

SECTION 10 22 13
WIRE MESH PARTITIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Heavy duty wire mesh partitions.
 - 2. Wire mesh ceilings where indicated.

1.2 DEFINITIONS

- A. Intermediate Crimp: Wires pass over one and under the next adjacent wire in both directions, with wires crimped before weaving and with extra crimps between the intersections.
- B. Lock Crimp: Deep crimps at points of the intersection that lock wires securely in place.

1.3 ACTION SUBMITTALS

- A. Product Data: Technical data including construction details, material descriptions, hardware reinforcements, profiles, anchors, and finishes.
- B. Shop Drawings: Submit plans, elevations, sections, details, and attachments fully dimensioned to indicate all members and clearances. Shop drawings shall be signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Indicate clearances required for operation of doors and gates.
- C. Delegated Design Submittal: Submit for wire mesh storage lockers indicated to comply with performance requirements and design criteria
 - 1. Include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: Submit data for the qualified professional engineer.
- B. Qualification Data: Submit data for Installer.
- C. Welding certificates.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Submit for wire mesh partition hardware to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Entity having minimum five years documented experience who is the fabricator of products or who employs workers trained and approved by manufacturer.
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M Structural Welding Code - Steel.
 - 2. AWS D1.3/D1.3M Structural Welding Code - Sheet Steel.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wire mesh items with cardboard protectors on perimeters of panels and doors and with posts wrapped palleted to provide protection during transit and project site storage. Use vented plastic.
- B. Inventory wire mesh partition door hardware on receipt and provide secure lockup for wire mesh partition door hardware delivered to Project site.
 - 1. Tag each item or package separately with identification and include basic installation instructions with each item or package.
- C. Deliver keys to Owner by registered mail or overnight package service.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of construction contiguous with wire mesh partitions by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design wire mesh units.
- B. Structural Performance: Wire mesh units shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.
 - 1. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m) at any location on a panel.
 - 2. Total load of 200 lbf (0.89 kN) applied uniformly over each panel.
 - 3. Concentrated load and total load need not be assumed to act concurrently.

- C. Seismic Performance: Wire mesh storage lockers shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. Component Importance Factor: 1.5.

2.2 MATERIALS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Acorn Wire & Iron Works; 135 Heavy Duty Wire Mesh or a comparable product by one of the following:
 - 1. Folding Guard Corporation.
 - 2. Miller Wire Works, Inc.
 - 3. Standard Wire & Steel Works.
 - 4. WireCrafters, LLC.
- B. Steel Wire: ASTM A510 (ASTM A510M).
- C. Steel Plates, Channels, Angles, and Bars: ASTM A36/A36M.
- D. Steel Sheet: Cold rolled steel sheet, ASTM A1008/A1008M, Commercial Steel (CS), Type B.
- E. Steel Pipe: ASTM A53/A53M, Schedule 40, unless another weight is indicated or required by structural loads.
- F. Steel Tubing: ASTM A 500/A 500M, cold formed structural-steel tubing or ASTM A 513, Type 5, mandrel drawn mechanical tubing.
- G. Metallic Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B, with G60 (Z180) zinc (galvanized) or A60 (ZF180) zinc iron alloy (galvannealed) coating designation.
- H. Panel to Panel Fasteners: Steel bolts, nuts, and washers.
- I. Post Installed Anchors: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E488/E488M, conducted by a qualified independent testing agency.
 - 1. Material for Interior Locations: Carbon steel components are zinc plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).
- J. Power Driven Fasteners: ICC-ES AC70.
- K. Seismic Bracing: Angles with legs not less than 1-1/4 inch (32 mm) wide, formed from 0.040 inch (1.0 mm) thick, metallic coated steel sheet; with bolted connections and 1/4 inch (6 mm) diameter bolts.

- L. Shop Primer for Ferrous Metal: Universal primer, organic zinc rich primer, complying with SSPC-Paint 20 and compatible with topcoat. Use primer containing pigments that make it easily distinguishable from zinc rich primer.
 - 1. Product: Provide Series 10-99 (red) or 10-09 (gray) by Tnemec Company.
- M. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc coated metal and compatible with finish paint systems indicated.
- N. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
 - 1. Product: Provide Series 90-97 Tneme-Zinc by Tnemec Company.

