SHEET CARPETING

GENERAL INFORMATION

1.1  Sheet (broadloom) carpet, vinyl base and accessories.

1.2  References: American Association of Textile Chemists and Colorists (AATCC)
    a. AATCC 16 Test Method 16
    b. AATCC 20 Fiber Analysis – Qualitative
    c. AATCC 134 Electrostatic Propensity of Carpets
    d. AATCC 165 Colorfastness to Crocking - AATCC Crockmeter Method

1.3  American National Standards Institute (ANSI) ISO 2551 Machine-made Textile Floor Coverings -- Determination of Dimensional Changes Due to the Effects of Varied Water and Heat Conditions ISO 2551

1.4  American Society of Testing and Materials (ASTM)
    c. D3676 Standard Specification for Rubber Cellular Cushion Used for Carpet or Rug Underlay
    e. D5116 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products
    f. D5252 Standard Practice for the Operation of the Hexapod Drum Tester
    g. D5417 Standard Practice for the Operation of the Vetterman Drum Tester

i. E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

1.5 Carpet and Rug Institute (CRI)
   a. Indoor Air Quality Testing Program
   b. TM101 Assessment of Carpet Surface Appearance Change
   c. TM102 Fluorochemical Finishes
   d. 104 Standard for Installation of Commercial Carpet

1.6 Consumer Product Safety Commission (CPSC) FF-1-70 Methenamine Pill Test

1.7 National Fire Protection Association (NFPA)
   a. 101 Life Safety
   b. 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems using a Radiant Heat Energy Source

1.8 Warranty:
   a. Warranties shall cover all labor and materials, including labor and installation costs involved to replace defective product and workmanship. All warranty items are full term, not pro-rated.
   b. General Warranty: Special warranties specified shall not deprive Columbia University of other rights Columbia University may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
   c. Special Carpet Warranty: Written warranty, signed by carpet manufacturer agreeing to replace carpet that does not comply with requirements or that fails within specified warranty period. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination. Warranty Period: minimum, non-prorated 15 years, from date of construction complete.
DESIGN REQUIREMENTS

2.1 Materials:

a. Compatibility: Provide carpet, seam sealers, adhesives, and other related materials that are compatible with one another and with substrates under conditions of service and application.

b. Appearance Retention Rating: Severe (short-term not less than 4.0, long-term not less than 3.5) based on ASTM D-5252 (Hexapod) using 3750-gram tumbler or ASTM D-5417 (Vettermann) test method. Carpets shall be tested without underlay. The exposure conditioned carpet shall be assessed according to CRI TM101.

c. Tuft bind: minimum average value, 8.0 pounds (Loop Pile)

d. Dimensional Stability: maximum shrinkage 1.0 percent in both length and width.

e. Delamination Resistance of the Secondary Backing: not less than 2.5 pounds per inch.

f. Colorfastness (entire colorline): To Crocking: Color transfer Class 4 minimum, wet and dry, when tested as specified. To light: Color contrast between the exposed and unexposed carpet areas equivalent to a minimum of Grade 4 on the Gray Scale for Color Change after an exposure to 60 AFU (AATCC fading units) for all colors

g. Fluorochemical finish: minimum average of 350 parts-per-million fluorine on the pile fiber when tested in accordance with CRI TM-102.

h. Antimicrobial Activity: Inherently antimicrobial, topical finishes not allowed.

i. Electrostatic Propensity: maximum 3.5 kV


k. Indoor Air Quality: Carpets shall be only those certified with the CRI IAQ Carpet Testing Program Green Label, or tested for compliance to meet the CRI IAQ Carpet Testing Program requirements

d. Special Installation Warranty: Written warranty, signed by carpet installer and general contractor agreeing to correct faulty workmanship. Installation Warranty Period: 2 years from date of construction complete.
and criteria. Adhesives shall be only those certified with the CRI IAQ Adhesive Testing Program Green Label or tested for compliance to meet the CRI IAQ Adhesive Testing Program requirements and criteria. All products (carpet, cushion and adhesives) from current production must be retested on a quarterly basis to ensure continuing compliance with CRI IAQ Test Program requirements.

