

CONVENIENCE GROUP SPEC NOTE: This master specification section includes CONVENIENCE GROUP SPEC NOTES for information purposes and to assist the architect / specification writer in making appropriate decisions. CONVENIENCE GROUP SPEC NOTES always immediately precedes the text to which it is referring. The section serves as a guideline only and should be edited with deletions and additions to meet specific project requirements.

CONVENIENCE GROUP SPEC NOTE: This specification section follows the recommendations of the Construction Specifications Canada, Manual of Practice including MasterFormat, SectionFormat, and PageFormat. Optional text is indicated by square brackets []; delete the optional text including the brackets in the final copy of the specification. Delete all CONVENIENCE GROUP SPEC NOTES in the final copy of the specification. This Section is written for the Canadian industry with units of measurement shown in SI Metric and Imperial measurement following in parentheses.

PART 1: GENERAL

1.1 SUMMARY

- .1 This Section includes requirements for supply and installation of visible markers onto exterior glazed surfaces to reduce the incidence of bird collisions.

1.2 RELATED REQUIREMENTS

CONVENIENCE GROUP SPEC NOTE: Include in this paragraph only those sections and documents that directly affect the work of this section. Do not include Division 00 Documents or Division 01 Sections since it is assumed that all technical sections are related to all project Division 00 Documents and Division 01 Sections to some degree. Refer to other documents with caution since referencing them may cause them to be considered a legal part of the Contract. Edit the following paragraphs to suit specific project conditions.

- .1 Section 08 81 00 – Glass Glazing [08800 Glazing]
- .2 Section 09 06 00 – Schedules for Finishes

1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM E84-12b, Standard Test Method for Surface Burning Characteristics of Building Materials
- .2 National Fire Protection Association (NFPA):
 - .1 NFPA 101 - 2012, Life Safety Code; Class A (1)
- .3 Toronto Green Standard, Revised December 31, 2010
 - .1 Ecology; Glass and Other Design Features for Migratory Birds.
- .4 City of Toronto Green Development Standard, March 2007
 - .1 Bird-Friendly Development Guidelines.
- .5 City of Calgary, March 2011
 - .1 Bird-Friendly Urban Design Guidelines; Integrating Natural Systems with Human Activities.
- .6 New York City Audubon Society Inc., May 2007
 - .1 Bird-Safe Building Guidelines.

- .7 San Francisco Planning Department, July 14, 2011
 - .1 Standards for Bird-Safe Buildings.
- .8 American Bird Conservancy, 2011
 - .1 Bird-Friendly Building Design.

CONVENIENCE GROUP SPEC NOTE: Delete the following paragraph in its entirety if LEED rating system is not required as part of the Project.

CONVENIENCE GROUP SPEC NOTE: Projects participating in the piloting of a credit or prerequisite may earn one point under Innovation in Design Credit 1 (IDc1) or Innovation in Operations Credit 1 (IOc1) after meeting the credit requirements, completing the required documentation and uploading it to the credit in LEED Online for review. Consult the project team's designated LEED Accredited Professional if this credit is going to be pursued.

- .9 U.S. Green Building Council (USGBC):
 - .1 LEED®(Leadership in Energy and Environmental Design) Project Types: NC, CS, Schools, Retail, Healthcare and Existing Buildings: Operations & Maintenance; Pilot Credit 55: Bird Collision Deterrence, including changes made on December 1, 2011.

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate the Work of this Section with the installation of glazing; Sequence work so that installation of bird friendly 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 [01310 Project Management and Coordination] before installing bird friendly films and in conjunction with installation of mock-up attended by [Contractor][Construction Manager], Consultant, Owner, bird friendly film installer and bird friendly 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.

1.5 SUBMITTALS

- .1 Provide requested information in accordance with Section 01 33 00 Submittals Procedures [01300 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:

CONVENIENCE GROUP 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.

CONVENIENCE GROUP SPEC NOTE: Delete the following paragraph in its entirety if sustainable design submittals are not required as part of the Project.

CONVENIENCE GROUP SPEC NOTE: Projects participating in the piloting of a credit or prerequisite may earn one point under Innovation in Design Credit 1 (IDc1) or Innovation in Operations Credit 1 (IOc1) after meeting the credit requirements, completing the required documentation and uploading it to the credit in LEED Online for review. Consult the project team's designated LEED Accredited Professional if this credit is going to be pursued.

