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**Partie 1            General**

**1.1                RELATED REQUIREMENTS**

- .1      Section 03 30 00 – Cast-in-place Concrete.
- .2      Section 05 50 00 – Metal Fabrications.
- .3      Section 06 10 00 – Rough Carpentry.
- .4      Section 06 20 00 – Finish Carpentry.
- .5      Section 07 92 00 – Joint Sealants.
- .6      Section 09 30 13 – Ceramic Tiling.
- .7      Section 12 48 16 – Foot Grilles.

**1.2                REFERENCES**

- .1      American Association of Textile Chemists and Colorists (AATCC)
  - .1      AATCC Test Method 16-2004, Colorfastness to Light.
  - .2      AATCC Test Method 23-2005, Colorfastness to Burn Gas Fumes.
  - .3      AATCC Test Method 129-2005, Colourfastness to Ozone in the Atmosphere Under High Humidities.
  - .4      AATCC Test Method 134-2006, Electrostatic Propensity of Carpets.
  - .5      AATCC Test Method 171-2005, Carpets: Cleaning of; Hot Water Extraction Method.
  - .6      AATCC Test Method 175-2008, Stain Resistance: Pile Floor Coverings.
  - .7      AATCC Test Method 189-2007, Fluorine Content of Carpet Fibers.
- .2      ASTM International
  - .1      ASTM D297-93(2006), Standard Test Methods for Rubber Products-Chemical Analysis.
  - .2      ASTM D1335-05, Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings.
  - .3      ASTM D2661-08, Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe and Fittings.
  - .4      ASTM D1667-05, Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).
  - .5      ASTM D3574-08, Standard Test Methods for Flexible Cellular Materials - Slab, Bonded, and Molded Urethane Foams.
  - .6      ASTM D3936-05, Standard Test Method for Resistance to Delamination of the Secondary Backing of Pile Yarn Floor Covering.
- .3      Canadian General Standards Board (CGSB)
  - .1      CAN/CGSB-4.2 No. 22-2004, Textile Test Methods – Colourfastness to Rubbing.

- .2 CAN/CGSB-4.2 No. 27.6M-2004, Textile Test Methods - Flame Resistance - Methemine Tablet Test for Textile Floor Coverings.
- .3 CAN/CGSB-4.2 No. 76-94/ISO 2551: 1981, Textile Test Methods - Machine-Made Textile Floor Coverings - Determination of Dimensional Changes Due to the Effects of Varied Water and Heat Conditions.
- .4 CAN/CGSB-4.2 No. 77.1-94/ISO 4919:2000, Textile Test Methods - Carpets - Determination of Tuft Withdrawal Force.
- .5 CAN/CGSB-4.129-93(C1997), Carpets for Commercial Use.
- .4 Carpet and Rug Institute (CRI)
  - .1 CRI Carpet Installation Standard 2009.
  - .2 CRI Green Label Indoor Air Quality Testing Program.
  - .3 CRI Green Label Plus Indoor Air Quality Testing Program.
- .5 Environmental Choice Program (ECP)
  - .1 DCC-152-2009, Flooring Products, Commercial Non-modular Textile Flooring.
- .6 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .7 National Floor Covering Association (NFCA)
  - .1 National Floor Covering Specification Manual 2007.
- .8 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
  - .1 SCAQMD Rule 1113-A2007, Architectural Coatings.
  - .2 SCAQMD Rule 1168-A2005, Adhesives and Sealants Applications.
- .9 All carpeting installed inside the building must comply with requirements and tests of the Green Label Plus of the Carpet and Rug Institute (CRI) program.
- .10 All carpeting adhesives must comply with requirements of the IEQc4.1 – Low-emitting adhesives and sealants credit, which specifies a limit of 50g/L for volatile organic compounds (VOCs).
- .11 Underwriters' Laboratories of Canada (ULC)
  - .1 CAN/ULC-S102-07, Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
  - .2 CAN/ULC-S102.2-07, Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.

### **1.3 ADMINISTRATIVE REQUIREMENTS**

- .1 Pre-Installation Meetings:
  - .1 Convene pre-installation meeting 1 week prior to beginning work of this Section with Contractor's Representative in accordance with Section 01 31 19 - Project Meetings to:
    - .1 Verify project requirements.
    - .2 Review installation and substrate conditions.
    - .3 Co-ordination with other construction subtrades.
    - .4 Review manufacturer's written installation instructions and warranty requirements.

### **1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for each carpet tile, undercushion, adhesive, carpet protection, subfloor patching compound and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Submit 2 copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Shop Drawings.
  - .1 Information on shop drawings to indicate:
    - .1 Nap: direction, open edges, special patterns.
    - .2 Cutouts: show locations where cutouts are required.
    - .3 Edgings: show location of edge moldings and edge bindings.
    - .4 Locations where paneling is required to raise carpet to match level of adjacent finishes.
- .4 Samples:
  - .1 Submit duplicate samples of each type of carpet tile specified and duplicate tiles for each colour selected, 300 mm x 300 mm.
- .5 Certificates: submit product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .6 Test and Evaluation Reports:
  - .1 Certified test reports showing compliance with specified performance characteristics and physical properties.
- .7 Manufacturer's Instructions: submit manufacturer's installation and storage instructions.
- .8 Manufacturers Reports:
  - .1 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance with specifications.

