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Specification Section 09682 Broadloom Carpet

September XX, 2012

SAND2012-XXXX P

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U.S. DEPARTMENT OF
ENERGY



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CONSTRUCTION STANDARD SPECIFICATION

SECTION 09682

BROADLOOM CARPET

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BROADLOOM CARPET

PART 1 – GENERAL

1.01 SUMMARY

- A. Furnish and install broadloom carpet, cove base, and all accessories as shown on Construction Drawings or as otherwise requested.

1.02 REFERENCES

- A. American Association of Textile Chemists and Colorists (AATCC)
 - AATCC 16 Test Method 16, Test Option 16E: Watercooled Xenon-Arc Lamp, Continuous Light
 - AATCC 20 Fiber Analysis – Qualitative
 - AATCC 134 Electrostatic Propensity of Carpets
 - AATCC 165 Colorfastness to Crocking: Textile Floor Coverings – Crockmeter Method
- B. 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 (Aachen Test). (Previously DIN 54318, Aachen Dimensional Stability Test)
- C. American Society of Testing and Materials (ASTM)
 - ASTM D1335 Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings
 - ASTM D2859 Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials
 - ASTM D3676 Standard Specification for Rubber Cellular Cushion Used for Carpet or Rug Underlay
 - ASTM D3936 Standard Test Method for Resistance to Delamination of the Secondary Backing of Pile Yarn Floor Covering

- ASTM D5116 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products
- ASTM D5252 Standard Practice for the Operation of the Hexapod Tumble Drum Tester
- ASTM D5417 Standard Practice for the Operation of the Vettermann Drum Tester
- ASTM E648 Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source
- ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
- D. California Department of Public Health (CDPH)
 - Section 01350 Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers
- E. Carpet and Rug Institute (CRI)
 - CRI Indoor Air Quality Testing Program
 - CRI TM101 Assessment of Carpet Surface Appearance Change
 - CRI TM102 Fluorochemical Finishes
 - CRI 104 Standard for Installation of Commercial Carpet
- F. Consumer Product Safety Commission (CPSC)
 - CPSC FF 1-70 Methenamine Pill Test
- G. GREENGUARD Environmental Institute
 - GREENGUARD Children & Schools Certification Program
- H. National Fire Protection Association (NFPA)
 - NFPA 101[®] Life Safety Code[®]
 - NFPA 253 Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
- I. Resilient Floor Covering Institute (RFCI)
 - FloorScore[®] Indoor Air Quality Testing/Certification Program

1.03 SUBMITTALS

- A. General: Submit the following in accordance with, Section 01330, "Submittal Procedures."
- B. Product Data: Submit manufacturer's product literature and installation instructions for each type of carpeting material and installation accessory required.
- C. Samples

1. Submit manufacturer's standard size samples showing full range of colors, textures, and patterns (including full pattern repeat) available for each type of carpet required.
 2. Submit samples of each type of exposed edge stripping, vinyl base, and accessory item showing full range of standard colors.
- D. Shop Drawings: Submit a seaming diagram, showing each area to be carpeted and location of seams, molding, and edge strips.
- E. Maintenance Manual: Submit manual or carpet manufacturer's recommendations for the care, cleaning, and maintenance of carpeting.
- F. Certification
1. Submit manufacturer's certificate stating all materials are asbestos-free and lead paint-free.
 2. Submit certificate 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.
 3. Submit 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.
 4. Submit Material Safety Data Sheet (MSDS) for adhesives, seam sealers, leveling compounds, and primers required.
 5. Submit written warranty information stating compliance with requirements.
- G. Sustainability Data
1. Submit product data or manufacturer's certification letter indicating percentages by weight of preconsumer and postconsumer recycled content for each carpet product.
 2. Submit product data, MSDS, or manufacturer's certification letter indicating volatile organic compound (VOC) content for each adhesive used for installation of carpet, cove base, and carpet edge guard products.
 3. Submit manufacturer's documentation that cove base and carpet edge guard products are compliant with one of the following:
 - a. FloorScore® Indoor Air Quality (IAQ) Certification Program
 - b. GREENGUARD Children & Schools Certification Program
 - c. Emission Criteria of California Section 01350 Program
 4. Submit manufacturer's documentation that carpet systems meet the following CRI IAQ program requirements:
 - a. Carpet: Green Label Plus Program
 - b. Carpet Cushion: Green Label Program

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm (material producer) with not less than five (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 five (5) years of experience in installation of commercial carpet of type, quantity and installation methods similar to work of this Section.
- C. Labeling: A label meeting the Federal Labeling Requirements, as stated in the Textile Products Identification Act under the Federal Trade Commission, shall be attached to the certification samples and the products delivered.
- D. For each colorway, per floor, furnish carpet from one dye lot only.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104, Section 5, "Storage and Handling."
- B. 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.
- C. 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.
- D. Comply with instructions and recommendations of manufacturer for special delivery, storage, and handling requirements.

1.06 SEQUENCING AND SCHEDULING

- A. Coordinate work of this Section with other work to ensure that installed carpeting materials are not damaged or soiled.

