SECTION  – feather friendly film

1. General
   1. SUMMARY
      1. This Section includes requirements for supply and installation of visible markers onto exterior glazed surfaces to reduce the incidence of bird collisions.
      2. Related Requirements:
         1. Section 08 80 00 – Glazing.
   2. Reference Standards
      1. National Fire Protection Association (NFPA):
         1. NFPA 101 - 2012, Life Safety Code; Class A (1).
      2. Toronto Green Standard, Revised December 31, 2010:
         1. Ecology; Glass and Other Design Features for Migratory Birds.
      3. City of Toronto Green Development Standard, March 2007:
         1. Bird-Friendly Development Guidelines.
      4. American Bird Conservancy, 2011:
         1. Bird-Friendly Building Design.
   3. Administrative Requirements
      1. Coordination: Coordinate the Work of this Section with the installation of glazing; sequence work so that installation of glazing films coincides with installation of glass materials without causing delay to the Work.
      2. Pre-Installation Conference: Conduct on site pre-installation conference in accordance with Section 01 31 19 – Project Meetings, before installing glazing films and in conjunction with installation of mock-up attended by Contractor, Consultant, Owner, glazing film Installer and glazing film manufacturer’s representative to:
         1. Review methods and procedures related to installation, including manufacturer’s written instructions.
         2. Examine substrate conditions for compliance with manufacturers installation requirements.
         3. Review temporary protection measures required during and after installation.
   4. SUBMITTALS
      1. Provide required information in accordance with Section 01 33 00 – Submittal Procedures.
      2. Action Submittals: Provide the following submittals before starting any work of this Section:
         1. Product Data: Submit manufacturers product data for each type of product specified.
         2. Samples for Initial Selection: Submit one (1) sample 300mm x 300mm (12" x 12") of each type of bird friendly films showing pattern spacing and colour of visible markers.
         3. Samples for Verification: Submit two (2) samples 300mm x 300mm (12" x 12") for verification for each type and colour of bird friendly films specified in this Section prior to ordering samples from film manufacturer.
      3. Informational Submittals: Provide the following submittals when requested by the Consultant:

SPEC NOTE: Delete the following paragraph in its entirety if the project is New Construction. Include this paragraph for Renovation projects, to warrant proper design and application of film ensuring the highest performance values to reduce bird collisions with glass. Consult Convenience Group for organizations who can provide wildlife building assessments in location of project.

* + - 1. Field Reports: Provide a building assessment for wildlife sustainability, addressing the following key factors, but not limited to:
         1. Building height.
         2. Glazing type.
         3. Reflectivity, visibility, and contrast.
         4. Surrounding area vegetation and building orientation.
      2. Certificates: Submit statements of visible markers properties indicating compliance with specified standard requirements for each type of bird friendly film.
    1. Sustainable Design Submittals: Coordinate project sustainable design requirements with Section 01 31 63 – Sustainability Certification Project Requirements; in addition, provide information for following specific requirements of this Section:
       1. Pilot Credit 55: Bird Collision Deterrence:
          1. Intent: Reduce bird injury and mortality from in-flight collisions with buildings.
          2. Compliance Requirements: Achieve the following:

A maximum total building Bird Collision Threat Rating (BCTR) of 15 or less using a calculation factoring building facade materials threat factor and area.

Develop a lighting design strategy to effectively eliminate or reduce light trespass from the building. Interior lighting must be turned off at minimum between the hours of midnight and 6am.

Shield all exterior fixtures such that the installed fixture does not directly emit any light at a vertical angle more than 90 degrees from straight down. Exterior building fixtures that are not necessary for safety, building entrances, and circulation shall be automatically shut off from midnight until 6 a.m.

Develop a three-year post-construction monitoring plan to routinely monitor the effectiveness of the building design in preventing bird collisions. Include methods to identify and document locations of the building where repeated bird strikes occur, the number of collisions, the date, the approximate time (if known), and features that may be contributing to collisions. The plan should also provide a process for corrective action.

* 1. CLOSEOUT SUBMITTALS
     1. Operation and Maintenance Data: Submit manufacturer's written instructions for cleaning solutions, materials, and procedures, include name of original installer and contact information in accordance with Section 01 33 00 – Submittal Procedures.
     2. Provide specific warning of any maintenance practice or materials that may damage or disfigure the finished Work.
  2. QUALITY ASSURANCE
     1. Qualifications: Provide proof of qualifications when requested by Consultant:
        1. Manufacturer / Supplier: Obtain materials from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties.
        2. Installers: Execute Work of this Section using qualified personnel skilled in installation of work of this Section, having a minimum of three (3) years proven experience of installations similar in material, design, and extent to that indicated for this Project
  3. MOCK-UPS
     1. Sample Installation: Construct a sample installation to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution in accordance with Section 01 45 00 – Quality Control. Sample installation consists of three (3) glazing panels.
     2. Once reviewed by Consultant, acceptable sample installation can form a permanent part of the Work and will form the basis for acceptance for the remainder of the Project.
     3. Remove and replace materials found not acceptable at no cost to Owner or Consultant.
  4. DELIVERY, STORAGE AND HANDLING
     1. Delivery and Acceptance Requirements: Deliver and store packaged materials in their original containers with manufacturer's labels and seals intact.
     2. Store as recommended by manufacturer in a weatherproof enclosure and protect materials during handling and application to prevent damage.
  5. SITE CONDITIONS
     1. Ambient Conditions: Proceed with bird friendly film installation when ambient and substrate temperature conditions are within limits permitted by manufacturer and when glass substrates are free from dirt or wetness arising from frost, condensation, or other causes detrimental to adhesion.
        1. Temperature Range: Between 4 deg C and 38 deg C.
  6. WARRANTY
     1. Provide manufacturer's vertical surface warranty, against defects in materials and workmanship, for the period of five (5) years commencing from the date of Substantial Performance of Work.