- .9 Qualification Statements:
  - .1 Compliance: to CAN/ULC-S102 and CAN/ULC-S102.2.
  - .2 Testing: passes testing requirements of:
    - .1 Green Label Indoor Air Quality Testing Program.
  - .3 Tuft bind: meets requirements of CAN/CGSB-4.129 when tested to CAN/CGSB-4.2 No.77.1.

## **1.5 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for installed products, for incorporation into manual.

## **1.6 MAINTENANCE MATERIAL SUBMITTALS**

- .1 Deliver to Departmental Representative extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Section 01 78 00 - Closeout Submittals.
  - .1 Quantity: provide minimum 2% of.
    - .1 Carpet tile.
    - .2 Carpet tile toe spaces.
  - .2 Delivery, storage and protection: comply with Departmental Representative's requirements for delivery and storage of extra materials.

## **1.7 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
  - .3 Store and protect carpet tile and adhesive in original containers or wrapping with manufacturer's seals and labels intact.
  - .4 Store and protect carpet tile and accessories in location as directed by Departmental Representative.
  - .5 Store carpet and adhesive at minimum temperature of 18 degrees C and relative humidity of maximum 65% for minimum of 48 hours before installation.
  - .6 Prevent damage to materials during handling and storage. Keep materials under cover and free from dampness.

- .7 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials.
- .8 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **1.8 SITE CONDITIONS**

- .1 Ambient Conditions:
  - .1 Moisture: ensure substrate is within moisture limits and alkalinity limits recommended by manufacturer. Prepare moisture testing and provide report to Departmental Representative.
  - .2 Temperature: maintain ambient temperature of not less than 18 degrees C from 48 hours before installation to at least 48 hours after completion of work.
  - .3 Relative humidity: maintain between 10% and 65% for 48 hours before, during and 48 hours after installation.
  - .4 Ventilation:
    - .1 Ventilate area of work as directed by Departmental Representative by use of approved portable supply and exhaust fans.
    - .2 Ventilate enclosed spaces in accordance with Section 01 51 00 - Temporary Utilities.
    - .3 Provide continuous ventilation during and after carpet application. Run ventilation system 24 hours per day during installation; provide continuous ventilation for 7 days after completion of carpet installation.
  - .5 Install carpet after space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete.

## **1.9 WARRANTY**

- .1 Manufacturer's warranty: submit, for Departmental Representative's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to and does not limit other rights Owner may have under Contract Documents.
- .2 Warranty period: 1 year, commencing on date of substantial performance of work.
  - .1 Warranty covers labour, repair or replacement of defective components for 1 year after date of substantial performance.

## **1.10 ACCEPTABLE PRODUCTS AND MATERIALS**

- .1 Where a particular brand name is stipulated, see Instructions to Bidders for procedure for requesting approval of substitute materials and products

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**Partie 2      Products**

**2.1            MATERIALS**

- .1      Description:
  - .1      Adhesives: VOC limit 50 g/L maximum to SCAQMD Rule 1168. Primer: in accordance with manufacturer's recommendations for surface conditions.
  - .2      Primer for concrete floors: to ONGC 25-GP-20M, type 1
  - .3      Carpet and Accessories:
    - .1      Green Label Plus certified.
    - .2      Tile carpeting: 100% nylon (polyamide 6) solution dyed, 750g/m2, 232260/m2 tufts, 1/12 gauge, non-woven primary backing and 100% vinyl secondary backing.
    - .3      Tile size: 50 x 50 cm, 7 mm thick.
    - .4      Anti-soil treatment, anti-dust.
    - .5      Colour and pattern: refer to drawings for placement and pattern; provide two colours as selected by Departmental Representative.
      - .1      TAP1- for public spaces: acceptable product: Standard carpets-Indulge, colour 770, brick pattern, 1/3-2/3.
      - .2      TAP2- for office spaces: acceptable products: Standard carpets-Indulge, colour selected by Departmental Representative, brick pattern, 1/3-2/3.
    - .6      Tile carpeting plinths same colour and pattern as adjacent carpeting and as indicated on drawings, 100 mm height.
    - .7      Undercushion: not required.
    - .8      Support panel as indicated on drawings to level with adjacent finishes in commemorative hall, refer to Section 06 20 00 – Finish Carpentry.

**2.2            PERFORMANCE**

- .1      Flammability: certified for flammability to Health Canada regulations under "Hazardous Products - Carpet Regulations", Part II of Schedule 1.
- .2      Flame Spread: maximum flame spread rating 300, maximum smoke developed classification 500, when tested to CAN/ULC-S102.2.
- .3      Smoke Development: 450 or less per ASTM E662.
- .4      Dry Breaking Strength: to ASTM D2661, minimum acceptable tear strength in both length and width.
  - .1      11.3 kg for carpets installed by glue down installation.
- .5      Wear: maximum 10% of pile face fiber by weight for 10 years.
- .6      Edge Ravel: none for 10 years.
- .7      Tuft Bind: Tuft Lock: to ASTM D1335 and CAN/CGSB-4.129.
- .8      De-lamination of Secondary Backing: Lamination Strength of Secondary Backing: to ASTM D3936.