2.2 Material Requirements:

a. Pile Fiber Type: 100 percent continuous filament nylon, Type 6 or Type 6,6

b. Backing Materials: Primary Backing: 100 percent synthetic materials. Secondary Backing: Fiberglass reinforced secondary backing consisting of a polymeric cushion or hard back compound consistent with all performance testing requirements.

c. Recycled Content: Renewed nylon carpet, which is cleaned, retextured, recolored, or otherwise reused to produce new nylon carpet is acceptable; otherwise comply with the following recycled content requirements: Nylon Carpet Face Fiber: 25 percent minimum total recovered materials content. Nylon Carpet Backing: For vinyl primary backing, use the highest percentage of total recovered materials content available; however 0% is not acceptable. Polymeric Cushion: Preference will be given to recycled content cushion backings.

d. All materials must be 100% recyclable

2.3 Construction Requirements

a. Surface texture: Loop pile - level or textured loop, multi-level loop, or pattern

b. Yarn: Multi-ply

c. Tufting Machine Gauge: minimum 1/10 gauge

d. Number of Stitches: minimum 8 per inch

e. Finished pile thickness: maximum 0.5 inch

f. Average Finished Pile Yarn Weight: minimum 26 ounces per square yard

g. Dye method: Yarn or solution dyed

h. Color: To be selected from manufacturer’s colorline.

2.4 Manufactured Units:
a. Product shall have a lead-time of not more than six (6) weeks from the time the dealer receives the order to the time Columbia University receives the product, unless a shorter duration is required for the specific project.

b. Patterns and colorways shall be available for a minimum of ten (10) years.

c. All products within the same floor of a project shall be from the same dye lot.

2.5 Accessories:

a. Carpet Edge Guard, Nonmetallic: Extruded or molded heavy-duty vinyl or rubber carpet edge guard of size and profile required with minimum 2-inch wide anchorage flange; colors compatible with carpet furnished.

b. Cutback Underlayment and Patching Compound: Henry 335 Flooring Underlayment Powder, as manufactured by W. W. Henry Company or approved equal. Henry 33 Floor Patching Compound.

c. Vinyl Base: 4 inches high, coved, 0.080 inch gauge.

d. Miscellaneous Materials: As recommended by manufacturers of carpet and other carpeting products for intended application.

e. Adhesive for Carpet: Provide water-resistant, low VOC (not to exceed 10.0 milligram per square meter per hour), non-staining type as recommended by carpet manufacturer which complies with flame spread rating required for the carpet installation.

f. Concrete Sealer: Provide concrete sealer compatible with carpet backing material and adhesive.

2.6 Source Quality Control:


b. Lightfastness: AATCC 16E

c. Crocking: AATCC 165

d. Static Electricity: AATCC 134

e. Dimensional Stability: ISO 2551

f. Turf Bind: ASTM D1335
g. Delamination Resistance: ASTM D3936

h. Fluorochemical Finish: CRI TM-102

i. Electrostatic Propensity: AATCC 134

j. Indoor Air Quality: ASTM D5116

k. Pile Fiber Identity: AATCC 20

l. Backing Material Identity: AATCC 20

m. Attached Backing: Thickness: ASTM D3676; Volume Density: ASTM D3676; Compression Resistance: ASTM D3676; Compression Set: ASTM D3676

n. Test in accordance with NFPA 253 (ASTM E-648) when applying the floor finish requirements of the Life Safety Code (NFPA 101).

o. Carpets and rugs should have a critical radiant flux not less than the following: -0.45 watts per square centimeter in areas unprotected by an automatic fire suppression system; and -0.22 watts per square centimeter in areas protected by an automatic fire suppression system.