.4 Sustainable Design Submittals: Coordinate project sustainable design requirements with Section 01 31 63 Sustainability Certification Project Requirements [01353 General LEED Specifications]; 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:
 - .1 A maximum total building Bird Collision Threat Rating (BCTR) of 15 or less using a calculation factoring building facade materials threat factor and area;
 - .2 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.
 - .3 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.
 - .4 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.

1.6 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 78 23 Operation and Maintenance Data [01780 Closeout Submittals].
 - .1 Provide specific warning of any maintenance practice or materials that may damage or disfigure the finished Work.

1.7 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

CONVENIENCE GROUP SPEC NOTE: Mock-ups establish quality of the work for the materials indicated in this Section. Delete the following paragraph if the scope of work in this Section is minimal and a mock-up may not be required.

1.8 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 [01450 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.

1.9 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.

1.10 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 (39 deg F and 100 deg F).

1.11 WARRANTY

- .1 Provide manufacturer's vertical surface warranty, against defects in materials for the period of six (6) years, and labour for one (1) year, commencing from the date of Substantial Performance of Work.

PART 2: PRODUCTS

2.1 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

2.2 PERFORMANCE REQUIREMENTS

CONVENIENCE GROUP 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 City of Toronto Greed Development Standard is a base and like any code is a minimum design requirement to meet City requirements.

CONVENIENCE GROUP SPEC NOTE: Bird species smaller than the City of Toronto Greed Development Standard's recommended spacing may still miss these markers and collide with the glass, therefore making the bird friendly films less effective.

CONVENIENCE GROUP 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.

CONVENIENCE GROUP 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:
 - .1 Visible Marker Spacing: [Meeting highest requirements indicated in the City of Toronto Greed Development Standard of 50mm (2") vertical x 100mm (4") horizontal] [Exceeding the requirements indicated in the City of Toronto Greed Development Standard; 50mm (2") Vertical x 100mm (4") horizontal].
 - .2 Visible marker size: 6mm (1/4") diameter or 6mm x 6mm (1/4" x 1/4") squares.
 - .3 Height Requirements:
 - .1 12m (39.5') above grade or to height of tallest surrounding vegetation;

CONVENIENCE GROUP SPEC NOTE: Delete the following paragraph if there is no vegetated roof on this project.

- .2 12m (39.5') above vegetated roof level.

2.3 MATERIALS

CONVENIENCE GROUP 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. Convenience Group currently offers nine (9) stock Bird Friendly Films as indicated below.

- .1 Bird Friendly Film: Single layer poly vinyl chloride, 50.8 microns, with exterior permanent adhesive.
 - .1 Basis-of-Design Material:

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

CONVENIENCE GROUP SPEC NOTE: Item 8 and 9 are designed to meet the minimum standard set out in the City of Toronto Greed Development Standard. Items 1 through 7 exceed the requirements of the City of Toronto Greed Development Standard, therefore minimizing the risk of bird collisions.

- .1 Horizontal visible lines, Venetian Series by Convenience Group Inc.
- .2 Horizontal visible lines, Venetian Duotone Series by Convenience Group Inc.
- .3 Circular visible markers, Horizon Series by Convenience Group Inc.
- .4 Circular visible markers, Symmetry Series by Convenience Group Inc.
- .5 Circular visible markers, Symmetry Duotone Series by Convenience Group Inc.
- .6 Circular visible markers, Rain Series by Convenience Group Inc.
- .7 Circular visible markers, Rain Duotone by Convenience Group Inc.
- .8 Circular visible makers, 6mm (1/4") diameter and spaced 100mm (4") to 279mm (11") and 100mm (4") to 279mm (11"); CityScape Series by Convenience Group Inc.
- .9 Circular visible makers, 6mm (1/4") diameter and spaced 100mm (4") to 279mm (11") and 100mm (4") to 279mm (11"); CityScape Duotone Series by Convenience Group Inc.
- .10 [Custom Design]

PART 3: EXECUTION

3.1 INSTALLERS

CONVENIENCE GROUP SPEC NOTE: Check with Convenience Group for additional certified 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) 267-3206 or (416) 233-6900; Email: tvogelsberg@windowfilmcanada.com

3.2 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.

3.3 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.

3.4 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 First surface applied
 - .2 Installed without seams
 - .3 Do not remove release liner from film until just before each piece of film is ready for installation.
 - .4 Install film on glazing centered within mullions aligned with adjoining windows.
 - .5 Remove air bubbles, wrinkles, blisters, and other defects.

3.5 CLEANING AND PROTECTION

- .1 Progress Cleaning: Leave work area clean at the end of each work day, 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 efforts are practiced.

END OF SECTION 08 87 83 [08883].