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**Partie 1            General**

**1.1                RELATED REQUIREMENTS**

- .1        Section 08 11 16 – Aluminum Doors and Frames.
- .2        Section 08 14 16 – Wood Doors and Frames.
- .3        Section 08 44 13 – Glazed Aluminum Curtain Walls.
- .4        Section 08 80 50 – Glazing.

**1.2                REFERENCES**

- .1        American National Standards Institute (ANSI)
  - .1        ANSI Z97.1-1984(R1994), Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test.
- .2        International Window Film Association (IWFA)
  - .1        IWFA, Visual Quality Standard for Applied Window Film 1999.
- .3        Consumer Product Safety Commission Publications (CPSC)/Code of Federal Regulations (CFR)
  - .1        CPSC, CFR 16, 1201 CAT I.
  - .2        CPSC, CFR 16, 1201 CAT II.
- .4        General Services Administration (GSA)
  - .1        GSA-TS01-2003, Test Method for Glazing and Window Systems Subject to Dynamic Overpressure Loadings.
- .5        Government of Canada
  - .1        Canada Labour Code, WHMIS datasheets.
- .6        Underwriters laboratories of Canada (ULC)
  - .1        ULC-S332-93, Standard for Burglary Resisting Material.
  - .2        UL-972-02, Burglary resisting Glazing Material.

**1.3                DEFINITIONS**

- .1        Safety: reduction of risk of injury, loss or death of persons due to accidental, natural or unintentional causes.
- .2        Security: reduction of risk of injury, loss or death of persons due to intentional actions of others.

**1.4                ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Product Data: submit WHMIS MSDS - Material Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.

- .3 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures.
- .4 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Submit one 300 x 300 mm sample of film installed on 6 mm thick clear plate glass.
- .5 Submit test reports in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Submit test reports from approved independent testing laboratory, certifying film's compliance with specified requirements.
- .6 Submit Closeout Submittals in accordance with Section 01 78 00 - Closeout Submittals.
  - .1 Provide operation and maintenance data for window film for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
  - .2 Follow manufacturers written instructions for care and maintenance of security and safety film.
  - .3 Use only cleaning solution recommended by manufacturer for regularly scheduled cleaning of security film.

## **1.5 QUALITY ASSURANCE**

- .1 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
  - .2 Comply with requirements of WHMIS regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Canada Labour Code.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with section 01 61 00 - Common Product Requirements.
- .2 Provide and maintain dry, off-ground weatherproof storage.
- .3 Store rolls of film flat on cross supports. Do not stand rolls of film on end.
- .4 Remove from storage, in quantities required for same day use.
- .5 Store materials in accordance with manufacturers written instructions.
- .6 Waste Management and Disposal:
  - .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal, and with Waste Reduction Workplan.
  - .2 Place materials defined as hazardous or toxic waste in designated containers.
  - .3 Ensure emptied containers are sealed and stored safely.

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## **1.7 WARRANTY**

- .1 Contractor hereby warrants that Security and Safety Film will stay in place without delaminating, peeling or blistering.
- .2 Ensure warranty includes items as follows.
  - .1 Maintaining adhesion properties without blistering, bubbling or delaminating from glass surface.
  - .2 Maintaining appearance without discolouration.
  - .3 Removing, replace and reapply defective materials.
  - .4 In event of product failure under warranty terms, remove and re-apply film without glass replacement at no cost to Departmental Representative.

## **1.8 MAINTENANCE DATA**

- .1 Provide operation and maintenance data for window film for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

## **1.9 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

## **Partie 2 Product**

### **2.1 MATERIALS**

- .1 Security Film: clear, 0.150mm, polyester coated acrylate adhesive for interior installation, to ASTM D-882, 1B1 to EN12600 and following indications:
  - .1 Uniform, free of scratches and other defects.
  - .2 Peel resistance: minimum 1.4kg over 25.4 mm.
  - .3 Tear resistance: minimum 521 kg.
  - .4 Flame resistance to ASTM E84, Class A.
  - .5 Elongation at rupture: 140%.
  - .6 Tensile strength at break: 81kg.
  - .7 Pendulum impact: 181 kg.
  - .8 Light transmission: 84%.

## **Partie 3 Execution**

### **3.1 PREPARATION**

- .1 Clean glass before beginning installation using neutral cleaning solution.
- .2 Ensure no deleterious material adheres to glass by scraping surface of glass using industrial razors.

- .3 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
- .4 Examine glass under natural daylight and identify cracks, blisters, bubbles, discolouration, edge defects or other anomalies that may cause film to delaminate, or cause vision transparency or distortion problems.
- .5 Proceed with Work only after receipt of written approval from Departmental Representative.

### **3.2 INSTALLATION**

- .1 Field Installation of Security Film to Glass Windows:
  - .1 Install film in the same manner as tested.
  - .2 Remove any window stops and window sealing device.
  - .3 Ensure no deleterious material adheres to glass by scraping surface of glass using industrial razors.
  - .4 Ensure dust, grease, and chemical residue are removed from surface of glass before installation of film.
  - .5 Examine glass under natural daylight and identify cracks, blisters, bubbles, discolouration, edge defects or other anomalies that may cause film to delaminate, or cause vision transparency or distortion problems. Report findings to Departmental Representative.
  - .6 Proceed with Work only after receipt of written approval from Departmental Representative.
  - .7 Install security film to glass windows ensuring no blisters, bubbles, scratches or distortions.
- .2 Cut film edges straight and square.
- .3 Ensure film is installed behind window stops.
- .4 Cut edges in accordance with manufacturer's written instructions.
- .5 Apply and attach film to glass in accordance with manufacturer's written instructions.
- .6 Splicing:
  - .1 Splice film only when glass is greater in width than film.
  - .2 Splice film only after receipt of written approval from Departmental Representative.
  - .3 Ensure maximum overlap of 3 mm.
- .7 Use only water and film slip solution on glass to facilitate positioning of film.
- .8 Ensure removal of excess water from between film and glass.
- .9 Remove left over material from work area and return work area to original condition.

### **3.3 INSTALLER'S INSPECTION**

- .1 Visual Inspection: in accordance with IWFA - Visual Quality Standard for Applied Window Film.

- .2 Remove and replace window unit/glass panel that continues to show blisters, bubbles, tears, scratches, edge defects or vision distortion in film when viewed under natural daylight from 2.0 m minimum after 30 day period.

### **3.4 FINAL CLEANING**

- .1 Wash interior and exterior of each glass panel and film using cleaning solution recommended by film manufacturer.

**END OF SECTION**