- .9 Indoor Air Quality Certification: certified to CRI Green Label Plus IAQ requirements.

## **2.3 ACCESSORIES**

- .1 Transition edging and mouldings: anodic coating aluminum or stainless steel depending on product required.
- .2 Edge Strips: aluminum and stainless steel metal strips designed for carpet being installed.
- .3 Multi-purpose Adhesive Type: recommended by carpet tile manufacturer for direct glue down installation.
- .4 Protective covering: heavy duty Kraft paper, non-staining.
- .5 Subfloor patching compound: Portland cement base filler, mix with water to form cementitious paste.

## **Partie 3 Execution**

### **3.1 INSTALLERS**

- .1 Use experienced and qualified technicians to carry out assembly and installation of tile carpet.

### **3.2 EXAMINATION**

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for carpet tile installation in accordance with manufacturer's written instructions.
  - .1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### **3.3 PREPARATION**

- .1 Subfloor Preparation:
  - .1 Inspect concrete and determine special care required to make it suitable for carpet.
  - .2 Fill and level cracks 3 mm wide or protrusions over 0.8 mm with appropriate and compatible patching compound.
  - .3 Comply with manufacturer's written recommendations for maximum patch thickness.
  - .4 Prime large patch areas with compatible primer.
  - .5 Ensure concrete substrates are cured, clean and dry.
  - .6 Ensure concrete substrates are free of paint, dirt, grease, oil, curing or parting agents, and other contaminants, including sealers, that interfere with the bonding of adhesive.

- .7 Where powdery or porous concrete surface is encountered, apply primer compatible with adhesive to provide a suitable surface for glue-down installation.
- .8 Prepare floor surfaces in accordance with CRI Carpet Installation Standard.
- .2 Tile Carpeting Preparation:
  - .1 Pre-condition carpeting: following manufacturer's written instructions.

### **3.4 INSTALLATION**

- .1 Install carpet tiles in accordance with manufacturer's written instructions, and CRI Carpet Installation Standard.
- .2 Co-ordinate tile carpeting work with work of other trades, for proper time and sequence to avoid construction delays.
- .3 Install carpet tile after finishing work is completed but before demountable office partitions and telephone and electrical pedestal outlets are installed.
- .4 Install carpet tile as per manufacturer's recommendation. This can include quarter-turn 90 degree format, monolithic, random, quarter turn ashlar, horizontal, herringbone or vertical ashlar.
- .5 Snugly join carpet tiles in completed installation.
  - .1 Measure distance covered by 11 carpet tiles (10 joints) and ensure distance is in compliance with manufacturer specifications.
  - .2 Do not trap yarn between carpet tiles.
- .6 Apply thin film of pressure-sensitive adhesive according to manufacturer's recommendations.
- .7 Ensure finished installation presents smooth wearing surface free from conspicuous seams, burring and other faults.
- .8 Use material from same dye lot.
  - .1 Ensure colour, pattern and texture match within visual areas.
  - .2 Maintain constant pile direction.
- .9 Fit around architectural, mechanical, electrical and telephone outlets, and furniture fitments, around perimeter of rooms into recesses, and around projections.
- .10 Install carpet tiles to underfloor duct system and to access covers.
- .11 Install carpeting in pan type floor access covers.
- .12 Extend carpet tiles into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- .13 Install carpet tiles smooth and free from bubbles, puckers, and other defects.
- .14 Protect exposed carpet tile edges at transition to other flooring materials with suitable transition strips and according to drawings.



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### **3.5 SITE QUALITY CONTROL**

- .1 Site Tests and Inspections:
  - .1 Co-ordinate site test with Section 01 45 00 - Quality Control.
- .2 Manufacturer's Field Services:
  - .1 Co-ordinate manufacturer's services with Section 01 45 00 - Quality Control. Have manufacturer review work involved in handling, installation / application, protection and cleaning of its product[s], and submit written reports, in acceptable format, to verify compliance of work with Contract.
  - .2 Manufacturer's field services: provide manufacturer's field services, consisting of product use recommendations and periodic site visits for inspection of product installation, in accordance with manufacturer's instructions.
  - .3 Schedule site visits:
    - .1 After delivery and storage of products, and when preparatory Work, or other Work, on which the Work of this Section depends, is complete but before installation begins.
    - .2 Twice during progress of Work at 25% and 60% complete.
    - .3 Upon completion of Work, after cleaning is carried out.
  - .4 Obtain reports within 3 days of review and submit immediately to Departmental Representative.

### **3.6 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
    - .1 Vacuum carpets clean immediately after completion of installation.
- .2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### **3.7 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Prohibit traffic on carpet for period of 24 hours minimum after installation and until adhesive is cured.
- .3 Install carpet protection to satisfaction of Departmental Representative.
- .4 Repair damage to adjacent materials caused by water repellent application.

**END OF SECTION**