SECTION 09681

CARPET TILE

PART 1 GENERAL

1.1 Description of Work
   A. Provide and install all modular carpet and installation work as required by contract documents

1.2 Quality Assurance
   A. Manufacturer
      1. The carpet manufacturer shall have no less than fifteen years of production experience with modular carpet similar to type specified. Published product literature of carpet manufacturer must clearly indicate compliance of products with requirements of this section.
      2. Commitment to quality – carpet manufacturer must provide verification of its registration to the ISO 9001/9002 Quality Management System.
      3. Commitment to sustainability – carpet manufacturer must demonstrate environmental responsibility through programs of source reduction, recycling, reuse and conservation and registration to the ISO 14001 Environmental Management System.
   B. Installation Provider –
      1. The installation provider must be directly responsible for the quality of the completed floorcovering installation, including both the quality of the materials and labor used in the installation. The installation provider must directly warrant to owner that all products, materials and services related to the floorcovering installation (including any floorcovering(s), adhesive(s) and/or other products or materials used in the installation) will meet specifications set forth herein. The product warranty required herein must be provided directly by the carpet manufacturer.
      2. The installation provider must have successful carpet installation experience similar to the work of this Section.

1.3 Submittals – Please submit each of the following with your bid (unless otherwise noted):
   A. Manufacturer’s Data – Two (2) copies of carpet manufacturer’s specifications and installation instructions for carpet and related items specified.
   B. Fiber Verification – Certification from the fiber producer verifying use of the premium branded, type 6,6 or type 6 fiber in the submitted carpet product. Premium branded fibers are identified as Invista, Solutia, Universal or Aquafil. Fibers extruded by carpet mills will be considered “unbranded” for purposes of this specification.
   C. All applicable product warranties provided by manufacturer.
   D. Installation provider’s proof of insurance, copy of contractor’s license and worker’s compensation certificate.
   E. Five (5) current project references for installation provider, with scope, date and customer contact with phone number in compliance letter.
   F. Samples – Standard size carpet samples of each type of carpet, in each specified pattern, color and construction.
G. Any alternative to specified product(s) or approved manufacturer must be submitted for approval at least ten (10) working days prior to bid or proposal.

H. Maintenance Instructions – Two (2) copies of the manufacturer’s carpet maintenance instructions.

I. Green House Gas Status of Product – The average quantity of green house gas emissions associated with the life cycle of the product, a description of the green house offsets used to make the product green house gas neutral (climate neutral), and the name for the 3rd party organization certifying such offsets.

1.4 Warranty

A. Provide the following written warranties by carpet manufacturer for a period of no less than 15 years:

1. Wear – Surface fiber wear shall not be more than 10% by weight in 15 years. (Note: wear warranty shall not require use of chair pads)
2. Static – Static generation at less than 3.0 kV at 70 degrees F, and 20% R.H.
3. No delamination
4. No edge ravel
5. No dimensional instability (i.e., shrinkage, curling and doming) which adversely affect the ability of the tile to lay flat
6. Merge ability – Carpet that is of the same style/color, but from different dye lots and/or manufacturing dates, may be merged and used interchangeably, both at initial installation and at later selective replacement, to create a continuous carpeted surface with no tile appearing out of place.

B. Submit manufacturer’s NVLAP certified test results to show that carpet meets or exceeds product performance specification criteria for carpet testing requirement under Section 2.1 hereof.

C. Installation provider shall warrant all installation services will be free from defects in workmanship for a period of at least one (1) year following their completion, and that in the event of defective services, the installation provider will re-perform the affected services and, as necessary, supply new products of the same or similar grade sufficient to repair or replace products.

