



WMU Design Guidelines Instructions: These guidelines are to be used by the Design Professional to inform the design process and outline WMU-specific desires for University projects. Text appearing in blue indicates a WMU design guideline which must be met for all campus projects unless approved in writing by the University. Blue text that is struck out indicates products or practices that are **not** acceptable, and shall not be included unless similarly approved. Any text remaining in black is to be edited by the Design Professional as part of the normal specifications-writing process. Guidelines language shall be included in the project specifications and their intent incorporated into the drawings.

SECTION 09 6816 - SHEET CARPETING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Tufted carpet.
2. Woven carpet.
3. Carpet cushion.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at **[Project site]** <Insert location>.

1. Review methods and procedures related to carpet installation including, but not limited to, the following:
 - a. Review delivery, storage, and handling procedures.
 - b. Review ambient conditions and ventilation procedures.
 - c. Review subfloor preparation procedures.
 - d. <Insert agenda items>.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include manufacturer's written data on physical characteristics and durability.
2. Include manufacturer's written installation recommendations for each type of substrate.

Designer Note: For projects seeking LEED certification, include sustainable design submittals as required.

B. Sustainable Design Submittals:

1. <Double click to insert sustainable design text for adhesives.>
2. <Double click to insert sustainable design text for carpeting products.>
3. <Double click to insert sustainable design text for flooring.>



WMU Design Guidelines

- C. Shop Drawings: For carpet installation, showing the following:
1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet.
 2. Carpet type, color, and dye lot.
 3. Locations where dye lot changes occur.
 4. Seam locations, types, and methods.
 5. Type of subfloor.
 6. Type of installation.
 7. Pattern type, repeat size, location, direction, and starting point.
 8. Pile direction.
 9. Types, colors, and locations of insets and borders.
 10. Types, colors, and locations of edge, transition, and other accessory strips.
 11. Transition details to other flooring materials.
 12. Type of carpet cushion.

- D. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

Designer Note: Carpet samples should be large enough to see the pattern in its entirety.

1. Carpet: **Minimum** 12-inch-square Sample.
2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch-long Samples.
3. Carpet Cushion: 6-inch-square Sample.
4. Carpet Seam: 6-inch Sample.
5. Mitered Carpet-Border Seam: 12-inch-square Sample. Show carpet pattern alignment.

- E. Samples for Initial Selection: For each type of product.

1. Include Samples of exposed edge, transition, and other accessory stripping involving color or finish selection.

- F. Samples for Verification: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

1. Carpet: 12-inch-square Sample.
2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch-long Samples.
3. Carpet Cushion: 6-inch-square Sample.
4. Carpet Seam: 6-inch Sample.
5. Mitered Carpet-Border Seam: 12-inch-square Sample. Show carpet pattern alignment.

- G. Product Schedule: For carpet [**and carpet cushion**]. Use same designations indicated on Drawings.

- H. Sustainable Product Certification: Provide ANSI/NSF 140 certification for carpet products.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.



- B. Product Test Reports: For carpet [**and carpet cushion**], for tests performed by a qualified testing agency.
- C. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For carpet to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining carpet, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 - 2. Precautions for cleaning materials and methods that could be detrimental to carpet [**and carpet cushion**].

1.6 MAINTENANCE MATERIAL SUBMITTALS

Designer Note: The amount of attic stock is determined on a project-by-project basis. This needs to be discussed with WMU during the design phases of the project, including where the extra materials will be stored.

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Carpet: Full-width rolls equal to [**5**] **<Insert number>** percent of amount installed for each type indicated, but not less than 10 sq. yd..

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the International Certified Floorcovering Installers Association at the [**Commercial II**] [**Master II**] **<Insert description>** certification level.
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.
 - 1. Build mockups at locations and in sizes shown on Drawings.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI's "CRI Carpet Installation Standard."
- B. Deliver carpet in original mill protective covering with mill register numbers and tags attached.



WMU Design Guidelines

1.9 FIELD CONDITIONS

- A. Comply with CRI's "CRI Carpet Installation Standard" for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet [**and carpet cushion**] until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.
- C. Do not install carpet [**and carpet cushion**] over concrete slabs until slabs have cured, are sufficiently dry to bond with adhesive, and have pH range recommended by carpet manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet, install carpet before installing these items.