2.3 HEAVY DUTY WIRE MESH PARTITIONS

- A. Mesh: 0.192 inch (4.9 mm) diameter, intermediate crimp steel wire woven into 2 inch (50 mm) diamond mesh.
- B. Vertical and Horizontal Panel Framing: 1-1/2 inch by 3/4 inch by 1/8 inch (38 mm by 19 mm by 3.2 mm) cold rolled steel channels; with holes for 3/8 inch (9.5 mm) diameter bolts not more than 12 inches (300 mm) o.c.
- C. Horizontal Panel Stiffeners: Two cold-rolled steel channels, 1 inch by 1/2 by 1/8 inch (25 mm by 13 mm by 3.2 mm), bolted or riveted toe to toe through mesh.
- D. Top Capping Bars: 3 inch by 1 inch (76 mm by 25 mm) steel channels.
- E. Posts for 90-Degree Corners: 2 inch by 2 inch by 0.075 inch (50 mm by 50 mm by 1.9 mm) cold rolled steel angles or tubes, with holes for 3/8 inch (9.5 mm) diameter bolts aligning with bolt holes in vertical framing; with 1/4 inch (6.4 mm) steel base plates.
- F. Posts for Other Than 90 Degree Corners: 2 inch (50 mm) OD by 1/8 inch (3.2 mm) steel pipe or round tube, with holes for 3/8 inch (9.5 mm) diameter bolts aligning with bolt holes in vertical framing; with 1/4 inch (6.4 mm) steel base plates.
- G. Adjustable Corner Posts: Two 1-1/2 inch by 3/4 inch by 1/8 inch (38 mm by 19 mm by 3.2 mm) cold rolled, steel channels or 2 inch by 2 inch by 0.075 inch (50 mm by 50 mm by 1.9 mm) steel tubes connected by steel hinges at 36 inches (900 mm) o.c. attached to posts; with 1/4 inch (6 mm) diameter bolt holes aligning with bolt holes in vertical framing; with 1/4 inch (6.4 mm) steel base plates.
- H. Line Posts: 3 inch by 4.1-lb (76 mm by 1.9-kg) or 3-1/2 inch by 1-1/4 inch by 1/8 inch (89 mm by 32 mm by 3.2 mm) steel channels; with 1/4 inch (6.4 mm) steel base plates.
- I. Three and Four Way Intersection Posts: 2 inch by 2 by 0.075 inch (50 mm by 50 mm by 1.9 mm) steel tubes, with holes for 3/8 inch (9.5 mm) diameter bolts aligned for bolting to adjacent panels; with 1/4 inch (6.4 mm) steel base plates.
- J. Floor Shoes: Metal, not less than 2 inches (50 mm) high; sized to suit vertical framing, drilled for attachment to floor, and with set screws for leveling adjustment.

- K. Swinging Doors: Fabricated from same mesh as partitions, with framing fabricated from 1-1/2 inch by 3/4 inch by 1/8 inch (38 mm by 19 mm by 3.2 mm) steel channels, banded with 1-1/2 inch by 1/8 inch (38 mm by 3.2 mm) flat steel bar cover plates on four sides, and with 1/8 inch (3.2 mm) thick angle strike bar and cover on strike jamb.
1. Hinges: Full surface type, 3-1/2 inch by 3-1/2 inch (89 mm by 89 mm) steel, three per door; bolted, riveted, or welded to door and jamb framing.
 2. Padlock Lug: Mortised into door framing and enclosed with steel cover.
 3. Cylinder Lock: Mortise type specified in Section 08 71 00; operated by key outside and recessed turn knob inside; mounted in lower section of door.
 4. Inactive Leaf Hardware: Cane bolt at bottom and chain bolt at top.
- L. Sliding Doors where indicated: Fabricated from same mesh as partitions, with framing fabricated from 1-1/2 inch by 3/4 inch by 1/8 inch (38 mm by 19 mm by 3.2-mm) steel channels, banded with 1-1/2 inch by 1/8 inch (38 mm by 3.2 mm) flat steel bar cover plates on four sides.
1. Hardware: Two, four-wheel roller-bearing carriers, box track, and bottom guide channel for each door.
 2. Padlock Lug: Mortised into door framing and enclosed with steel cover.
 3. Cylinder Lock: Mortise type with cylinder specified in Section 08 71 00; operated by key outside and recessed turn knob inside; mounted in lower section of door.
- M. Accessories:
1. Sheet Metal Base: 0.060 inch (1.5 mm) thick, steel sheet.
 2. Adjustable Filler Panels: 0.060 inch (1.5 mm) thick steel sheet, capable of filling openings from 2 to 12 inches (50 to 300 mm).
 3. Wall Clips: Cold rolled steel sheet; allowing up to 1 inch (25 mm) of adjustment.
- N. Finish: Enamel finish unless otherwise indicated.
1. Color: Selected by Architect from manufacturers full range.

