

**SECTION 08 56 66**  
**DETENTION WINDOW SCREENS**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

Detention and protection screens consist of a sub-frame, main frame with wire cloth and support assembly, detention lock and bolt, hinges and all fittings and anchors required.

**1.2 RELATED WORK**

- A. Section 08 51 13, ALUMINUM WINDOWS.

**1.3 MANUFACTURERS QUALIFICATIONS**

- A. Approval by Resident Engineer is required of products of proposed manufacturer or supplier, and will be based upon submission by Contractor of certification.
- B. Contractor certifies that the manufacturer regularly and presently manufactures detention and protection screens as one of his principal products.
- C. Contractor certifies that the manufacturer's product submitted has been in satisfactory and efficient operation on three installations similar or equivalent to this project for three years. Submit list of installations. List shall include name of project and owner and location of project.

**1.4 SUBMITTALS**

- A. Submit in accordance with Section 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Samples: One completely finished detention screen as specified. Upon approval, screen may be installed on the job.
- C. Shop Drawings: Complete details (1/2 full scale), showing details of construction and anchorage, relation to details of the windows and clearances required and window operators.
- D. Manufacturer's Certificates:
1. Indicating manufacturer's qualification specified.
  2. Indicating wire screen cloth meets the requirements specified.
- E. Manufacturer's Literature and Data:
1. Detention Screen.
  2. Protection Screen.

**1.5 APPLICABLE PUBLICATIONS**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Material:
- A653/A653M-10 ..... Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.

## **PART 2 - PRODUCTS**

### **2.1 WIRE CLOTH**

Stainless steel wire cloth woven from 0.7 mm (0.028-inch) diameter Type 302 or 304 stainless steel wire, woven 12 mesh, double crimped.

### **2.2 SHEET STEEL**

ASTM A653/A653M

### **2.3 FABRICATION**

- A. Make screens units without muntins and design to be mounted flush with trim, frame or wall face.
- B. Fabricate scribe members from 1.5 mm (0.0598-inch) thick sheet steel and install at head and jambs of openings.
- C. Where lightproof shade occurs, limit swing of screen to 90 degrees.
- D. Frames: Weld corners of fixed and hinged frames continuously. Outside reinforcements or projections will not be permitted. Dress weld smooth so as to be inconspicuous. Round exposed edges and corners.
- E. Drill and tap fixed frames for adjustment against scribe members. Drill head rail of hinged frames on room side for installation of shade brackets. Locate holes on center line of rail, 38 mm (1-1/2 inches) outside edges of stiles.
- F. Reinforce frames lighter than 2.5 mm (0.105-inch) thick steel at locks and hinges with steel plates not less than 5 mm (3/16-inch) thick.
- G. Provide rubber cushion plugs (bumpers) on lock between fixed and hinged frames. Locate bumpers 150 mm (6-inches) from top and bottom on side of frame where lock bolts or slides occur.

### **2.5 DETENTION WINDOW SCREENS**

- A. Provide wire screen retainer-clevises or coil compression spring shock absorbers approximately 200 mm (8 inches) on centers on four edges of wire cloth panel. Position screen panels within assembled hinged frame to provide a minimum of 8 mm (5/16-inch) free movement space at each edge. Adjust leaf-spring main clevis or coil-spring shock absorbers to permit a minimum over all screen panel movement of 16 mm (5/8-inch) in both width and height.
- B. Screen Unit - Type "A": Screen unit consists of fixed sub-frame of not less than 2 mm (0.090-inch) thick steel channel shapes with a "Z" (zee) or angle sill and with a hinged main frame of 11 gage steel. Attach screen panel to housing mechanism by means of leaf-springs. Design frame to form supplemental covers totally concealing hinges, locks, springs and operating mechanism when unit is closed:
  - 1. Leaf-Springs: Attach 4.5 mm (0.179-inch) thick steel flat leaves, in sets of two, to hinged frame and screen panel by means of two wire cloth retainer clevises and a main clevis, held in suspension by an adjusting screw.