1.10 WARRANTY

- A. Special Warranty for Carpet: Manufacturer agrees to repair or replace components of carpet installation that fail in materials or workmanship within specified warranty period.
 - 1. Warranty does not include deterioration or failure of carpet due to unusual traffic, failure of substrate, vandalism, or abuse.
 - 2. Failures include, but are not limited to, the following:
 - a. More than 10 percent loss of face fiber, edge raveling, snags, and runs.
 - b. Loss of tuft bind strength.
 - c. Excess static discharge.
 - d. Delamination.
 - e. **<Insert failure characteristic>**.
 - 3. Warranty Period: **[10] <Insert number>** years from date of Substantial Completion.
- B. Special Warranty for Carpet Cushion: Manufacturer agrees to repair or replace components of carpet cushion installation that fail in materials or workmanship within specified warranty period.
 - 1. Warranty includes removal and replacement of carpet and accessories required by replacement of carpet cushion.
 - 2. Warranty does not include deterioration or failure of carpet cushion due to unusual traffic, failure of substrate, vandalism, or abuse.
 - 3. Failure includes, but is not limited to, permanent indentation or compression.
 - 4. Warranty Period: **[10] <Insert number>** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 TUFTED CARPET **<Insert designation>**

- A. **<Double click here to find, evaluate, and insert list of manufacturers and products.>**



- B. Color: **[As indicated by manufacturer's designations] [Match Architect's samples] [As selected by Architect from manufacturer's full range]** <Insert color>.
- C. Pattern: **[Match Architect's samples]** <Insert pattern>.
- D. Fiber Content: 100 percent nylon 6, 6 or 100 percent nylon 6 ~~[100 percent polypropylene]~~ <Insert fiber and content by percentage>.
- E. Fiber Type: <Insert proprietary fiber type>.
- F. Pile Characteristic: **[Level-loop] [Cut-and-loop] [Cut] [Multilevel-loop] [Level tip shear] [Random shear] [Frieze] [Sculptured]** <Insert characteristic> pile.
- G. Yarn Twist: <Insert twist in TPI>.
- H. Yarn Count: <Insert yarn count>.
- I. Density: <Insert oz./cu. yd. >.
- J. Pile Thickness: <Insert inches> for finished carpet **[according to ASTM D6859]**.
- K. Stitches: <Insert stitches per inch>.
- L. Gage: <Insert gage in ends per inch>.
- M. Face Weight: <Insert oz./sq. yd. >.
- N. Total Weight: <Insert oz./sq. yd. > for finished carpet.
- O. Primary Backing: **[Manufacturer's standard material] [Woven polypropylene] [Nonwoven, polypropylene or polyester]** <Insert specific primary backing material>.
- P. Secondary Backing: **[Manufacturer's standard material] [Woven polypropylene] [Nonwoven, polypropylene or polyester] [Woven jute] [Fiberglass]** <Insert specific secondary backing material>.
- Q. Backcoating: **[Manufacturer's standard material] [SBR latex] [PVC] [Thermoplastic copolymer]** <Insert backcoating; consult manufacturers>.
- R. Backing System: <Insert proprietary name>.
- S. Roll Width: **[12 feet] [6 feet] [13.5 feet] [15 feet]** <Insert dimension>.
- T. Applied Treatments:
 - 1. Applied Soil-Resistance Treatment: **[Manufacturer's standard material]** <Insert treatment>.
 - 2. Antimicrobial Treatment: **[Manufacturer's standard material]** <Insert treatment>.
 - a. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria, not less than 1-mm halo of inhibition for gram-negative bacteria, and no fungal growth, according to AATCC 174.



WMU Design Guidelines

U. Sustainable Design Requirements:

1. Sustainable Product Certification: [**Silver**] [**Gold**] [**Platinum**] level certification according to ANSI/NSF 140.
2. <Double click to insert sustainable design text for carpet and cushion.>

V. Performance Characteristics:

1. Appearance Retention Rating: [**Moderate traffic, 2.5**] [**Heavy traffic, 3.0**] [**Severe traffic, 3.5**] **<Insert number>** minimum according to ASTM D7330.
2. Critical Radiant Flux Classification: Not less than [**0.45 W/sq. cm**] [**0.22 W/sq. cm**] according to NFPA 253.
3. Dry Breaking Strength: Not less than 100 lbf according to ASTM D2646.
4. Tuft Bind: Not less than [**3 lbf**] [**5 lbf**] [**6.2 lbf**] [**8 lbf**] [**10 lbf**] **<Insert value>** according to ASTM D1335.
5. Delamination: Not less than [**2.5 lbf/in.**] [**3.5 lbf/in.**] [**4 lbf/in.**] **<Insert value>** according to ASTM D3936.
6. Noise Reduction Coefficient (NRC): **<Insert NRC>** according to ASTM C423.
7. Colorfastness to Crocking: Not less than 4, wet and dry, according to AATCC 165.
8. Colorfastness to Light: Not less than 4 after [**40**] [**60**] **<Insert number>** AFU (AATCC fading units) according to AATCC 16, Option E.
9. Electrostatic Propensity: Less than [**3.5**] [**2**] **<Insert number>** kV according to AATCC 134.