2.4 WIRE MESH CEILINGS

- A. Mesh, Framing, and Stiffeners: Fabricated from same mesh and framing as wire mesh partition panels.
- B. Perimeter Partition Supports: 1-1/2 inch by 1-1/2 inch by 1/8 inch (38 mm by 38 mm by 3.2 mm) steel angle, with holes for 1/4 inch (6 mm) diameter bolts aligned for bolting to top of wire mesh partitions and to sides of wire mesh ceiling panels.
- C. Wall Supports: 1-1/2 inch by 1-1/2 inch by 1/8 inch (38 mm by 38 mm by 3.2 mm) steel angle punched for attachment to wall and wire mesh ceiling panels.
- D. Intermediate Supports: Steel I-beams or rectangular tubes, as recommended by manufacturer.
- E. Intermediate Support Posts: 2 inch by 2 inch by 1/8 inch (50 mm by 50 by 3.2-mm) steel tubes.

- F. Finishes: Match adjacent wire mesh partitions.

2.5 FABRICATION

- A. Fabricate wire mesh storage lockers from components of sizes not less than those indicated. Use larger size components as recommended by wire mesh manufacturer. Furnish bolts, hardware, and accessories required for complete installation with manufacturer's standard finishes.
 - 1. Fabricate wire mesh storage lockers to be readily disassembled.
 - 2. Welding: Weld corner joints of framing and grind smooth, leaving no evidence of joint.
- B. Heavy Duty Wire Mesh Partitions: Fabricate wire mesh partitions with cutouts for pipes, ducts, beams, and other items indicated. Finish edges of cutouts to provide a neat, protective edge.
 - 1. Mesh: Securely clinch mesh to framing.
 - 2. Framing: Fabricate framing with mortise and tenon corner construction.
 - a. Provide horizontal stiffeners as indicated or, if not indicated, as required by panel height and as recommended by wire mesh partition manufacturer. Weld horizontal stiffeners to vertical framing.
 - b. Fabricate three and four way intersections using intersection posts.
 - c. Fabricate partition and door framing with slotted holes for connecting adjacent panels.
 - 3. Fabricate wire mesh partitions with 3 to 4 inches (75 to 100 mm) of clear space between finished floor and bottom horizontal framing.
 - 4. Fabricate wire mesh partitions with bottom horizontal framing flush with finished floor.
 - 5. Doors: Align bottom of door with bottom of adjacent panels.
 - a. For doors that do not extend full height of partition, provide transom over door, fabricated from same mesh and framing as partition panels.
 - 6. Hardware Preparation: Mortise, reinforce, drill, and tap doors and framing as required to install hardware.
 - 7. Fabricate wire mesh partitions to adhere to the following clearances:
 - a. Floor base: 5/8 inch maximum clear space to finished floor.
 - b. Roof or Ceiling: 5/8 inch maximum clear space to finished surfaces.
 - c. Adjacent walls: 5/8 inch maximum clear space to finished surfaces.
 - d. Utility Penetrations: 1/2 inc maximum clear space from utility pipe, conduit or finished carrier. Provide U channel continuous trim for all utility penetrations equal to or larger than a single wire mesh opening, 2 inches.
- C. Wire Mesh Ceilings: Fabricate wire mesh partitions with cutouts for pipes, ducts, beams, and other items indicated. Finish edges of cutouts to provide a neat, protective edge.
 - 1. Mesh: Securely clinch mesh to framing.
 - 2. Framing: Fabricate framing with mortise and tenon corner construction.
 - a. Provide stiffeners necessary for panel span and recommended by wire mesh ceiling manufacturer. Weld stiffeners to framing.

2.6 STEEL AND IRON FINISHES

- A. Galvanizing: Hot dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean items of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop Priming: Apply shop primer to uncoated surfaces of wire mesh units unless otherwise indicated. Comply with SSPC-PA 1 Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel for shop painting.
- D. Enamel Finish: Immediately after cleaning and pretreating, apply enamel finish, suitable for use indicated, with a minimum dry film thickness of 2 mils (0.05 mm).
 - 1. Color and Gloss: Selected by Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas for compliance with requirements for installation tolerances and other conditions affecting performance of the work.
- B. Examine floors for suitable conditions where wire mesh storage lockers will be installed.
- C. Examine walls to which wire mesh storage lockers will be attached for properly located blocking, grounds, and other solid backing for attachment of support fasteners.
- D. Proceed with installation after correcting unsatisfactory conditions.

