

**TG 08500 v 12.02**  
**Summary of Changes**

1. Additional technical refinement.
2. Added Breezway North America, Inc. product as part of the approved manufacturers.

**Special Function Windows**  
**TECHNICAL GUIDE**

**TG 08580**

**1. COORDINATION ISSUES: (Not Used)**

**2. DESIGN ISSUES:**

**2.1 Specifying Stainless Steel Screens**

**2.1.1 Problem:** DAGS has experienced corrosion and staining of the Type 304 stainless steel combination insect / security screens provided on our Hawaii Island projects. DAGS investigation indicate that the problem is due to iron and carbon steel particles that have been embedded in the material as it is drawn through the dies to form wires and as the material is being fabricated into its finished product.

**2.1.2 Recommendation:** On Hawaii Island projects specify Type 316 stainless steel material which has a higher molybdenum content and offers more corrosion resistance in aggressive industrial, chemical and seacoast atmospheres. Where the stainless steel components are to be mechanically joined, use only Type 316 stainless steel fasteners.

**3. DRAWING NOTES:**

**3.1 General:** Show security screen details on the drawings. If necessary, contact the local manufacturer's representative for product data and details.

**3.1.1** Add Security Screen Mesh detail, A/TG 08580 to the project drawings:

**3.1.2** On individual building retrofit projects where there are existing aluminum security screens, if necessary, revise the mesh dimension to match the existing screen.

**3.1.3** Head, jamb and sill conditions should be carefully checked and detailed to ensure that the angle clip legs are of sufficient length to properly secure the screen. Where angle clips are secured to concrete beams, columns and sills, locate the fastener a sufficient distance away from the edge of the concrete face to prevent spalling.

**3.1.4** For large openings, provide aluminum channels to properly support and stiffen the screen in accordance with the manufacturer's recommendations.

**3.1.5** Indicate on the details the type, diameter and length of fastener to suit the specific substrate condition.

**4. STANDARD DRAWINGS:**

**4.1 Mesh Detail** See attached standard detail, A/TG 08580. Add this detail to the drawings when aluminum security screens are utilized.

## **5. SPECIFICATION NOTES:**

**5.1 Specification Paragraphs:** As of 03/2003, a complete Guide Specification for Special Function Windows (formerly Section 10240) is no longer being maintained by DAGS. Utilize the following specification paragraphs and information as appropriate in the development of the Project Specifications.

## **6. GUIDE SPECIFICATION:**

### **6.1 Aluminum Security Screens**

#### **6.1.1 Submittals (Part 1):**

**6.1.1.1 Shop Drawings:** Installation drawings showing the complete arrangement of screens and details in accordance with the contract drawings. Include reference to the sheet and detail(s).

**6.1.1.2 Mock-up Sample:** Provide one 12 inch x 12 inch mock-up sample consisting of the perimeter extruded frame, mullion, screen mesh, angle clip and fasteners.

**6.1.2 Manufacturers (Part 2):** The products of the following manufacturers or approved equal are acceptable provided they meet the materials, construction and standard of quality specified in this Technical Guide:

**6.1.2.1** Emtek Products, Inc.; Amplimesh No. 103 Pattern. (RMA Sales)

**6.1.2.2** Ullrich Aluminum Company; Securamesh "007" Aluminum Grille Specification. (Diamond Welding, Inc.)

**6.1.2.3** Prowler Proof; ForceFIELD. (Breezway North America)

#### **6.1.3 Materials (Part 2):**

**6.1.3.1 Aluminum Security Screen Mesh:** Aluminum security screen mesh shall be manufactured from 6063-T5 or 6063-T4 aluminum alloy and temper. (Do not specify galvanized expanded metal mesh screens.)

Minimum Extrusion Section Width: 0.228 inch (5.8 mm)

Minimum Extrusion Section Height: 0.276 inch (7.0 mm)

Maximum Opening Dimension: 2.875 inch (73.025 mm) perpendicular to the direction of extrusion.

**6.1.3.2 Aluminum Extruded Framing:** Aluminum framing shall be manufactured from 6063-T5 or 6063-T4 aluminum alloy and temper of the sizes and shapes as detailed in the contract drawings or as recommended by the aluminum security screen manufacturer.

