

SECTION 08 34 49 RADIATION SHIELDING DOORS and FRAMES (X-RAY DOORS)

PART 1 GENERAL

1.1 SECTION INCLUDES

Hollow Metal Doors and Frames intended for X-ray shielding.

1.2 RELATED SECTIONS

03 30 00 Cast-in-place Concrete.

03 40 00 Precast Concrete.

03 60 00 Grouting.

04 00 00 Masonry (including 04 05 16 and 04 00 20).

08 71 00 Door Hardware.

09 00 00 Finishes.

09 20 00 Plaster and Gypsum Board.

08 10 00 Doors and Frames.

1.3 REFERENCES

ASTM A 568/A 568M Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled.

ASTM A 653/A 653M Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

ASTM A 924/A 924M Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process.

ANSI/SDI A250.10 Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.

ANSI/SDI A250.11 Recommended Erection Instructions for Steel Frames.

HMMA 820-TN01 Grouting Hollow Metal Frames.

HMMA 840-TN01 Painting Hollow Metal Products.

HMMA 840 Installation and Storage of Hollow Metal Doors and Frames.

HMMA 841 Tolerances and Clearances for Commercial Hollow Metal Doors and Frames.

HMMA 861 Guide Specifications for Commercial Hollow Metal Doors and Frames.

ANSI/NFPA 80 Standard for Fire Doors and Windows.

ANSI/NFPA 252 Standard Methods of Fire Tests of Door Assemblies.

ANSI/NFPA 257 Standard on Fire Test for Window and Glass Block Assemblies.

ANSI/UL 9 Fire Tests of Window Assemblies.

ANSI/UL 10B, Fire Tests of Door Assemblies.

ANSI/UL 10C Positive Pressure Fire Tests of Door Assemblies.

1.4 TESTING REQUIREMENTS

Where noted on the door schedule, doors, frames, and fire windows shall have been tested or otherwise evaluated by Underwriters Laboratories, Inc for the fire protection rating noted.

Material shall be under a factory Follow-Up services Program of Underwriters Laboratories, Inc.

1.5 SUBMITTALS

Unless mutually agreed due to small quantity, submit shop drawings showing profiles, product components, anchors, and accessories. Details deemed to be proprietary by the manufacturer may be identified as such.

Submit installation instructions and installation tolerances if other than as specified in ANSI/SDI A250.11 or HMMA 840.

Submit jobsite storage and protection requirements if other than as specified herein or in HMMA 861 or HMMA 840-TN01.

1.6 QUALITY ASSURANCE

Installer shall have documented experience in installation of radiation shielding steel door assemblies.

Fabricate products to tolerances in compliance with HMMA-841.

1.7 DELIVERY, STORAGE, AND HANDLING

Store and handle products in accordance with HMMA 861 or HMMA 840-TN01 in manufacturer's original, unopened, undamaged containers.

Protect materials from adverse temperature and humidity conditions.

Store doors and frames upright on wood planking, protected at corners to prevent damage.
Do not store in non-vented plastic or canvas shelters.

1.8 COORDINATION

Coordinate work with other directly affected trades, wall construction, and hardware installation.
Coordinate hardware locations with Sections 08 11 13 and 08 12 13.
Coordinate placing of material orders and fabrication schedules with construction progress.

1.9 WARRANTY

Submit written copy of manufacturer's standard warranty documents.

PART 2 PRODUCTS

2.1 MANUFACTURER

Radiation Shielding (X-ray) Doors and frames shall be manufactured by:
MEGAMET INDUSTRIES, INC.
P.O. BOX 635 (3228 6th. Avenue North)
BIRMINGHAM, AL 35201
WEBSITE: www.megametusa.com
PHONE: (205) 322-7700 TOLL FREE: (888) 322-7750
FAX: (205) 322-4600

Substitutions: Not permitted.

2.2 RADIATION SHIELDING (X-RAY) DOORS

Provide 1 3/4" nominal thickness lead-lined steel doors for X-ray rooms as listed in the door schedule and indicated on the Drawings in accordance with this specification. Opening sizes, configurations and types shall be as indicated on the Drawings and/or door schedule.

Specifier: select one of the following two sentences and delete other:

Door faces shall be fabricated from cold rolled steel complying with ASTM A 568A.

Door faces shall be fabricated from hot-dip galvanized steel complying with ASTM A 653A and A 924A.
Coating thickness shall be **specifier select**(A40) (A60).

Door faces shall be fabricated from **specifier select** (18), (16), (14), (12), (10) gage material.

Internal reinforcing members shall be fabricated from hot-rolled or cold-rolled steel at manufacturer's option.

Fabricate faces and edges as seamless doors from two sheets of steel with no visible seams on either face or vertical edges; continuously weld door edges.

All doors shall be handed with either square or bevel edges (at manufacturer's option).

