

**SECTION 134913
INTEGRATED X-RAY SHIELDING ASSEMBLIES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Lead sheet applied to gypsum board.
- B. Doors and frames.
- C. Radiation treatment room view window frames.
- D. Leaded glass.

1.02 RELATED REQUIREMENTS

- A. Section 081113 - Hollow Metal Doors and Frames: Lead-lined hollow metal doors and frames.
- B. Section 081416 - Flush Wood Doors: Lead-lined flush wood doors.

1.03 REFERENCE STANDARDS

- A. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2024.
- B. ASTM B749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products; 2025.
- C. ASTM C1036 - Standard Specification for Flat Glass; 2025.
- D. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2024.
- E. NCRP Report 147 - Structural Shielding Design for Medical X-Ray Imaging Facilities; 2004, with Errata (2005).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate this work with the construction of the building elements that x-ray protection is applied to or installed in.

1.05 SUBMITTALS

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate layout, details, dimensions, interface with adjoining work .
- C. Manufacturer's qualification statement.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least three years documented experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Integrated X-Ray Shielding Assemblies:
- B. Lead-Laminated Gypsum Board:
 - 1. Radiation Protection Products; Lead Lined Drywall: www.rppinc.com/#sle.
 - 2. Mayco Industries; lead lined Drywall: <https://maycoindustries.com>
 - 3. Ray-Bar[Mayco Industries; lead lined Drywall: <https://www.raybar.com>

2.02 REGULATORY REQUIREMENTS

- A. Comply with applicable health and occupation codes for integrity of radiation protection and continuity of protected construction.

2.03 LEAD SHEET AND ASSOCIATED MATERIALS

- A. Lead Sheet: ASTM B749, UNS Number L50049, 1/32 inch (0.79 mm) minimum thickness.

- B. Gypsum Board: ASTM C1396/C1396M, paper faced, square edges and square ends; 48 inch by 96 inch (1219 mm by 2438 mm) size, 5/8 inch (15.9 mm) thick.
- C. Nails: Lead headed to twice thickness of sheet lead.
- D. Tie Wire: Lead steel, annealed.

2.04 FABRICATION

- A. Lead-Laminated Gypsum Board: Fabricate with monolithic sheet lead bonded to one surface of board, extend lead sheet 1 inch (25 mm) beyond one side and one end of board.
- B. Lead-Lined Wood Doors: Specified in Section 081416.
- C. Lead-Lined Door Frames: Specified in Section 081113.

2.05 COMPONENTS AND ACCESSORIES

- A. Swing Doors and Frames: Manufacturer's standard.
 - 1. Lead Thickness: 1/16 inch (1.59 mm).
 - 2. Door Construction: Fully welded hollow steel.
 - 3. Durability: Maintain fit of door to frame when tested in accordance with ANSI/SDI A250.4 or approved equivalent.
 - 4. Width: As indicated on drawings.
- B. Lead Glass: ASTM C1036, clear, lead content equivalent to protection requirements of this section.
 - 1. Lead Glass Pro, Lead glass: <https://leadglasspro.com>
 - 2. Amerope Enterprises, Inc, Lead glass: <https://www.amerope.com>
 - 3. UltraRay, Lead glass: <https://ultraray.com/products/lead-glass/>
- C. View Window Frames and Lead Glass: Provide _____.
 - 1. Lead Glass Pro, Lead glass: <https://leadglasspro.com>
 - 2. Amerope Enterprises, Inc, Lead glass: <https://www.amerope.com>
 - 3. UltraRay, Lead glass: <https://ultraray.com/products/lead-glass/>
 - a. Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 INSTALLATION - LEAD SHEETS

- A. Install lead sheets to wall substrate by mechanical attachments; lead headed fasteners spaced at 4 inches (lead headed fasteners spaced at 100 mm) to framing members. Install lead laminated products with lead face against supports.
- B. Extend lead protection from finished floor to a height of 96" inches (a height of 2,438 mm). Install gypsum board from top of lead laminated lath to underside of structure in accordance with Section 092116.
- C. Apply lead sheet patches around penetrations to sheet lead protection, extending 6 inches (150 mm) beyond penetration.

3.03 INSTALLATION - COMPONENTS AND ACCESSORIES

- A. Install components and accessories in accordance with manufacturer's instructions.
- B. Install lead lined glazed frames as specified in section where frames are specified and in accordance with lead lining fabricator's instructions.

3.04 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014000 - Quality Requirements.

END OF SECTION