 1.7 WARRANTY

PART 2 PRODUCTS

- 2.1 CARPET
 - 2.1.1 Physical Characteristics
 - 2.1.2 [Broadloom] [Modular Tile] [Entrance]
- 2.2 PERFORMANCE REQUIREMENTS
- 2.3 CARPET CUSHION
 - 2.3.1 Carpet Cushion
 - 2.3.2 Recycling Requirements
- 2.4 ADHESIVES AND CONCRETE PRIMER
- 2.5 MOLDINGS
- 2.6 TAPE
- 2.7 COLOR, TEXTURE, AND PATTERN

PART 3 EXECUTION

- 3.1 SURFACE PREPARATION
- 3.2 MOISTURE AND ALKALINITY TESTS
- 3.3 PREPARATION OF CONCRETE SUBFLOOR
- 3.4 INSTALLATION
 - 3.4.1 Broadloom Installation
 - 3.4.2 Modular Tile Installation
 - 3.4.3 Entrance Carpet Installation

3.4.4	Stretch-in Installation
3.5	CLEANING AND PROTECTION
3.5.1	Cleaning
3.5.2	Protection
3.6	REMNANTS
3.7	MAINTENANCE
3.7.1	Extra Materials
3.7.2	Maintenance Service
-- End of Section Table of Contents --	

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SECTION 09 68 00

CARPET
05/10

NOTE: This guide specification covers the requirements for broadloom carpet, modular tile carpet, and entrance carpet.

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 items(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: Carpet containing recovered material is designated in 40 CFR 247.12 and subsequent Recovered Materials Advisory Notices (RMAN) as an affirmative procurement item. Designers should give preference to products containing recovered material when price, performance, and availability meet project requirements.

Options to consider include:

a. Use of polyester carpet fiber face, polyethylene terephthalate resin. (A justification is required when polyester fiber is specified in lieu of polyethylene terephthalate (PET) fiber).

- b. Use of carpet cushion containing recovered materials.
- c. Use of nylon fiber with recycled content.
- d. Use of nylon carpet with backing containing recovered carpet.
- e. Use of a program that reconditions and restores old carpet for re-use.
- f. Use of programs to send old carpet and existing carpet waste back to mills for recycling, rather than to landfills.

Edit paragraph Physical Characteristics within this section and Section 02 41 00 {DEMOLITION} {AND} {DECONSTRUCTION} as necessary. If submittals are added or deleted in the SUBMITTALS paragraph, make sure the description of the submittal in the text (corresponding paragraph) is also revised accordingly.

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 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 ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS (AATCC)

AATCC TM 107	(2009; E 2010) Colorfastness to Water
AATCC TM 134	(2006; E 2008) Electrostatic Propensity of Carpets
AATCC TM 16	(2004; E 2010) Colorfastness to Light

AATCC TM 165 (2008; E 2010) Colorfastness to Crocking:
Textile Floor Coverings - Crockmeter Method

AATCC TM 174 (2007; E 2010) Antimicrobial Activity
Assessment of Carpets

ASTM INTERNATIONAL (ASTM)

ASTM D1667 (2005; R 2011) Flexible Cellular Materials
- Poly (Vinyl Chloride) Foam (Closed-Cell)

ASTM D297 (1993; R 2006) Rubber Products - Chemical
Analysis

ASTM D3278 (1996; R 2011) Flash Point of Liquids by
Small Scale Closed-Cup Apparatus

ASTM D3574 (2008) Standard Test Methods for Flexible
Cellular Materials—Slab, Bonded, and
Molded Urethane Foams

ASTM D3676 (2007) Rubber Cellular Cushion Used for
Carpet or Rug Underlay

ASTM D5793 (2005) Binding Sites Per Unit Length or
Width of Pile Yarn Floor Coverings

