SECTION 111903 - STEEL DETENTION SCREENS

1. GENERAL
   * + 1. SUBMITTALS
          1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
          2. Manufacturer’s installation instructions shall be provided along with product data.
          3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
          4. Shop Drawings: Show application to project and connection to adjoining construction.
          5. Product Data: Screen manufacturer’s specifications and installation instructions.

USE PARAGRAPH BELOW WITH EPD REQUIREMENT WHEN PROJECT ESTIMATE IS $1M OR MORE.

* + - * 1. Submit an Environmental Product Declaration (EPD) from the manufacturer for steel frames within this specification section, if available. A statement of the contractor’s good faith effort to obtain the EPD shall be provided if not available.

Manufacturer-provided EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services.*

* + - * 1. Samples:

Wire Cloth: 12 inch by 12 inch pieces.

Steel detention screen approximately 36 inches by 24 inches wide complete with bit key lock mechanism and baked enamel finish.

* + - * 1. Quality Control Submittals:

Manufacturer’s Qualifications Data: If requested, submit to the Director the names and addresses of 5 similar projects where the manufacturer’s detention screens have been in use for 3 years.

* + - 1. QUALITY ASSURANCE
         1. Manufacturer’s Qualifications: The detention screen manufacturer shall be regularly engaged in the production of detention screens and shall have furnished such products for 5 similar projects that have been in use for not less than 3 years.

1. PRODUCTS
   * + 1. STEEL DETENTION SCREENS
          1. Furnish detention screens with either Type A or Type B frames.

If screens must match existing screens, delete paragraph above and either of the next two paragraphs below as required.

* + - * 1. Type A (Channel Type) Frames: Assemblies consisting of a fixed unit and a hinged unit.

Stiles and rails for each unit shall be minimum 12 gage steel, formed basically channel shape in cross section, and welded at corners with welds ground smooth on exposed surfaces.

Locking mechanism, hinges, and wire cloth assembly shall be concealed and inaccessible when screen is closed.

Joints between fixed and hinged units shall be equal on all four sides, and shall not exceed 1/8 inch in width.

Rubber bumpers shall be securely fastened to a frame on the lock bolt housing side.

* + - * 1. Type B (Tubular Type) Frames: Assemblies consisting of a fixed unit and a hinged unit.

Stiles and rails of the hinged unit shall be tubular in cross section and shall conceal the locking mechanism and the wire cloth assembly. Tubular members shall be built-up of minimum 12 gage channel/Z members with minimum 18 gage removable concealment plate on the back side of unit. Stiles and rails shall be welded at the corners with welds ground smooth on exposed surfaces.

Fixed unit shall be fabricated of minimum 12 gage steel, and members shall be welded at the corners with welds ground smooth on exposed surfaces.

Joints between fixed and hinged units shall be equal on all four sides, and shall not exceed 1/8 inch in width.

Rubber bumpers shall be securely fastened to a frame on the lock bolt housing side.

Check with designer for weight of wire cloth required. Standard is 0.028 wire cloth. Heavy duty is 0.047 wire cloth. Use 0.054 wire cloth for Dept. Of Correctional Services special housing buildings. Use one (or more) of the next 3 paragraphs as required. If more than one paragraph is used edit paragraphs to include locations, or some other identifier.

* + - * 1. Wire Cloth: 0.028 inch diameter wire, 12 mesh to the inch, with 43 percent open area, woven from Type 304 stainless steel wires. The wires shall have double crimped crossings, and a woven wire tensile strength of not less than 800 pounds per linear inch after weaving.
        2. Wire Cloth: 0.047 inch diameter wire, 10 mesh to the inch, with 28.1 percent open area, woven from Type 304 stainless steel wires. The wires shall have double crimped crossings, and a woven wire tensile strength of not less than 1,600 pounds per linear inch after weaving.
        3. Wire Cloth: 0.054 inch diameter wire, 8 mesh to the inch, with 32.8 percent open area, woven from Type 304 stainless steel wires. The wires shall have double crimped crossings, and woven wire tensile strength of not less than 1,600 pounds per linear inch after weaving.
        4. Wire Cloth Support Assembly:

Springs: Oil tempered and cadmium plated, flat leaf or coil type, attached to the hinged unit of the frame and connected to wire cloth retainers. Flat leaf type springs shall be provided with clevis and adjusting screw, and shall be spaced as required to receive wire cloth retainers on not exceeding 8 inches on center on 4 sides of the frame. Coil type springs shall be provided with yoke and pins, and shall be spaced not more than 8 inches on center on 4 sides of the frame.