2. Screening Attachment: Fold wire screening around 100 mm (4 inch) long steel bar and clamp between arms of wire screen retainer clevis of equal length, by means of screws or studs spaced not over 75 mm (3 inches) on centers.
- C. Screen Unit - Type "B": Screen unit consists of a fixed subframe of not less than 3.5 mm (0.1345-inch) thick unequal leg steel channel frame with a "Z" (zee) shaped sill member and with a built-up hinged main frame housing mechanism. Design unit to be flush on room side and to be free from protruding edges and fastener heads.
1. Fabricate built-up hinged frame not less than 2.5 mm (0.105-inch) thick steel, formed to a modified channel shape and reinforced by four free and continuous "Z" (zee) shaped screen retainer members, not less than 0.4 mm (0.015-inch) thick welded to inner web surfaces, an 1.2 mm (0.0478-inch) thick forced cover plate secured to channel and retainer members with machine screws spaced not over 300 mm (12 inches) on centers. Design assembled hinged frame to conceal lock, hinges and all operating mechanism when closed.
  2. Shock Absorbers: Each shall consist of a slotted and tapped round steel yoke, over which a coil compression spring is restrained by a bolt and washer and a screen retainer member, all assembled and completely housed with channel. Penetrate screen retainer member with slotted end of yoke to engage shock distributing bar and wire cloth panel.
  3. Screening Attachment: Wrap screening around electro-plated steel shock distributing bars running continuously around screening panel perimeter. Overlap screening beyond spacing distributing bar not less than 13 mm (1/2-inch). Insert assembly within yoke slots of shock absorbers and hold in position by stainless steel pins of length sufficient to engage both thicknesses of cloth at full pin diameter.

## **2.6 PROTECTION SCREENS**

- A. Reinforce hinged frames over four feet in height horizontally or vertically, or both if width exceeds five feet.
- B. Screens Unit - Type "C": Screen unit consists of fixed sub-frame of 2.2 mm (0.0897-inch) thick steel channels with a "Z" (zee) shaped sill and a hinged main frame of 3 mm (0.120-inch) thick steel. Design frames to form supplemental cover totally concealing hinges and lock when unit is closed.
- C. Screen Unit - Type "D": Screen unit consists of a fixed sub-frame of not less than 2.5 (0.105-inch) thick "Z" (zee) shaped members and a hinged main frame.
  1. Fabricate hinged frames of not less than 2.5 mm (0.105-inch) thick channel shaped members having an extended inner flange. Form flange edge with a right angle return forming a channel to receive wire cloth retaining strip.

2. Screening Attachment: Bend screening to fit over the screen frame and attach using a 1.5 mm (0.060-inch) thick retaining angle, continuous on all four sides. Clamp screening between retaining angle and return edge of hinged frame with hardened steel machine screws spaced approximately 125 mm (5 inches) on center.

## **2.7 HARDWARE**

- A. Operating hardware shall be extra heavy duty type.
- B. Locks for Window Screens: Provide concealed locking system for each screen consisting of one, bit-key operated locking mechanism having a minimum of two operable, concealed 13 mm (1/2-inch) diameter case-hardened steel bolts. Locate bolts near the top and bottom of screen. Design bolts to engage adjustable strike or keepers in the sub-frame when bit key is rotated in lock.
- C. Construct bit key lock of steel construction with three brass tumblers having beryllium copper springs. Fabricate lock case from steel using two piece construction having three brass pedestal bearing supports attached to the lower half of the case to support the slide bar, tumblers, case and cover. Fabricate slide bar of lock from steel with hardened steel guide tumbler block.
- D. Make provisions to insure that the bit key can not be removed except when the bolts are in a locked (extended) position. Design locks so as to be operated by existing attendant's key established for the VA Medical Center

## **2.8 FINISH**

After surface treatment of the frame, apply two coats of baked-on enamel to all surfaces before the wire cloth is installed and secured into the frame.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Drill, tap or cut metal window trim and other materials as required for proper installation of screen units.
- B. Install screen units that can be readily removed without damage to new or existing work and to effectively exclude insects.
- C. Secure screen units to metal window with steel case hardened machine screws, spaced at approximately 375 mm (15 inches) on centers.
- D. Provide screw fastenings of type, size and head as recommended by manufacturer of screen units.
- E. Anchor screen units to wood with stainless steel flathead wood screws at sill and stainless steel round head wood screws at head, mullions and jambs. Toggle bolts may be used if they do not interfere with sash balances or weights at jambs or mullions.

- - - E N D - - -