ASTM D5848 (2010e1) Mass Per Unit Area of Pile Yarn
Floor Coverings

ASTM D6859 (2011) Standard Test Method for Pile
Thickness of Finished Level Pile Yarn
Floor Coverings

ASTM E2129 (2010) Standard Practice for Data
Collection for Sustainability Assessment
of Building Products

ASTM E648 (2010e1) Standard Test Method for Critical
Radiant Flux of Floor-Covering Systems
Using a Radiant Heat Energy Source

CARPET AND RUG INSTITUTE (CRI)

CRI 104 (2002) Standard for Installation
Specification of Commercial Carpet

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

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED (2002; R 2005) Leadership in Energy and
Environmental Design(tm) Green Building

Rating System for New Construction
(LEED-NC)

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

16 CFR 1630 Standard for the Surface Flammability of
Carpets and Rugs (FF 1-70)

40 CFR 247 Comprehensive Procurement Guideline for
Products Containing Recovered Materials

WOOLMARK BUSINESS INTELLIGENCE (WBI)

Woolmark (1964) Certification for Use of 100
Percent Wool

1.2 SYSTEM DESCRIPTION

1.2.1 Local/Regional Materials

NOTE: Using local materials can help minimize transportation impacts, including fossil fuel consumption, air pollution, and labor. Using materials harvested and manufactured within a 800 km (500 mile) radius from the project site contributes to the following LEED credit: MR5. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION. Use second option if Contractor is choosing local materials in accordance with Section 01 33 29 LEED(tm) DOCUMENTATION. First option will not be used for USACE projects. Army projects will include second option only if pursuing this LEED credit.

[Use materials or products extracted, harvested, or recovered, as well as manufactured, within a [800] [] km [500] [] mile radius from the project site, if available from a minimum of three sources.] [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total local material requirements. Carpet materials may be locally available.] Submit documentation indicating distance between manufacturing facility and the project site. Indicate distance of raw material origin from the project site. Indicate relative dollar value of local/regional materials to total dollar value of products included in project. Under closeout submittals, furnish documentation relative to local/regional materials credit in accordance with LEED Reference Guide. Include in LEED Documentation Notebook.

1.2.2 Environmental Data

NOTE: ASTM E2129 provides for detailed documentation of the sustainability aspects of products used in the project. This level of detail may be useful to the Contractor, Government, building occupants, or the public in assessing the sustainability of these products.

Submit documentation indicating type of biobased material in product and biobased content. Indicate relative dollar value of biobased content products to total dollar value of products included in project. [Submit Table 1 of ASTM E2129 for the following products: [____].]

1.2.3 Scheduling

Install carpet systems after the installation and ventilation period of materials or finishes which have high short-term emissions of VOCs, formaldehyde, particulates, or other air-borne compounds which may be adsorbed by or settle on the carpet tiles, including [____].

1.3 SUBMITTALS

NOTE: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project.

The Guide Specification technical editors have designated 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 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, Air Force, and NASA projects.

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" 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.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Installation[; G][; G, [____]]
Moldings[; G][; G, [____]]

SD-03 Product Data

Carpet[; G][; G, [____]]
Carpet Cushion[; G][; G, [____]]
Moldings[; G][; G, [____]]
Surface Preparation[; G][; G, [____]]
Installation[; G][; G, [____]]
Regulatory Requirements[; G][; G, [____]]
Physical Characteristics; (LEED)
[Local/Regional Materials; (LEED)]
[Environmental Data]

SD-04 Samples

Carpet[; G][; G, [____]]
Moldings[; G][; G, [____]]

SD-06 Test Reports

Moisture and Alkalinity Tests[; G][; G, [____]]

SD-07 Certificates

Carpet[; G][; G, [____]]
Regulatory Requirements[; G][; G, [____]]

SD-10 Operation and Maintenance Data

Carpet[; G][; G, [____]]
Cleaning and Protection[; G][; G, [____]]
Maintenance Service

SD-11 Closeout Submittals

Local/Regional Materials; (LEED)
Carpet; (LEED)
Adhesives and Concrete Primer; (LEED)

1.4 QUALITY ASSURANCE

NOTE: Synthetic carpet fiber, backing, cushion, adhesive, seam sealants, floor preparation chemicals, and treatment for natural and synthetic carpet fibers (mothproofing, anti-microbial, etc.) are all potential sources of VOCs in indoor air. Using low-VOC products contributes to the following LEED credit: EQ4. Include VOC submittal if pursuing this LEED credit, and coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION.