PART 2 PRODUCTS

2.1 Modular Carpet Tile Performance Standards: Modular carpet tile shall meet the following performance standards:

A. Carpet Flammability

.1 Pill Test (ASTM D2859 or CPSC FF-1-70) Passes

.2 Radiant Panel Test (ASTM E648) \( \geq 0.45 \text{ watts/cm}^2, \text{ Class 1} \)
B. Smoke Density (ASTM E662) \( \leq 450 \) Flaming Mode

C. Dimensional Stability (Aachen Method Din 54318) \( \leq 0.1\% \) change

D. Static Generation at 70º F (AATCC 134 w/ neolite) \( \leq 2.5 \) kV at 20\% R.H.

E. Light fastness (AATCC 16E) \( \geq 4.0 \) after 60 hours

F. Gas Fade (AATCC 23) 4

G. Ozone Fade (AATCC 109) 4

H. Antimicrobial (ASTM 2471-05) Complete to Partial Inhibition (high) on primary and fiber layers

or H1. Antimicrobial (AATCC 174, Part II) \( \geq 90.0\% \) reduction

I. Fungicidal (AATCC 174, Part III) No growth

J. Soil/Stain Protection (AATCC 175-1991) \( \geq 8.0 \) on the Red 40 Stain Scale

K. Sustainable Carpet Assessment Standard – NSF 140 Gold level as certified by 3rd party such as SCS (platinum when GlasBac® RE is backing)

2.2 Product Specification: Modular carpet tile shall meet the following specifications:

A. Yarn System: 100% Invista Type 6,6; Solutia Type 6,6: Universal Type 6,6 or Aquafil Type 6 Nylon. Fiber must have a cross section modification ratio no greater than 2.5. (Note: Bidder may propose yarn with % of biobased material with satisfactory explanation of modification)

B. Dye Method: 100% Solution Dyed

C. Merge ability: Carpet that is of the same style/color, but from different dye lots and/or manufacturing dates, may be merged and used interchangeably, both at initial installation and at later selective replacement, to create a continuous carpeted surface with no tile appearing out of place.

D. Construction: Tufted

E. Patterning: Integrated (topical application or wet patterning not allowed)

F. Texture: Textured loop

G. Gauge/Stitch: Minimum 1/10

H. Pile Height: Minimum .148

I. Pile Weight: Maximum 24 oz. Per yard (lower face weights are preferable if equal or superior performance can be substantiated by Appearance Retention Testing)
J. Primary Backing: Must be non-woven. Woven primary backings are not allowed.
K. Secondary Backing: Fiberglass reinforced thermoplastic composite (polyolefin free) containing not less than 39% post consumer and/or post industrial material content. Secondary backing must be 100% recyclable at the end of its useful life.
L. Soil/Stain Resistance: Application by fiber producer and manufacturer required.
M. Antimicrobial: Antifungal and antibacterial ASTM E 2471-05 Standard Test Method for Use of Deeded Agar for Screening Assessment of Antimicrobial Activity in carpet. Minimum allowable growth ratings on washed and unwashed carpet samples after 72 hours incubation are complete to partial inhibition (high) on shaven primary and unshaven fiber layers. Or, if AATCC 174 Parts II & III (AATCC 171 Washed) is used, must pass both Part II and Part III of AATCC 174 with a minimum of 90% reduction both gram negative and gram positive bacteria and non macroscopic growth against the fungi.
N. Non-directional Installation Method: All product must be designed for random installation meaning that each and every time can be installed in any of the four possible directions without regard to pile direction, pattern or orientation of any adjacent tiles while still creating a finished carpet tile assembly that appears to be a visually continuous carpeted surface with no tile appearing out of place or improperly positioned.