2.2 WOVEN CARPET **<Insert designation>**

- A. <Double click here to find, evaluate, and insert list of manufacturers and products.>
- B. Color: [**As indicated by manufacturer's designations**] [**Match Architect's samples**] [**As selected by Architect from manufacturer's full range**] **<Insert color>**.
- C. Pattern: [**Match Architect's samples**] **<Insert pattern>**.
- D. Fiber Content: [**100 percent wool**] [**80 percent wool; 20 percent nylon 6, 6**] [**80 percent wool; 20 percent nylon 6**] **<Insert fiber and content by percentage>**.
- E. Face Construction: [**Axminster**] [**Wilton**] [**Velvet**] **<Insert construction>**.
- F. Pile Characteristic: [**Level-loop**] [**Cut**] [**Cut-and-loop**] pile.
- G. Yarn Twist: **<Insert twist in TPI>**.
- H. Yarn Count: **<Insert yarn count>**.
- I. Density: **<Insert oz./cu. yd. >**.
- J. Pile Thickness: **<Insert inches>** for finished carpet [**according to ASTM D6859**].
- K. Rows: **<Insert number of lengthwise tufts per inch>**.
- L. Pitch: **<Insert number of rows in 27 inches>**.



- M. Face Weight: <Insert oz./sq. yd. >.
- N. Total Weight: <Insert oz./sq. yd. > for finished carpet.
- O. Backing: **[Manufacturer's standard.] [As follows:]**
 - 1. Chain Warp: <Insert material>.
 - 2. Stuffer Warp: <Insert material>.
 - 3. Shot or Fill Weft: <Insert material>.
 - 4. Backcoating: <Insert backcoating>.
- P. Applied Treatments:
 - 1. Applied Soil-Resistance Treatment: **[Manufacturer's standard material] <Insert treatment>**.
 - 2. Antimicrobial Treatment: **[Manufacturer's standard material] <Insert treatment>**.
 - a. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria, not less than 1-mm halo of inhibition for gram-negative bacteria, and no fungal growth, according to AATCC 174.
- Q. Sustainable Design Requirements:
 - 1. Sustainable Product Certification: **[Silver] [Gold] [Platinum]** level certification according to ANSI/NSF 140.
 - 2. <Double click to insert sustainable design text for carpet and cushion.>
- R. Performance Characteristics:
 - 1. Appearance Retention Rating: **[Moderate traffic, 2.5] [Heavy traffic, 3.0] [Severe traffic, 3.5]** <Insert number> minimum according to ASTM D7330.
 - 2. Critical Radiant Flux Classification: Not less than **[0.45 W/sq. cm] [0.22 W/sq. cm]** according to NFPA 253.
 - 3. Dry Breaking Strength: Not less than 100 lbf according to ASTM D2646.
 - 4. Noise Reduction Coefficient (NRC): <Insert NRC> according to ASTM C423.
 - 5. Colorfastness to Crocking: Not less than 4, wet and dry, according to AATCC 165.
 - 6. Colorfastness to Light: Not less than 4 after **[40] [60]** <Insert number> AFU (AATCC fading units) according to AATCC 16, Option E.
 - 7. Electrostatic Propensity: Less than **[3.5] [2]** <Insert number> kV according to AATCC 134.

2.3 CARPET CUSHION <Insert designation>

Designer Note: Carpet cushion to be compatible with carpet. Follow manufacturer's recommendations.

- A. <Double click here to find, evaluate, and insert list of manufacturers and products.>
- B. Traffic Classification: CCC **[Class I, moderate] [Class II, heavy] [Class III, extra-heavy]** traffic.
- C. Fiber Cushion: **[Rubberized hair, mothproofed and sterilized] [Rubberized jute, mothproofed and sterilized] [Synthetic] [Resinated, recycled textile]**.
 - 1. Weight: <Insert oz./sq. yd. >.



WMU Design Guidelines

2. Thickness: <Insert inches> plus 5 percent maximum.
3. Density: <Insert lb/cu. ft. >.

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

1. Weight: <Insert oz./sq. yd. >.
2. Thickness: <Insert inches> plus 5 percent maximum.
3. Compression Resistance: <Insert lb/sq. in. > at [25] [65] percent according to ASTM D3676.
4. Density: <Insert lb/cu. ft. >.