2.7 Submittals:

a. Product Data: Submit manufacturer's product literature and installation instructions for each type of carpeting material and installation accessory required.

b. Manufacturer’s standard size samples showing full range of colors, textures and patterns (including full pattern repeat) available for each type of carpet required. Submit samples of each type of exposed edge stripping, vinyl base and accessory item showing full range of standard colors.

c. Shop Drawings: Submit a seaming diagram, showing each area to be carpeted and location of seams, molding and edge strips.

d. Certification stating that the manufacturer and installer comply with Quality Assurance requirements. Include a minimum of five (5) references, complete with addresses, telephone numbers and contact persons for installations within the time period indicated.

e. Manufacturer's certificate stating that materials furnished comply with specified requirements. Include supporting independent certified laboratory testing data indicating that material meets specified test requirements.
f. Material Safety Data Sheet (MSDS) for adhesives, leveling compounds, and primers required.

g. Written warranty information stating compliance with requirements.

h. Maintenance Instructions: Submit manufacturer's printed instructions for maintenance of installed work, including methods and frequency recommended for maintaining optimum condition under anticipated traffic and use conditions. Include precautions against materials and methods which may be detrimental to finishes and performance.

2.8 Quality Assurance:

a. Manufacturer Qualifications: Firm (material producer) with not less than 5 years of production experience, whose published literature clearly indicates general compliance of products with requirements of this section.

b. Installer Qualifications: Firm with not less than 5 years of experience in installation of commercial carpet tile of type, quantity and installation methods similar to work of this section.

CONSTRUCTION REQUIREMENTS

3.1 Examination

a. Examine substrates for moisture content alkaline presence and other conditions under which carpet is to be installed. Provide Calcium Chloride test results to verify amount of moisture in new or existing slabs. Calcium Chloride shall be less than or equal to three (3) pounds per one thousand (1000) square feet in 24 hours. Alkalinity testing shall result in a pH range of 5–9. Notify Columbia University in writing of conditions detrimental to proper completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

b. Field verify all dimensions and other work conditions affecting the installation of carpet.

c. The carpet covered by this specification is intended for end use applications that have a Severe Use Classification. It is the Contractor’s responsibility to provide only products compatible with adjacent materials in the assembly.

3.2 Preparation

a. General: Comply with CRI 104, Section 6.2, “Site Conditions; Floor Preparation,” and carpet manufacturer’s written installation instructions for preparing substrates indicated to receive
carpet installation. Concrete shall be cured, clean and dry before installation proceeds. Repair minor holes, cracks, depressions or rough areas using floor patching/leveling compound that is compatible with the adhesive to be used. Protrusions over 1/32 inch shall be leveled. Large patched areas shall be primed. Whenever a powdery or porous surface is encountered, a primer compatible with the adhesive shall be used to provide a suitable surface for glue-down installation. Remove grease, oils, loose particles, paint, dirt, curing and parting agents, and all other foreign substances. Clear away debris and scrape up cementitious deposits from surfaces to receive carpet; vacuum clean immediately before installation. Subfloor shall be level and smooth and free from scaling and irregularities per Carpet and Rug Institute acceptable standards (CRI 104). Coordinate carpet installation with any underfloor electrical/telephone/data so conductors and cables are pulled prior to carpet installation. Accessories (floor power/communications monuments) shall be installed on top of carpet after installation. Sequence carpet installation with other work to minimize possibility of damage and soiling of carpet during remainder of construction period. Maintain room temperature at minimum 65 degrees F for at least 24 hours prior to installation and relative humidity at approximately that at which the area is to be maintained.

b. Concrete (No Previous Flooring Material): Apply a concrete sealer coat at the rate recommended by the sealer manufacturer. Use thin, fast drying primers that are compatible with adhesives. Apply adhesive only after primer is completely dry.

c. Concrete (Previous Flooring Materials Removed): Remove existing adhesive by grinding with a concrete grinding machine and moist sand. Do not use solvents to remove adhesive. Apply concrete sealer at rate recommended by the sealer manufacturer. Use thin, fast drying primers that are compatible with adhesives. Completely cover area with cutback neutralizer per manufacturer's recommendations.

d. Wood: Patch all surface irregularities and seal with wood sealer as recommended by manufacturer.

e. Vinyl Tile: Replace all loose, missing, and broken tiles with tiles of equal thickness making note of any special requirements with respect to asbestos on the Jobsite Hazard Evaluation. Strip existing tile of wax, dirt and other foreign substances. Completely cover area with cutback neutralizer per manufacturer's recommendations.