3.2 WIRE MESH PARTITIONS ERECTION

- A. Anchor wire mesh partitions to floor with 3/8 inch (9.5 mm) diameter postinstalled expansion anchors or adhesive anchors at 12 inches (305 mm) o.c. through floor shoes located at each post and corner. Adjust wire mesh partition posts in floor shoes to achieve level and plumb installation. Do not use expansion anchors within 1.5 inches of any floor edge to avoid cracking the substrate; provide chemical anchors within 1.5 inches of any floor edge.
- B. Anchor wire mesh partitions to walls at 12 inches (305 mm) o.c. through back corner panel framing and as follows:
 - 1. For concrete and solid masonry anchorage, use expansion anchors or chemical anchors. Do not use expansion anchors within 1.5 inches of any substrate edge to avoid cracking; provide chemical anchors at or within 1.5 inches of any substrate edges.

2. For hollow masonry anchorage, use toggle bolts or chemical anchors.
 3. For wood stud partitions, use lag bolts set into wood backing between studs. Coordinate with carpentry work to locate backing members.
 4. For steel framed gypsum board assemblies, use lag bolts set into 2 by 6 minimum sized solid wood backing secured between studs. Coordinate blocking with stud installation to locate backing members.
- C. Secure top capping bars to top framing channels with 1/4 inch (6 mm) diameter "U" bolts spaced not more than 28 inches (700 mm) o.c.
- D. Provide line posts at locations indicated:
1. On each side of sliding door openings.
 2. For partitions that are 7 to 9 feet (2.1 to 2.7 m) high, spaced at 15 to 20 feet (4.6 to 6.1 m) o.c.
 3. For partitions that are 10 to 12 feet (3.0 to 3.7 m) high, located between every other panel.
 4. For partitions that are more than 12 feet (3.7 m) high, located between each panel.
- E. Provide seismic supports and bracing meeting ASCE/SEI 7, as recommended by manufacturer and as required for stability, extending and fastening members to supporting structure. Comply with the more stringent support requirements.
- F. Where standard width wire mesh partition panels do not fill entire length of run, provide adjustable filler panels to fill openings.
- G. Install doors complete with door hardware.
- H. Weld or bolt sheet metal bases to all wire mesh partitions and doors.
- I. Bolt accessories to wire mesh partition framing.
- J. Install wire mesh partitions to adhere to the following maximum clearances:
1. Floor base: 5/8 inch maximum clear space to finished floor.
 2. Roof or Ceiling: 5/8 inch maximum clear space to finished surfaces.
 3. Adjacent walls: 5/8 inch maximum clear space to finished surfaces.
 4. Utility Penetrations: 1/2 inch maximum clear space from utility pipe, conduit or finished carrier. Provide U channel continuous trim for all utility penetrations equal to or larger than a single wire mesh opening, 2 inches.

3.3 WIRE MESH CEILINGS ERECTION

- A. Anchor wall support angle to walls at 12 inches (300 mm) o.c. and as follows:
1. For concrete and solid masonry anchorage, use expansion anchors.
 2. For hollow masonry anchorage, use toggle bolts.
 3. For wood stud partitions, use lag bolts set into wood backing between studs. Coordinate with carpentry work to locate backing members.

4. For steel framed gypsum board assemblies, use lag bolts set into wood backing between studs. Coordinate with stud installation to locate backing members.
 5. For steel framed gypsum board assemblies, fasten brackets directly to steel framing or concealed reinforcements using self tapping screws of size and type required to support structural loads.
- B. Attach wire mesh ceiling panels to wall support angles with bolts at 12 inches (305 mm) o.c.
 - C. Attach wire mesh ceiling panels to wire mesh partitions with slotted angles bolted to sides of ceiling panels and to top of partitions at 12 inches (305 mm) o.c.
 - D. Attach wire mesh ceiling panels to intermediate supports as recommended by manufacturer.
 - E. Provide seismic supports and bracing as recommended by manufacturer and as required for stability, extending and fastening members to supporting structure.

3.4 ADJUSTING AND CLEANING

- A. Adjust doors to operate smoothly and easily without binding or warping. Adjust hardware to function smoothly. Confirm that hasps engage accurately and securely without forcing or binding.
- B. Remove and replace defective work, including doors and framing that are warped, bowed, or otherwise unacceptable.
- C. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop painted surfaces.
- D. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780/A780M.

END OF SECTION

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