Retainers: Cadmium plated retainer bars, spaced not more than 8 inches on center or continuous retainer bar, on 4 sides of hinged unit, attached to springs. Retainers shall securely hold wire cloth in place.

Support assembly shall have a minimum capacity of 175 lb per 1/2 inch of movement of each retainer.

Support assembly shall provide a minimum overall wire cloth movement of 5/8 inch in both width and height.

* + - * 1. Hinges: Concealed, electro-galvanized, 0.125 inch steel, with 1/4 inch diameter loose stainless steel or hard brass pins.
        2. Locking System:

Mechanism consisting of connecting rods or bars, slide bolts and key control assembly, concealed in stile. Lock case shall be fastened to screen edge with machine screws, and projecting bar linked to connecting rods with cotter pins, for removal without disassembly of complete locking system.

Above is the standard locking mechanism. The heavy duty alternate below is necessary for rooms or areas in Division For Youth and Dept. Of Correctional Services Buildings in which the inmates are kept under restraint. Check with the Designer.

Each detention screen shall be equipped with reinforced lock bolts that operate simultaneously from bit key lock through 1/8 inch x 3/8 inch rectangular, or 1/4 inch diameter, minimum, steel, full hard temper bars. Case shall be three pieces of 0.090 inch steel with 0.050 inch steel cover to accept 1/2 inch diameter x 1-3/8 inches long, case hardened steel bolt. Bolt shall have a minimum travel of 1/2 inch. Bolt slide cover shall be attached to main body of case by two steel shoulder type rivets. Bolt reinforcement shall be welded to main body.

Lock shall have a minimum of 4 tumblers.

Two or three point locking, as required, shall be actuated simultaneously by bit key in control assembly (lock case) accessible from both sides of screen through contoured key holes in stile.

Materials: Lock tumblers shall be brass or Type 302 stainless steel; tumbler springs phosphor bronze or beryllium copper alloy, securely staked; slide bolts of case-hardened steel; lock case and cover, and all other parts, brass, electro-plated steel, or Type 302 stainless steel.

Consult with hardware specifications writer for keying details.

Keying:

* + - * 1. Scribe Members: Minimum 16 gage steel, and as required to form a close fitting joint between jambs and head of the opening and the screen frame.
        2. Fastening Devices: Screen manufacturer’s standard screws and anchors unless otherwise shown on the Drawings.
        3. Shop Finishing: Except for galvanized or cadmium plated ferrous metal, ferrous metal Work included in this Section, including scribe members, shall be completely finished in the shop using one of the following methods:

Method 1: The ferrous metal shall be thoroughly cleaned, bonderized, given a coat of screen manufacturer’s standard primer, and then given one coat of screen manufacturer’s standard baked-on enamel of standard color as selected.

Method 2: The ferrous metal shall be thoroughly cleaned, given a baked-on coat of rust inhibitive primer, and then given 2 coats of screen manufacturer’s standard baked-on enamel of standard color as selected.

1. EXECUTION
   * + 1. INSTALLATION
          1. Install the Work of this Section in accordance with the screen manufacturer’s instructions, except as otherwise shown or specified.
          2. Locate fastenings at openings not more than 3 inches from ends of each member. Space fastenings not more than 12 inches on center between end fastenings unless otherwise shown.
       2. ADJUSTING
          1. Adjust and lubricate hardware to Work freely and easily, ready for use.
       3. CLEANING
          1. Clean exposed surfaces of wire cloth and frames of dirt and other foreign material. Comply with screen manufacturer’s recommendations for cleaning.
          2. Touch-up damaged painted surfaces to match shop finish.

END OF SECTION 111903