1.07 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."
- B. 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.
- C. 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.
- D. When demountable partitions or other items are indicated for installation on top of carpet, install carpet before the installation of these items.

1.08 WARRANTY

- A. Warranties shall cover all labor and materials, including labor and installation costs involved to replace defective product and workmanship.
- B. General Warranty: Special warranties specified in the Article shall not deprive SNL of other rights SNL 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% loss of face fiber, edge raveling, snags, runs, and delamination.
 - 1. Warranty Period: 15 years from date of Substantial Completion.
- D. Special Carpet Cushion Warranty: Written warranty, signed by carpet cushion manufacturer agreeing to replace carpet cushion that does not comply with requirements or that fails within specified warranty period. Failures include, but are not limited to, permanent indentation or compression.
 - 1. Warranty Period: 15 years from date of Substantial Completion.
- E. Special Installation Warranty: Written warranty, signed by carpet tile installer and general contractor agreeing to correct faulty workmanship.
 - 1. Installation Warranty Period: 2 years from date of Substantial Completion.

1.09 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, 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% of amount installed for each type indicated, but not less than 10 square yards.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, those listed below.
 - 1. Tandus Flooring, Inc. (www.tandus.com)
 - 2. Crossley Carpet Mills, Limited (www.crossley.ca)
 - 3. Interface, Inc.® (www.interfaceinc.com)
 - 4. Lees Commercial Carpets Division/Burlington Industries, Inc.® (www.leescarpets.com)

5. Lowes Carpet Corporation (www.lowescarpets.com/)
6. Milliken® Contract Carpets (www.millikencarpet.com)
7. Mohawk (www.mohawkcarpet.com/)
8. Patcraft (www.patcraft.com/)
9. Shaw Contract Group® (www.shawcontract.com)

2.02 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. Sustainability Requirements
 1. Carpet Systems and Accessories Indoor Air Quality (IAQ):
 - a. All installed carpet shall meet the testing and product requirements of the CRI Green Label Plus Program.
 - b. All installed carpet cushion shall meet the requirements of the CRI Green Label Program.
 - c. All cove base and carpet edge guard products shall be compliant with one of the following:
 - FloorScore IAQ Certification Program
 - GreenGuard Children & Schools Certification Program
 - Emissions criteria of California Section 01350 Program
 2. VOC Content
 - a. Carpet adhesives shall not exceed 50 g/L limit.
 - b. Cove base adhesive shall not exceed 50 g/L limit.
 - c. Carpet edge guard adhesive shall not exceed 70 g/L limit.
 3. Recycle 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:
 - a. Total Recycled Content: Minimum 25%
 - b. Postconsumer Recycled Content: Minimum 25%
- C. Physical Performance Requirements
 1. Appearance Retention Rating: Severe (short-term not less than 4.0, long-term not less than 3.5) based on ASTM D5252 (Hexapod) using 3750-gram tumbler or ASTM D5417 (Vettermann) test method. Carpets shall be tested without underlay. The exposure conditioned carpet shall be assessed according to CRI TM101.
 2. Tuft Bind: Minimum average value, 10.0 pounds (Loop Pile)

3. Dimensional Stability: Maximum shrinkage 1.0 percent in both length and width
4. Delamination Resistance of the Secondary Backing: Not less than 2.5 pounds per inch
5. Colorfastness (entire colorline)
 - a. To Crocking: Color transfer Class 4 minimum, wet and dry, when tested as specified
 - b. 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
6. Fluorochemical Finish: Minimum average of 350 parts-per-million fluorine on the pile fiber when tested in accordance with CRI TM102
7. Antimicrobial Activity: Inherently antimicrobial; topical finishes not allowed
8. Electrostatic Propensity: Maximum 3.5 kV
9. Flammability
 - a. Methenamine Pill Test: Self-Extinguishing – compliance with Federal Flammability Standards CPSC FF 1-70 when tested in accordance with ASTM D2859
 - b. Radiant Panel: Minimum critical radiant flux of 0.45 watts per square centimeter
 - c. Smoke Density: Maximum 450
- D. Material Requirements
 1. Pile Fiber Type: 100% continuous filament nylon, Type 6,6 or Type 6
 2. Backing Materials:
 - a. Primary Backing: 100% synthetic materials
- E. Construction Requirements
 1. Surface Texture: Loop pile – level or textured loop, multi-level loop, or pattern
 2. Yarn: Multi-ply
 3. Tufting Machine Gauge: Minimum 1/10 gauge
 4. Number of Stitches: Minimum 8 per inch
 5. Finished pile thickness: ½-inch maximum
 6. Average Finished Pile Yarn Weight: Minimum 26 ounces per square yard
 7. Dye Method: Yarn or solution dyed
 8. Color: To be selected by the architect or Sandia Delegated Representative (SDR) from Vendor colorline of product meeting this specification

2.03 MANUFACTURED UNITS

- A. Product shall have a lead time of not more than eight (6) weeks from the time the dealer receives the order to the time SNL receives the product.
- 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.