1. Products
   1. manufacturer
      1. Materials Manufacturer: Convenience Group Inc., 10 Butterick Road, Toronto, Ontario, Canada, M8W 3Z8; Phone: (416) 233-6900; Email: info@conveniencegroup.com; URL: www.conveniencegroup.com
   2. PERFORMANCE REQUIREMENTS

SPEC NOTE: Research by Dr. Daniel Klem Jr., Professor of Ornithology and Conservation Biology at Muhlenberg College in Pennsylvania, has determined that the visible marker spacing yields the best results when spaced at 50mm (2") vertical x 100mm (4") horizontal. The marker spacing indicated in the Toronto Green Standard is a base and like any code is a minimum design requirement to meet City requirements.

SPEC NOTE: Bird species smaller then the Toronto Green Standard's recommended spacing may still miss these markers and collide with the glass, therefore making the bird friendly films less effective.

SPEC NOTE: Custom spacing, size and colours of visible markers are available to suit project requirements and design. Consult Convenience Group on custom variations, quantity requirements and costing.

SPEC NOTE: It is recommended that a wildlife building assessment is performed on new and existing buildings prior to selecting / designing a bird friendly film solution. Consult Convenience Group for organizations who can provide wildlife building assessments, and work together with Convenience Group to provide a solution which minimizes the possibility of bird collisions.

* + 1. Design Performance:
    2. Visible Marker Spacing: [Meeting highest requirements indicated in the Toronto Green Standard of 100mm (4") vertical x 100mm (4") horizontal] [Exceeding the requirements indicated in the Toronto Green Standard; 50mm (2") Vertical x 100mm (4") horizontal].
    3. Visible marker size: 6mm (1/4") diameter or 6mm x 6mm (1/4" x 1/4") squares.
    4. Height Requirements:
       1. 12m (39.5') above grade or to height of tallest surrounding vegetation;
       2. 12m (39.5') above vegetated roof level.
  1. MATERIALS
     1. Bird Friendly Film: Single layer poly vinyl chloride, 50.8 microns, with exterior permanent adhesive.
        1. Basis-of-Design Material:

SPEC NOTE: Select one of the following three in-stock choices or write in a custom design option once samples have been manufactured and provided by Convenience Group for Consultant's approval.

* + - * 1. Horizontal visible lines, 6mm (1/4") thick and vertically spaced 50mm (2") O/C; CGI 1050 - Venetian Series by Convenience Group Inc.
        2. Circular visible markers, 6mm (1/4") diameter and spaced 50mm (2") vertical and 100mm (4") horizontal; CGI 1051 - Horizon Series by Convenience Group Inc.
        3. Circular visible markers, 6mm (1/4") diameter and spaced 50mm (2") vertical and 50mm (2") horizontal; CGI 1052 - Symmetry Series by Convenience Group Inc.
        4. Circular visible markers, 6mm (1/4") diameter and spaced 50mm (2") vertical and 100mm (4") horizontal; CGI 1057 - Rain Series by Convenience Group Inc.
        5. Circular visible makers, 6mm (1/4") diameter and spaced 100mm (4") to 279mm (11") and 100mm (4") to 279mm (11"); CGI 1055 - CityScape Series by Convenience Group Inc.
        6. Circular visible markers, 6mm (1/4") diameter and spaced 50mm (2") to 279mm (11") vertical and 50mm (2") to 140mm (5-1/2") horizontal; CGI 1053 - Duotone Series by Convenience Group Inc.
        7. Horizontal visible lines, 6mm (1/4") thick vertically spaced 25mm (1") O/C; CGI 1054 - Venetian Duotone Series by Convenience Group Inc.
        8. [Custom Design].

1. Execution
   1. installers
      1. Subject to compliance with warranty requirements, only the following certified installers shall install feather friendly film systems specified in this section:
         1. Window Film Canada; Contact: Todd Vogelsberg, (888) 835-5885 or (416) 233-6900; Email: tvogelsberg@windowfilmcanada.com
   2. EXAMINATION
      1. Verification of Conditions: Examine glazing and surrounding adjacent surfaces for conditions affecting installation.
      2. Notify Contractor in writing of any conditions that are not acceptable.
      3. Proceed with installation after verification and correction of surface conditions acceptable to manufacturer.
   3. PREPARATION
      1. Clean glass surfaces of substances that could impair glazing film bond including mildew, oil, grease, dirt and other foreign materials immediately before beginning installation of films.
      2. Protect window frames and surrounding conditions from damage during installation.
   4. INSTALLATION
      1. Install in accordance with the manufacturer's written instructions and the contract documents, plumb, true, and level over clean glazing.
      2. Install film continuously with no gaps or overlaps and as follows:
         1. Install seams vertical and plumb where necessary; horizontal seams will not be allowed unless written approval from the Consultant.
         2. Do not remove release liner from film until just before each piece of film is ready for installation.
         3. Install film with mounting solution with neat, square comers and edges to within 3mm (1/8") of frames.
         4. Remove air bubbles, wrinkles, blisters, and other defects.
   5. CLEANING AND PROTECTION
      1. Progress Cleaning: Leave work area clean at the end of each workday, ensuring safe movement of passing pedestrians.
      2. Final Cleaning: At completion of installation, clean all surfaces so they are free of foreign matter using cleaners recommended by material manufacturer.
      3. Waste Management: Co-ordinate recycling of waste materials and packaging at appropriate facility, diverting waste from landfill. Certified installer shall be responsible for ensuring waste management practices are completed.

END OF SECTION