Provide the Carpet and Rug Institute (CRI) Indoor Air Quality (IAQ) label for carpet, carpet cushion, and adhesives or demonstrate compliance with testing criteria and frequencies through independent laboratory test results. Carpet, carpet cushion, and adhesives bearing the label will indicate that the carpet has been tested and meets the [Regulatory Requirements](#) and criteria of the CRI IAQ Carpet Testing Program, and minimizes the impact on indoor air quality. [Procure carpet in accordance](#)

with 40 CFR 247, and where possible, purchased locally to reduce emissions of fossil fuels from transporting. Conform to EPA requirements in accordance with Section 01 62 35 RECYCLED / RECOVERED MATERIALS for carpet.

Submit certificates, showing conformance with the referenced standards contained in this section, for the following: Carpet Cushion and Molding. Submit [three] [_____] copies of report stating that carpet and carpet components contain recycled materials and/or involvement in a recycling or reuse program. Include in the report percentage of post-industrial and post-consumer recycled material and relative dollar value of recycled content products to total dollar value of products included in project. Include [manufacturer's] [independent, third party] certification of compliance with Carpet and Rug Institute's Green Label Indoor Air Quality program

1.5 DELIVERY, STORAGE, AND HANDLING

NOTE: Carpeting provides a sink for adsorbing VOCs emitted from other sources and home for a variety of bacteria, microbes, dust mites, etc. Materials with high short-term emissions include, but are not limited to: adhesives, sealants and glazing compounds (specifically those with petrochemical vehicles or carriers); paint, wood preservatives, and finishes; control and/or expansion joint fillers; hard finishes requiring adhesive installation; gypsum board (with associated finish processes and products); and composite or engineered wood products with formaldehyde binders.

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 60 degrees F for 2 days prior to installation. Carpet or carpet tiles shall not be stored with materials which have high emissions of volatile organic compounds (VOCs) or other contaminants, including [_____]. Do not store carpet near materials that may offgas or emit harmful fumes, such as kerosene heaters, fresh paint, or adhesives.

1.6 AMBIENT CONDITIONS

Maintain areas in which carpeting is to be installed at a temperature above 16 degrees C 60 degrees F and below 32 degrees C 90 degrees F 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 55 degrees F thereafter for the duration of the contract. 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.

1.7 WARRANTY

Provide manufacturer's standard performance guarantees or warranties

including minimum ten (10) year wear warranty, two (2) year material and workmanship and ten (10) year tuft bind and delamination.

PART 2 PRODUCTS

2.1 CARPET

NOTE: If more than one carpet type is required for a project, a separate paragraph will be used for each carpet type. Each carpet type will be designated with a letter or number symbol. Use the same designations to key carpets to locations on the drawings and in Section 09 06 90 COLOR SCHEDULE.

ADA Requirements: Carpet must be securely attached; have a firm cushion, or backing, or no cushion; and have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The maximum thickness should be 13 mm (1/2 in). Fasten exposed edges of carpet to floor surfaces and have trim along the entire length of the exposed edge.

Nylon fiber is typically abrasion resistant and durable in all pile configurations using filament fiber, has good stain removal characteristics, and is recommended for commercial installations.