2.3 Minimum Construction Standards in Addition to Product Specifications
A. Nylon Specification – All nylon fiber shall be branded (premium) type 6,6 or type 6 nylon from Invista, Solutia, Universal or Aquafil with performance certification from the fiber manufacturer. Fiber must have a cross-section modification ratio no greater than 2.5
B. Any and all products must pass Carpet and Rug Institute “Green Label +” certification. Product certification of the specified product must accompany submittal.
C. Finished modular product is required to be 3rd party certified as climate neutral.
D. Antimicrobial preservative, registered by the EPA for use in carpeting, with broad spectrum efficacy against the growth of bacteria and fungi for a minimum of 15 years, assuming proper maintenance. The antimicrobial ingredient shall meet standards set by the U.S. General Services Administration (GSA) for Antimicrobial Carpet as supported by independent lab testing less than six months old.
   1. Manufacturer must provide a stamped EPA technical data sheet for carpet. Antimicrobial preservative must contain no arsenic, formaldehyde or heavy metals (tin, lead, mercury, silver, copper or zinc), be non-halogenated (no fluorine, chlorine, bromine or iodine) and non-phenolic. Blends of amine neutralized phosphate esters are preferable. Antimicrobial must have low water solubility (30ppm), a vapor pressure of 12mm Hg at 27 degrees C, and an oral LD50 toxicity rate less than 2.4 grams/kg.
   2. The Antimicrobial preservative should be incorporated into the primary backing of the product during the manufacturing process, not topically applied to the carpet fibers.
   3. The antimicrobial treated carpet when new must pass GSA parameters for treated carpets via AATCC method 174 parts II and III. Initial performance must by 90% reduction of the microorganisms (Staphylococcus aureus 6538 and Klebsiella pneumoniae 4352) and no fungal growth on either the primary backing or fibers both on washed (AATCC method 174) and non-washed samples. The Standard Test Method for Use of
Seeded Agar for Screening Assessment of Antimicrobial Activity in Carpet (ASTM E 2471-05) may be used in lieu of AATCC method 174 parts II and III.

4. The antimicrobial treated carpet must maintain, for the warranted life of the carpet, a minimum of 90% reduction of the microorganisms (Staphylococcus aureus 6538 and Klebsiella pneumonia 4352) listed in AATCC method 174 part II, provided the carpet is maintained as specified. Additionally, the antimicrobial treated carpet must maintain a “no macroscopic growth” rating against Aspergillus niger 6275 at the primary backing in accordance with AATCC 174 part III.

5. The preservative must be environmentally responsible i.e. (biodegradable and not toxic to non-target species).

6. Efficacy of the preservative should be documented in professional peer reviewed scientific publications.

2.4 Related Carpet Materials
A. Leveling compound – Latex type as recommended by carpet manufacturer. Must be compatible with the carpet adhesive and curing/sealing compound on concrete.

B. Installation connectors – Compounded acrylic adhesive, applied to PET polyester backing with PET polyester release liner (clear 3” x 3” polyester squares with small quantity of a pressure sensitive adhesive applied on one side of the polyester film). The squares connect the carpet modules together to form a stable surface over almost any hard surface. The connectors shall contain no liquid components and shall have “zero” calculated VOC’s.

C. Carpet edge guard, non-metallic – Extruded or molded heavy duty vinyl or rubber carpet edge guard of size and profile indicated, and with minimum two inch wide anchorage flange; colors selected by architect/designer from among standard colors available within the industry.

D. Miscellaneous materials – As recommended by manufacturer of carpet. Other carpeting products to be selected by installation provider to meet project requirements.

E. Electrostatic (Dissipation low-generation)
   1. Surface Resistivity – Across face of carpet (< 2.0 x 10^9 and >1.5 x 10^5) or (0.15 to 2000 megaohms)
   2. Transverse or Volume Resistivity – Through face of carpet (<2.0 x 10^10 and > 1.5 x 10^5 ohms) or (0.15 to 2000 megaohms)

PART 3 EXECUTION

3.1 Pre-Installation Requirements
A. All existing carpet and existing carpet waste must be reused or recycled in an “environmentally friendly” manner. A reclamation plan must be submitted that will provide directions for the reclamation of all carpet at the jobsite. “Environmentally friendly” carpet recycling methods also should be performed subsequent to job completion. As used herein, “environmentally friendly” methods consists of:
1. Repurposing – reusing the product in another application such as facilitating the donation of used carpeting to charities and other nonprofit organizations.
2. Recycling – turning waste materials into new materials of the same value, such as vinyl backing into vinyl backing and nylon yarn into nylon carpet yarn.
3. Upcycling – turning waste materials into more valuable products. For example, using PET (plastic from soda bottles) to create panel fabric.
4. Down cycling – creating less valuable products from waste materials. For example, turning nylon face fiber into car parts or carpet padding, including nylon face fiber in recycled backings, or using carpet for waste-to-energy utilizing the most efficient burning system possible. (In the case of down cycling, manufacturer must justify down cycling process)