2.04 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. Carpet edge guard shall be compliant with one of the following:
 - 1. FloorScore IAQ Certification Program
 - 2. GREENGUARD Children & Schools Certification Program
 - 3. Emissions Criteria of California Section 01350 ProgramCarpet edge guard adhesive shall not exceed 70 g/L VOC limit.
- B. Cutback Neutralizer: "Henry 335" Flooring Underlayment Powder with "Henry 336" Latex Liquid Additive, as manufactured by W.W. Henry Company or approved equal.
- C. Floor Patching Compound: "Henry 33," as manufactured by W.W. Henry Company® or approved equal.
- D. Cove Base: 4 inches high, coved, 0.080-inch gauge. Cove base shall be compliant with one of the following:
 - 1. FloorScore IAQ Certification Program
 - 2. GREENGUARD Children & Schools Certification Program
 - 3. Emissions Criteria of California Section 01350 ProgramCove base adhesive shall not exceed 50 g/L VOC limit.
- E. Miscellaneous Materials: As recommended by manufacturers of carpet and other carpeting products for intended application.
- F. Adhesive for Carpet: Provide water-resistant, low-VOC (not to exceed 50 g/L limit), nonstaining type as recommended by carpet manufacturer that complies with flame spread rating required for the carpet installation.

2.05 SOURCE QUALITY CONTROL

- A. Flame and Smoke Resistant Standards: Provide carpet complying with rating as indicated for the following:
 - 1. Flooring Radiant Panel Test: ASTM E648, Class I
 - 2. Smoke Density Test: ASTM E662

3. Methenamine Pill Test: Self-extinguishing (CPSC FF 1-70 or ASTM D2859)
- 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 TM102
- 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:
 1. Thickness: ASTM D3676
 2. Volume Density: ASTM D3676
 3. Compression Resistance: ASTM D3676
 4. Compression Set: ASTM D3676

PART 3- EXECUTION

3.01 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 Construction Project Manager 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.

3.02 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.
1. Concrete shall be cured, clean, and dry before installation proceeds.
 2. 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.
 3. 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.
 4. Remove existing brass utility caps and install SNL-furnished grout fill caps; grout level with existing substrate.
 5. 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.
 6. Subfloor shall be level and smooth and free from scaling and irregularities per Carpet and Rug Institute acceptable standards (CRI 104).
 7. 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.
 8. Sequence carpet installation with other work to minimize possibility of damage and soiling of carpet during remainder of construction period.
 9. Maintain room temperature at minimum 60 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 Materials Removed): Apply a compatible concrete sealer coat at the rate recommended by the sealer manufacturer. Acid etch concrete if recommended by sealer manufacturer. Use thin, fast-drying primers that are compatible with adhesives. Apply adhesive only after primer is completely dry.
- C. Concrete (Previous Flooring Material 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 carpet 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.

3.03 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.
 - 1. 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.
 - 2. 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.
 - 3. Provide cut-out where required, and bind cut edges where not concealed by protective edge guards or overlapping flanges.
 - 4. Follow manufacturer's instructions for cutting carpet, using tools designed to cut type of carpet materials being installed.
 - 5. At door openings, orient carpet seam perpendicular to traffic direction; doorway seam shall be located directly underneath door in closed position.
 - 6. Carpet shall be free from movement when subjected to traffic.
 - 7. Provide mockup for approval by SDR 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.
 - 1. Before applying adhesive to substrate, prefit carpet in area where it is to be installed. Where cutting is necessary, provide properly prepared, straight, and unfrayed edges.
 - 2. 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.
 - 3. Install prefitted carpet; butt edges snugly at seams and against vertical obstructions.

- a. Stretch carpet tightly over substrate, so that it lies flat, is uniformly smooth, and is free of bulges.
 - b. Apply seaming cement to butted edges.
- 4. Install edge guards at exposed carpet edges unless indicated otherwise; provide secure attachment to substrate.
- 5. After installation, lightly roll carpet as recommended by carpet manufacturer.
- 6. Immediately remove adhesive from surface of carpet by method that will not damage carpet.
- C. Miscellaneous Installation, Stairway Carpeting: Comply with CRI 104, Section 12, "Carpet on Stairs," and install per manufacturer's installation instructions. Provide vinyl or metal nosing at each riser. Match adjoining carpet installation.
- D. Install vinyl base after completion of construction for carpet work. Use adhesive recommended by vinyl base manufacturer.

3.04 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 to comply with CRI 104, Section 15, "Protection of Indoor Installations."
- D. Protect installation with a heavy, nonstaining building paper. Do not use a moisture barrier such as plastic film. Maintain protection intact until final acceptance by SNL.
- 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 SDR of protection methods and materials necessary to prevent deterioration or damage until substantial completion.

3.05 CARPET REMOVAL

- A. All carpet and scraps removed from SNL projects 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 and form into rolls.
- D. Stack carpet rolls for handling.

- E. Store carpet off ground and under cover to prevent contamination of materials by water, foreign matter, or other causes.
- F. Coordinate with SNL Pollution Prevention (P2) representative to arrange for delivery to onsite storage area.

END OF SECTION