Polyethylene terephthalate (PET) recycled polyester fiber has permanent fade resistance, is permanently colorfast, has a permanent stain resistance which is higher than other type fibers, is impervious to harsh chemicals, and has the lowest static buildup. PET type polyester carpet, once crushed under continued high pressure, is less likely than nylon carpet to rebound. PET carpet is not recommended for severe and moderate wear level areas and should be limited to light wear areas.

Wool is a natural fiber, which is inherently flame resistant, forming a char that will neither melt nor drip. Wool is also rapidly renewable and resilient, and due to the scaly character of its fiber it scatters optical light, thus reducing soiling visibility. Wool is highly recommended for shipboard use due to it being inherently flame resistant.

Wool, cotton, jute, hemp and sisal carpets may not meet accepted performance requirements of commercial carpet. Designer must verify suitability, availability and adequate competition before specifying these products.

Flexible and modular components, like carpet tile, reduce the labor and materials costs related to operations and maintenance, churn, and future renovations.

PET carpet is an EPA designated product for recycled content. Nylon carpet is a proposed EPA designated product for recycled content. Polyurethane, jute, rubber, and synthetic fiber carpet cushions are EPA designated products for recycled content. See Section 01 62 35 RECYCLED/RECOVERED MATERIALS and include minimum recycled content unless designer determines that justification for non-use exists. EPA recycled content requirements must be addressed in all projects regardless of optional LEED/other recycled content goals. Designer must verify suitability, availability and adequate competition (including verification of bracketed percentages included in this guide specification) before specifying products meeting EPA minimum recycled content.

Use of materials with recycled content, calculated on the basis of post-industrial and post-consumer percentage content, contributes to the following LEED credit: MR4. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION. Designer must verify suitability, availability and adequate competition (including verification of bracketed percentages included in this guide specification) before specifying product recycled content requirements. Use second option if Contractor is choosing recycled content products in accordance with Section 01 33 29 LEED(tm) DOCUMENTATION. Army projects will specify recycled content exceeding EPA requirements only if pursuing this LEED credit.

The 2002 Farm Bill - Section 9002, Federal Procurement of Biobased Products, requires each Federal Agency to develop a procurement program which will ensure that items composed of biobased products will be purchased to the maximum extent practical and which is consistent with applicable provisions of Federal procurement law. Use of biobased materials that are rapidly renewable (including wool and cotton) contributes to the following LEED credit: MR6. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION.

Continuous dye process uses two to three times less water than batch dyeing during manufacture.

Furnish first quality carpet; 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. Provide the Carpet and Rug Institute (CRI) Indoor Air Quality (IAQ) Label. Carpet type bearing the label will indicate that carpet has been tested and meets the criteria of the CRI Green Label Requirements for Indoor Air Quality Test Criteria. [Provide carpet tiles with Carpet Component Identification Codes as established by the CRI for future recycling. The labels shall be permanently printed or

attached to the carpet backing. The codes shall identify, at minimum, the carpet's face fiber, primary backing, and secondary backing.] Submit certificates of compliance from a laboratory accredited by the National Laboratory Accreditation Program of the National Institute of Standards and Technology attesting that each type of carpet and carpet with cushion material conforms to the standards specified. Under closeout submittals, furnish: 1) Documentation relative to recycled content credit in accordance with LEED Reference Guide; 2) Documentation relative to low-emitting materials credit in accordance with LEED Reference Guide; 3) Documentation relative to rapidly renewable credit in accordance with LEED Reference Guide; and include all three in LEED Documentation Notebook. 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 catalog data for the following items: 1) Carpet Cushion and 2) Carpet Moldings. Submit samples of the following:

- a. Carpet: [Two] [_____] "Production Quality" samples 450 by 450 mm 18 by 18 inches of each carpet proposed for use, showing quality, pattern, and color specified.
- b. Vinyl or Aluminum Moldings: [Two] [_____] pieces of each type at least 300 mm 12 inches long.
- c. Special Treatment Materials: [Two] [_____] samples showing system and installation method.