B. Description of Reclamation Services – Carpet must be removed from the existing installation and prepared for pickup based on the type of material and reclamation option selected. Specifications for removal from the jobsite include:
1. Removal of carpet tile for recycling
   a. Carpet tile must be palletized and secured for shipping (i.e., shrink wrap, banding, strapping)
   b. Carpet tile must be kept dry and free of any moisture damage.
   c. Carpet tile must be clean of any non-carpet debris.
2. Removal of performance broadloom for recycling
   a. Performance broadloom should be rolled, palletized and secured for shipping. Cut pieces of performance broadloom are also acceptable, secured for shipping.
   b. Performance broadloom must be kept dry and free from moisture damage.
   c. Rolls must be clean of any non-carpet debris.
3. Removal of broadloom carpet for recycling
   a. Rolled carpet should not exceed six (6) feet in length x one (1) foot diameter. Width can vary from 2 feet to 12 feet.
   b. Carpet must be accumulated and kept dry for shipping and processing.
   c. Rolls must be clean of any non-carpet debris.
4. Repurposing of carpet material
   a. Approval of old carpet for possible donation will be determined at the jobsite.
5. All possible recycling options must be clearly presented and/or submitted in writing to owner and specifier subsequent to job start. A written description of the used carpet disposal process is required.
   a. Description must contain information as to complete process of diversion from landfill.
   b. A certificate will be furnished upon request verifying the reclamation of the carpet and the pounds of material diverted from the landfill.

3.2 Installation
A. General
1. Comply with manufacturer’s instructions and recommendations. A “no-glue” method of installation is preferred using materials described in 2.4.2 above. In the event a releasable glue method of installation is required, the following adhesive description applies.
   Adhesive must be water-based and allow for removal of carpet tile at any time without
damage to carpet or substrate. Adhesive must contain antimicrobial preservative and have “zero” calculated VOC’s.
2. Install carpet under open-bottom obstructions and under removable flanges and furnishings, and into alcoves and closets of each space.
3. Provide cut outs where required. Conceal cut edges with protective edge guards or overlapping flanges.
4. Run carpet under open bottom items such as heating convectors and install tight against walls, columns and cabinets so that the entire floor area is covered with carpet. Cover over all floor type door closures.
5. Install edging guard at all openings and doors wherever carpet terminates, unless indicated otherwise.
6. Cutting shall be done in accordance with the manufacturer’s recommendation, using the tools designed for the carpet being installed.
7. Use leveling compound where necessary. Any floor filling or leveling shall have a minimum of 4’0” of feather.
8. Expansion joints - Do not bridge building expansion joints with continuous carpeting.

B. Installation
1. Install carpet according to carpet manufacturer’s printed instructions and in accordance with the Carpet and Rug Institute’s Installation Standard.
2. “Chair Pads” shall not be recommended or required within installation instructions.

3.3 Cleaning and Protection
A. On completion of the installation in each area, all dirt, carpet scraps, etc. must be removed from the surface of the carpet.
B. Remove debris, and sort pieces to be saved from scraps to be redirected and recycled.
C. Construction manager shall protect carpeting against damage during construction.
D. At the completion of the work and when directed by the construction manager, vacuum carpet using commercial dual motor vacuum of type recommended by carpet manufacturer. Remove spots and replace carpet where spots cannot be removed. Remove rejected carpeting and replace with new carpeting. Remove any protruding yarns with shears or sharp scissors.

3.4 Inspection
A. Upon completion of the installation, verify that work is complete, properly installed and acceptable.
B. Preliminary Acceptance - Upon completion of the carpet installation of each floor, it shall be inspected by owner, the construction manager and installation provider.

3.5 Environmental Impact and Measurements. The manufacture of all modular carpet tile must meet the following criteria:
A. Greenhouse gas emissions from purchased electricity and on-site combustion attributable to the manufacturing process must average 0.57 kg of carbon dioxide or less per square meter (1.06 lbs per square yard).

B. Non renewable energy per unit of production during the manufacturing process must average 6,200 kj or less per square meter (4,900 BTU per square yard).

C. Solid waste generated at the manufacturing process regardless of disposal method must average 0.13 kg or less per square meter (0.05 lbs per square yard).

D. Water intake for manufacturing purposes during the manufacturing process must average 2.3 liters or less per square meter (0.5 gallons per square yard).

END OF SECTION