#### **6.1.3.3 Accessories**

- a. Screen Frame Corner Reinforcement: Aluminum, of the type and size recommended by the aluminum security screen manufacturer. Corners can also be fully welded if grounded to a smooth and then powder coated finish.
- b. Aluminum Angle Clips: 1-1/2 inches wide x 1/8 inch thick. The length of the angle legs shall be as indicated on the contract drawings.
- c. Spacers: 5/8 inch diameter round anodized aluminum. PVC spacers shall not be used.
- d. Anchor Bolts, Screws, Nuts & Washers: Stainless steel, Type 304 alloy of the sizes and types recommended by the aluminum security screen manufacturer. Fasteners shall be tamper-resistant type where specified. Use of plastic or lead anchor shield inserts will not be permitted.
- e. Pop-Rivets: Pop-rivets shall be 1/8 inch diameter anodized aluminum as recommended by the aluminum security screen manufacturer.

**6.1.3.4 Finish:** Anodized finish of minimum 0.0007 inch (17.58 microns) thickness. Screen shall be free of major scratches and other surface blemishes.

Touch-up paint cut ends, punched or drilled holes, fasteners used to connect clear anodized parts and minor scratches shall be touch-up clear coated to match the clear anodized finish with coating as recommended by the manufacturer. (Specify clear or medium bronze color to match project aesthetics.)

**6.1.3 Fabrication And Workmanship (Part 2):**

**6.1.3.1** Fit and Shop Assemble the work complete and ready for erection and installation in accordance with the approved shop drawings and trade standards.

**6.1.3.2** Accuracy of the work: Fabricate and erect the work square, plumb, straight and true. All cuts shall be accurate for the minimum joint gap.

**6.1.3.1** Holes: Drill or punch holes required for bolted or pop-rivet connections and for the attachment of work of other trades. Burned holes are not acceptable. Holes must be fully covered or treated prior to installation to prevent corrosion from dissimilar metals.

**6.1.3.1** Workmanship:

- a. Cut ends and holes shall be free of burrs.
- b. The security screen mesh shall be oriented within the frame so that the direction of the extrusion is in the vertical position. Also, where the screen mesh is connected to the frame and mullions, the mesh opening adjacent to the frame/mullion shall be at least one-half of the opening size specified above.
- c. The security screen mesh opening size and the orientation of the security screen mesh within the frame shall be maintained at each opening unless otherwise approved in writing by the Contracting Officer.

- d. The corners of the aluminum extrusion frames shall be neatly mitered and assembled using corner reinforcement. The security screen mesh shall be securely fastened to the extruded framing with pop-rivets spaced at a maximum of 6 inches on-center. Welding of the screens and frames is not acceptable.
- e. Where provided, vertical "H" section splice bars/mullions shall be located so that they are aligned with the window mullions.
- f. Concealed fasteners shall be used to secure the security screen/frame assembly to the supporting angle clips. The angle clips shall be oriented so that the leg in contact with the building is not exposed (located behind the security screen). This leg shall also have slotted holes to permit for field adjustment of the screens.
- g. Provide for the drainage of water entrapped within the screen framing system.

#### **6.1.4 Installation and Erection**

**6.1.4.1** The security screens shall be independent of the window assemblies which they protect unless tested and proven to work in conjunction as a tandem system.

**6.1.4.2** Security screens shall be positioned so that they do not interfere with the proper operation of the window.

**6.1.4.3** Attachment of the security screen/frame to the existing window frames is not permitted. Attachment of security screen/frame to new windows if detailed and recommended by window manufacturer shall be permitted.

**6.1.4.4** Dissimilar Materials: Where aluminum surfaces come in contact with dissimilar materials, coat contact surfaces with primer and a heavy coat of bituminous paint of minimum 15 mils dry film thickness or a separator as recommended by the security screen manufacturer. Care shall be taken so that the protective coating is not visible when the assembly is completed.

**6.1.5 Replacement:** Aluminum security screen sections which are damaged during fabrication, storage, transport or installation shall be immediately removed from the site and replaced with new sections matching the existing.

END OF SECTION 08580