2.1.1.1 Physical Characteristics

Submit documentation indicating type of biobased material in product and biobased content. Indicate relative dollar value of biobased content products to total dollar value of products included in project. Submit documentation indicating relative dollar value of rapidly renewable materials to total dollar value of products included in project.

2.1.1.2 [Broadloom] [Modular Tile] [Entrance]

NOTE: Copy paragraph 2.1.1.1 if more than one
carpet is specified.

Carpet shall comply with the following:

- a. Carpet Construction: [Tufted] [Woven] [Bonded] [Needlebond] [Needle Felt] [_____] .
- b. Type: [Broadloom [3.6] [1.8] m [12] [6] feet minimum usable carpet width [with exception of corridors] [and] [stairs] [_____] .] [Modular tile [450 by 450] [500 by 500] [600 by 600] mm square [18 by 18] [20 by 20] [24 by 24] inch square with 0.15 percent growth/shrink rate in accordance with ISO 2551.] [Entrance [450 by 450] [_____] mm [18 by 18] [_____] inch square [3.6] [1.8] m [12] [6] feet width [_____] mat size.]
- c. Pile Type: [Level-loop] [Multilevel loop] [Cut and loop] [Frieze] [Cut pile] [Random sheared] [Level tip shear] .
- d. Pile Fiber: Commercial 100 percent branded (federally registered

trademark) [[nylon continuous filament] [nylon staple, minimum [5] [10] [_____] percent post-consumer or [20] [40] [_____] percent post-industrial recycled content with 25 percent minimum total combined recycled content] [wool with Woolmark certification] [wool blend with Wool Bureau certification] [cotton] [jute] [sisal] [hemp] [polylactic acid (PLA)], minimum [85] [95] [_____] percent biobased materials. Chemical treatments, including moth treatment, are [permitted with written approval from the Contracting Officer] [not permitted]] [polyethylene terephthalate (PET) 100 percent post-consumer recycled fiber] [polypropylene] [_____] . [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total recycled content requirements. Carpet pile fiber may contain post-consumer or post-industrial recycled content.]

- e. Yarn Ply: Minimum [2] [_____] .
- f. Gauge or Pitch: Minimum [_____] mm inch in accordance with ASTM D5793.
- g. Stitches or Rows/Wires: Minimum [_____] per square meter square inch.
- h. Surface Pile Weight: Minimum [_____] kg/square meter ounces per square yard. This does not include weight of backings. Determine weight in accordance with ASTM D5848.
- i. Pile Thickness: Minimum [_____] mm inch in accordance with ASTM D6859.

NOTE: Pile Density = 36 x Pile Weight/Pile Thickness.

- j. Pile Density: Minimum [_____] .
- k. Dye Method: [Solution dyed] [Stock dyed] [Yarn (or Skein) dyed] [Piece dyed] [Space dye] [Continuous dye] .
- l. Backing Materials: Provide primary backing materials like [those customarily used and accepted by the trade for each type of carpet] [polypropylene] [synthetic material] [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, except when a special unitary back designed for gluedown is needed] [fabric or polymer backing attached with thin layer of styrene butadiene] [vinyl (PVC) backing available with dry adhesive, minimal offgassing] [natural latex] [styrene butadiene with the thinnest layer of styrene butadiene backing available] [non-chlorinated polyvinyl butyral (PVB)] . Backing system shall [contain an overall minimum of [85] [95] [_____] percent natural latex, jute, or cotton] [, and] [contain a minimum of [5] [10] [_____] percent post-consumer recycled content, or minimum [20] [40] [_____] percent post-industrial recycled content]. [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total recycled content requirements. Carpet backing may contain post-consumer or post-industrial recycled content.] .
- m. Attached Cushion: Provide an attached cushion [[chemically frothed polyurethane with minimum weight of 0.610 kg/sq. m 18 oz/sq. yard, minimum density of 176 kg/cubic m 11 lb/cubic foot] [mechanically frothed polyurethane with minimum weight of 0.745 kg/sq. m 22 oz/sq. yard, minimum density of 224 kg/cubic m 14 lb/cubic foot, minimum