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

1. Compression Force Deflection at 65 Percent: <Insert lb/sq. in. of polymer density> according to ASTM D3574.
2. Thickness: <Insert inches>.
3. Density: <Insert lb/cu. ft. >.

F. Performance Characteristics:

1. Critical Radiant Flux Classification: Not less than [0.45 W/sq. cm] [0.22 W/sq. cm] according to NFPA 253.
2. Noise Reduction Coefficient (NRC): <Insert NRC> according to ASTM C423.
3. <Double click to insert sustainable design text for carpet and cushion.>

2.4 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by [**carpet**] [**carpet cushion**] manufacturer.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and is recommended or provided by [**carpet manufacturer**] [**carpet and carpet cushion manufacturers**].

1. <Double click to insert sustainable design text for VOC content of adhesive.>
2. <Double click to insert sustainable design text for adhesives.>

C. Tackless Carpet Stripping: Water-resistant plywood, in strips as required to match cushion thickness and that comply with CRI's "CRI Carpet Installation Standard."

D. Seam Adhesive: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for sealing and taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.

E. Metal Edge/Transition Strips: Extruded aluminum with [mill] <Insert finish> finish of profile and width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.



PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet performance.
- B. Examine carpet for type, color, pattern, and potential defects.

Designer Note: WMU requires moisture testing per product manufacturer's recommendations.

- C. Concrete Slabs: Verify that finishes comply with requirements specified in Section 03 3000 "Cast-in-Place Concrete" and that surfaces are free of cracks, ridges, depressions, scale, and foreign deposits.
 - 1. Moisture Testing: Perform tests so that each test area does not exceed [200 sq. ft.] [1000 sq. ft.] <Insert area>, and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of [3 lb of water/1000 sq. ft.] <Insert emission> in 24 hours.
 - b. Relative Humidity Test: Using in situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum [75] <Insert number> percent relative humidity level measurement.
 - c. Perform additional moisture tests recommended in writing by [adhesive and carpet] [adhesive, carpet cushion, and carpet] manufacturers. Proceed with installation only after substrates pass testing.
- D. Wood Subfloors: Verify the following:
 - 1. Underlayment over subfloor complies with requirements specified in Section 06 1600 "Sheathing."
 - 2. Underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with CRI's "CRI Carpet Installation Standard" and with carpet manufacturer's written installation instructions for preparing substrates.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider, and protrusions more than 1/32 inch, unless more stringent requirements are required by manufacturer's written instructions.
- C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using



WMU Design Guidelines

solvents. Use mechanical methods recommended in writing by **[adhesive and carpet]** **[adhesive, carpet, and carpet cushion]** manufacturers.

- D. Broom and vacuum clean substrates to be covered immediately before installing carpet.

3.3 CARPET INSTALLATION

- A. Comply with CRI's "CRI Carpet Installation Standard" and **[carpet manufacturer's]** **[carpet and carpet cushion manufacturers']** written installation instructions for the following:

1. Direct-glue-down installation.
2. Double-glue-down installation.
3. Carpet with attached-cushion installation.
4. Preapplied adhesive installation.
5. Hook-and-loop installation.
6. Stretch-in installation.
7. Stair installation.

- B. Comply with carpet manufacturer's written instructions and Shop Drawings for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. [At doorways, center seams under the door in closed position.](#)

~~1. [Stretch-in Carpet Installation: Install carpet cushion seams at 90-degree angle with carpet seams.](#)~~

- C. Install **[pattern parallel to walls and borders]** **[as indicated on Drawings]** **<Insert requirements>**.

- D. Install borders with mitered corner seams.

- E. [Do not bridge building expansion joints with carpet.](#)

- F. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.

- G. Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

- H. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet as marked on subfloor. Use nonpermanent, nonstaining marking device.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet:

1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
2. Remove yarns that protrude from carpet surface.
3. Vacuum carpet using commercial machine with face-beater element.



WMU Design Guidelines

- B. Protect installed carpet to comply with CRI's "CRI Carpet Installation Standard."
- C. Protect carpet against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods recommended in writing by carpet manufacturer [**and carpet cushion manufacturer**] [**and carpet adhesive manufacturer**] [**and carpet cushion and adhesive manufacturers**].
- D. Vacuum all carpeted areas immediately prior to FF&E installation.

END OF SECTION 09 6816