f. Proceed with installation only after unsatisfactory conditions have been corrected.
3.3 Installation:

a. General: Perform installation in accordance with manufacturer’s instructions, except where more stringent requirements are shown or specified, and except where project conditions require extra precautions or provisions to ensure satisfactory performance of the work. Comply with carpet instructions for direction of carpet. Unless otherwise noted on drawings align pattern and pile in the same direction, parallel to the centerline of the area or room. Extend carpet under open-bottomed obstructions and under removable flanges and furnishings, and into alcoves and closets of each space. Existing systems furniture shall be raised or removed to accommodate continuous carpet installation. Provide cut-out where required, and bind cut edges where not concealed by protective edge guards or overlapping flanges. Follow manufacturer’s instructions for cutting carpet, using tools designed to cut type of carpet materials being installed. At door openings, orient carpet seam perpendicular to traffic direction; doorway seam shall be located directly underneath door in closed position. Carpet shall be free from movement when subjected to traffic. Provide mock-up for approval by Columbia University of special cuts/effects such as mitered corners at borders or graphic patterns that are prepared and installed onsite.

b. Glue Down Installation: Comply with CRI, Section 8, “Direct Glue-Down Installation,” or Section 9, “Double Glue-Down Installation,” as appropriate. Before applying adhesive to substrate, pre-fit carpet in area where it is to be installed. Where cutting is necessary, provide properly prepared, straight, and unfrayed edges. Apply a full spread of adhesive in an even layer to substrate, using trowel of carpet manufacturer’s recommended notch size. Follow MSDS instructions for ventilation requirements. Install prefitted carpet; butt edges snugly at seams and against vertical obstructions. Stretch carpet tightly over substrate, so that it lies flat, is uniformly smooth, and free of bulges. Apply seaming cement to butted edges. Install edge guards at exposed carpet edges unless indicated otherwise; provide secure attachment to substrate. After installation, lightly roll carpet as recommended by carpet manufacturer. Immediately remove adhesive from surface of carpet by method which will not damage carpet.


d. Install vinyl base after completion of carpet work. Use adhesive recommended by vinyl base manufacturer.

3.4 Cleaning and Protection

a. Remove and dispose of debris and recycle all unusable scraps.
b. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer. Remove yarns that protrude from carpet surface. Vacuum carpet using commercial quality vacuum cleaner with face-beater element.

c. Protect installed carpet tile to comply with CRI 104, Section 15, “Protection of Indoor Installations.”

d. Protect installation with a heavy, non-staining building paper. Do not use a moisture barrier such as plastic film. Maintain protection intact until final acceptance.

e. Do not permit foot traffic or place furniture on glued-down carpet for a minimum of 48 hours after installation.

f. Do not wet-clean any glued-down carpet within 60 days of installation.

g. Advise Columbia University of any protection methods necessary to prevent deterioration or damage until substantial completion.

3.5 Carpet Removal:

a. All carpet tile and scraps removed from the project shall be recycled or reapplied. Disposal of product in landfill is not permitted.

b. Vacuum in-place carpet with industrial vacuum prior to demolition or debris-producing renovation.

c. Remove carpet.

d. Stack on pallets for handling.

e. Store carpet off ground and under cover to prevent contamination of materials by water, foreign matter or other causes.

3.6 Delivery, Storage and Handling:

a. Deliver materials to site in original factory wrappings and containers, clearly labeled with identification of manufacturer, brand name, quality or grade, fire hazard classification, and lot number or provide independent certificates.

b. Store materials in original undamaged packages and containers, inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, humidity; laid flat, blocked off ground to prevent sagging and warping. Maintain temperature in storage area above 40 degrees F.
c. Comply with instructions and recommendations of manufacturer for special delivery, storage, and handling requirements.

d. Extra Materials: Furnish full width rolls equal to 5 percent of the amount installed of each type, but not less than 10 sq. yds., before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

3.7 Environmental Limitations: Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for project when occupied for its intended use.

3.8 Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

3.9 When demountable partitions or other items are indicated for installation on top of carpet, install carpet before the installation of these items.

REFERENCE

4.1 The applicable CSI Specification Section is 09 68 16.