thickness of 2.5 mm 0.100 inch, and maximum compression resistance of 34.5 kPa 5 psi, and compression set of 15 percent in accordance with ASTM D3676], minimum [15] [50] percent post-consumer recycled content] [[ethylene vinyl acetate (EVA)] [polyvinyl chloride (PVC)] with minimum weight of 0.95 kg/sq. m 28 oz/sq. yard, minimum thickness of 3.8 mm 0.150 inch, and minimum density of 240.3 kg/cubic m 15 lb/cubic foot and a maximum compression set of 15 percent in accordance with ASTM D1667, minimum [100] [_____] percent recycled content] [100 percent recycled urethane foam] [jute with minimum [40] [_____] percent post-consumer burlap] [wool or cattle hair needled to jute backing containing a minimum of [40] [_____] percent post-consumer burlap] [felt backing made from cattle hair and jute containing a minimum of [40] [_____] percent post-consumer burlap] [rubber with minimum [60] [90] [_____] percent post-consumer recycled content bonded with styrene butadiene]. Do not exceed the maximum ash content of 50 percent when tested in accordance with ASTM D297. Pass the accelerated aging test in accordance with [ASTM D3676] [ASTM D1667] for the cushion. [See Section 01 33 29 LEED(tm) DOCUMENTATION for cumulative total recycled content requirements. Carpet cushion may contain post-consumer or post-industrial recycled content.]

- n. Recycle Efforts: [Use of polyester carpet fiber face, polyethylene terephthalate resin] [Use of carpet cushion containing recovered materials] [Use of nylon carpet with backing containing recovered carpet] [Use of nylon fiber with 25 per cent minimum recycled content] [Use of reconditioned nylon carpet].

2.2 PERFORMANCE REQUIREMENTS

NOTE: Specify static control only when required to meet project requirements. Installations for critical areas such as computer rooms will use the 2.0 kV requirements. Static protected carpets for most commercial installations are normally rated at 3.5 kV.

- a. 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 70 degrees F in accordance with AATCC TM 134.

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 MIL-HDBK 1008B or 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.

- b. Flammability and Critical Radiant Flux Requirements: Comply carpet with 16 CFR 1630. 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 E648.

NOTE: For most facilities, the 45 N (10 pound) tuft bind for loop pile and 13 N (3 pound) for cut pile are adequate. For child care centers, youth centers, and dependents' schools, specify 53 N (12 pound) tuft bind for loop pile because of the increased potential for loop pull in the course of children's activities. Although increased wear by itself is not the primary factor in damage due to lack of tuft bind, consider 53 N (12 pound) tuft bind for any severe wear application where loop pile might be vulnerable to snagging.

- c. Tuft Bind: Provide tuft bind force required to pull a tuft or loop free from carpet backing with a minimum [40 N 10 pound average force for loop pile] [18 N 3 pound average force for cut pile].
- d. Colorfastness to Crocking: Comply dry and wet crocking with AATCC TM 165 and with a Class 4 minimum rating on the AATCC Color Transference Chart for all colors.
- e. Colorfastness to Light: Comply colorfastness to light with AATCC TM 16, Test Option E "Water-Cooled Xenon-Arc Lamp, Continuous Light" and with a minimum 4 grey scale rating after 40 hours.

NOTE: Include the following test when specifying carpet constructed of yarn dyed fibers.

- f. Colorfastness to Water: Comply colorfastness to water with AATCC TM 107 and with a minimum 4.0 gray scale rating and a minimum 4.0 transfer scale rating.
- g. Delamination Strength: Provide delamination strength for tufted carpet with a secondary back of minimum 440 N/m 2.5 lbs/inch.