Vertical edges shall be reinforced with continuous channels at hinge and lock edges. Channel shall be formed from one member; spliced channels are not permitted.

Hardware reinforcing shall be securely welded to edge channels.

Door internal construction shall be **specifier select** (expanded polystyrene of 1.0 pcf nominal density) (impregnated honeycomb of no greater than 1.25" cell size) (polyurethane slab of no less than 1.0 pcf nominal density) (vertical steel stiffeners of no less than 22 gage).

Doors shall be lined with **specifier indicate range from 1/64" to 1/8"** () thick lead complying with Federal Specification QQ-L-201f, Grade C furnished by **select** (door manufacturer) (X-ray protection contractor). Lead shall be **specifier select or indicate** (99.9% purity) (% purity).

Hardware Preparation: Mortise, reinforce, drill, and tap to receive templated mortise hardware; reinforce for specified surface hardware in accordance with HMMA 861.

2.3 RADIATION SHIELDING (X-RAY) STEEL FRAMES

Provide steel frames for lead-lined doors for X-ray rooms as listed in the door schedule and indicated on the Drawings in accordance with this specification. Opening sizes, profiles, anchors, and types shall be as indicated on the Drawings.

Frames shall be MegaMet type **specifier select** (M), (CM).

Specifier select one of the following sentences and delete other:

Frames shall be fabricated from cold rolled steel complying with ASTM A 568A.

Frames shall be fabricated from hot-dip galvanized steel complying with ASTM A 653A and A 924A with a coating thickness of **specifier select** (A40) (A60).

Frames shall be fabricated from **specifier select** (16), (14), (12), (10) gage material.

Fabricate frames with tightly fitting mitered corners and butted stops. Tabs and slots at headers and jambs may be incorporated for factory alignment of assembly.

Frame corners shall be **specifier select** (knocked-down for field assembly), (welded continuously at faces).

Frames shall be lined with **specifier indicate range from 1/64" to 1/8"** () thick lead complying with Federal Specification QQ-L-201f, Grade C furnished by **select** (door manufacturer) (X-ray protection contractor). Lead shall be **select or indicate** (99.9% purity) (% purity). Lead shall be installed **select** (in the factory by frame manufacturer) (at the jobsite by X-ray protection contractor). Where lead is field installed, provisions and clips for securing lead shall be factory-installed into frames.

Hardware reinforcing shall be securely welded to frames.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive templated mortise hardware; reinforce for specified surface hardware in accordance with HMMA 861.

Provide frames with one floor anchor per jamb.

Frames installed in new masonry shall have strap and stirrup, T-strap anchors or wire anchors.

Frames installed in stud partitions shall have steel anchors of suitable design located near hinge preparations and securely fastened to jambs with corresponding locations on strike jamb.

Frames installed with anchor bolts shall have frame soffits dimpled or countersunk for 3/8 inch bolts.

Anchor bolts are provided by the installer as rough hardware to suit the substrate.

2.4 PROVISIONS FOR GLAZING

Where shown, doors or frames shall be provided with removable channel or angle shaped stops with butted corners to secure lead lined glazing. Stops shall be secured to frame sections with # 6 minimum, corrosion resistant sheet metal screws. Channel stops shall be dimpled or countersunk for minimal projection above surface.

Glazing materials shall be furnished and installed in the field by others, in accordance with glazing sizes and thickness shown in the contract documents.

2.5 OPERATING CLEARANCES

Doors shall be undersized from frame opening sizes at head, jamb, and threshold in accordance with HMMA-861 and HMMA 841.

2.6 HARDWARE LOCATIONS

Unless otherwise specified, hinges and locks shall be located in accordance with HMMA-861.

2.7 PRIMER FINISH

Clean and treat exposed surfaces of doors and frames to ensure prime paint adhesion; apply one shop coat of "low VOC" gray rust-inhibitive primer meeting acceptance criteria of ANSI A250.10.

PART 3 EXECUTION

3.1 EXAMINATION

Before beginning installation, verify that existing or planned substrate conditions are acceptable for installation.

Select fasteners of adequate type, number, and quality to perform intended functions.

3.2 INSTALLATION

Install frames plumb, straight, and true, rigidly secured in place and properly braced; comply with ANSI/SDI A250.11, HMMA-840 and HMMA-861.

Grout fill frames in new masonry in accordance with ANSI/SDI A250.11, and HMMA820-TN01. Frames installed in drywall partitions shall not be grouted.

Secure any bolted connections to adjacent construction using bolts suitable for the substrate.

Install accessories, doors, and hardware in accordance with manufacturers' templates and instructions.

3.3 PROTECTION

Protect installed products and finished surfaces from damage during construction.

3.4 FINAL ADJUSTMENTS

After construction work has been completed in the area, adjust hardware and closers prior to turn-over to Owner.