NOTE: The following will be included when required for a specific use such as child care, dining facilities or hospitals.

- h. Antimicrobial: Nontoxic antimicrobial treatment in accordance with AATCC TM 174 Part I (qualitative), guaranteed by the carpet manufacturer to last the life of the carpet.

2.3 CARPET CUSHION

NOTE: Carpet cushions is one of the materials listed in the EPA's Comprehensive Procurement Guidelines (CPG) (<http://www.epa.gov/cpg/>). If the Architect/Engineer determines that use of certain materials meeting the CPG content standards and guidelines would result in inadequate competition, do not meet quality/ performance specifications, are available at an unreasonable price or are not available within a reasonable time frame, the Architect/Engineer may submit written justification and supporting documentation for not procuring designated items containing recovered material. Written justification may be submitted on a Request for Waiver Form to the NASA Environmental Program Manager for approval. The Request for Waiver Form is located in the NASA Procedures and Guidelines (NPG 8830.1) (<http://nodis3.gsfc.nasa.gov>).

2.3.1 Carpet Cushion

NOTE: Select the appropriate carpet cushion.

[Fiber Cushion: [Rubberized hair, mothproofed and sterilized] [Rubberized jute, mothproofed and sterilized] [Synthetic] [Resinated, recycled textile].

a. Weight: [] g/sq.m[] oz./sq. yd.

b. Thickness: [] mm[] inches plus 5 percent maximum.

c. Density: [] kg/cu.m[] lb/cu.ft.]

[Rubber Cushion: [Flat] [Rippled waffle] [Textured flat] [Reinforced].

a. Weight: [] g/sq.m[] oz./sq. yd.

b. Thickness: [] mm[] inches plus 5 percent maximum.

c. Compression Resistance: [] kg/sq. mm[] lb/sq. in. at [25] [65] percent per ASTM D3574.

d. Density: [] kg/cu.m[] lb/cu.ft.]

[Polyurethane-Foam Cushion: [Grafted prime] [Densified] [Bonded] [Mechanically frothed].

a. Compression Force Deflection at 65 Percent: [] mm[] lb/sq.in. of polymer density per ASTM D3574.

b. Thickness: [] mm[] inches plus 5 percent maximum.

c. Density: [] kg/cu.m[] lb/cu.ft.]

Performance Characteristics: As Follows:

- a. Critical Radiant Flux Classification: Not less than [0.45] [0.22] W/sq.cm.
- b. Emissions: Provide carpet cushion that complies with the testing and product requirements of CRI's "Green Label" program.

2.3.2 Recycling Requirements

Provide [bonded polyurethane carpet cushions be made from 15-50 percent of postconsumer content and 15-50 percent] [rubber carpet cushions with recycled tire rubber and be made from 60-90 percent of postconsumer content and 60-90 percent] [synthetic carpet cushions with recycled carpet fabrication scrap and be made from 100 percent] of total recovered materials content.

2.4 ADHESIVES AND CONCRETE PRIMER

NOTE: Using low-VOC products contributes to the following LEED credit: EQ4. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION. Designer must verify availability and adequate competition (including verification of bracketed VOCs included in this guide specification) before specifying product VOC requirements.

Adhesives and concrete primers shall comply with applicable regulations regarding toxic and hazardous materials.[Use [peel and stick dry adhesive] [wet adhesive] with a maximum VOC content of 50 grams/liter.] Provide water resistant, mildew resistant, nonflammable, and nonstaining adhesives and concrete primers for carpet installation to meet local air-quality standards, and 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 140 degrees F in accordance with ASTM D3278. Under closeout submittals, furnish documentation relative to low-emitting materials credit in accordance with LEED Reference Guide. Include in LEED Documentation Notebook.

2.5 MOLDINGS

Install carpet moldings, either vinyl or aluminum, where floor covering material changes or carpet edge does not abut a vertical surface. Provide a [hammered surface 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 1-1/2 inch wide and face a minimum 16 mm 5/8 inch wide.] [heavy-duty vinyl molding designed for the type of carpet being installed. Provide floor flange of a minimum [38 mm] [1 1/2 inches] wide. Provide [____] color to match [resilient base] [____]].

2.6 TAPE

Provide tape for seams as recommended by the carpet manufacturer for the type of seam used in installation. Any seam sealant shall have a maximum

VOC content of 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 [Section 09 06 90 COLOR SCHEDULE] [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 preparation of substrate, seaming techniques, and recommended adhesives and tapes.

3.2 MOISTURE AND ALKALINITY TESTS

Test concrete slab for moisture content and excessive alkalinity in accordance with CRI 104. Submit [three] [_____] copies of test reports of moisture and alkalinity content of concrete slab stating date of test, person conducting the test, and the area tested.

3.3 PREPARATION OF CONCRETE SUBFLOOR

**NOTE: Designer must coordinate need for sealing of
concrete slab with project requirements such as wet
conditions which might occur in hospital care.**

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

3.4 INSTALLATION

Isolate area of installation from rest of building. Perform all work by installers who are CFI certified (International Certified Floorcovering Installer Association), or manufacturer's approved installers. Conduct installation in accordance with the manufacturer's printed instructions and CRI 104. 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. Submit [three] [_____] copies of drawings indicating areas receiving carpet, carpet types, textures and patterns, direction of pile, location of seams, and locations of edge molding. Submit installation drawings for: 1) Carpet Cushion and

2) Carpet Moldings diagramming the location of seams, edge moldings, and carpet direction for approval prior to installation.

3.4.1 Broadloom Installation

Install broadloom carpet [direct glue down] [pre-applied adhesive glue down] and 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 6 feet.

3.4.2 Modular Tile Installation

Install modular tiles with [permanent vinyl-compatible] [release] [_____] adhesive and snugly jointed together. Lay tiles in [the same direction] [an alternating pattern] with accessibility to the subfloor where required.

3.4.3 Entrance Carpet Installation

Install [tiles with [[permanent vinyl-compatible]] [[release]] adhesive and shall be snugly jointed together. Lay tiles in [[the same direction]] [[an alternating pattern]]. [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

NOTE: Installation with tack strips (stretch in method) over cushion can avoid potential adhesive interaction with carpet backing. It is appropriate for residential and hospitality settings, in which rooms are relatively small and separate cushion is used; but not feasible in large, open spaces. If including this paragraph, provide appropriate product requirement paragraphs for strip and nails.

Provide carpet anchors 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.

] 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

NOTE: Take-back programs refer to programs in which the product manufacturer "takes-back" scrap material and/or packaging associated with its product. Diverting waste from the landfill contributes to the following LEED credit: MR2. Coordinate with Section 01 33 29 LEED(tm) DOCUMENTATION. Designer will verify that items are able to be disposed of as specified.

[Collect information from manufacturer about [maintenance agreement] [take-back program] options, and provide to Contracting Officer.] Manage waste as specified in the Waste Management Plan. [Provide remnants remaining from the installation, consisting of scrap pieces more than 600 mm 2 feet in dimension with more than 0.6 square meters 6 square feet total [to the Government] [to local non-profit such as Habitat for Humanity as directed by the Government]]. [Non-retained scraps shall be set aside and returned 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 [_____] percent of total square meters square yards of each carpet type, pattern, and color.

3.7.2 Maintenance Service

NOTE: Maintenance agreements are standard practice in the building industry. Under a green lease, when

the customer no longer requires the use of the particular product or requires an updated model, the manufacturer is obligated to reclaim it and refurbish it or disassemble it for recycling as appropriate.

Collect information from the manufacturer about [maintenance agreement] [green lease] options, and submit to Contracting Officer. Service shall reclaim materials for recycling and/or reuse. Service shall 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/or reuse.

-- End of Section --