

When protection & safety must be **Absolutely Assured**



LEAD LINED DOORS & WINDOWS

AVAILABLE LEAD LINED DOORS AND WINDOWS

- Lead Lined Doors – Wood, Hollow Metal, and Plastic Laminate (with ratings 20 min. to 90 min.)
- Custom Neutron and Gamma Doors
- Lead Lined Windows – Hollow Metal – Slip or Split type or Welded

Each lead-lined door, frame and window is custom-designed and built. They can be finished in a variety of veneer and plastic laminates. They are typically used in various medical x-ray, PET or CT Scan rooms in hospitals and medical offices.



DOORS:

Lead Lined Metal and Wood Veneer Doors & Hollow Metal Frames

MarShield offers a premium line of lead-lined metal and wood veneer doors and hollow metal frames that are manufactured to have an equal appearance to architectural-designed doors and frames. Our doors are constructed with the highest quality craftsmanship and materials available. These doors are designed to take into consideration the heavy weight that sheet lead imposes on them. They are constructed to support this extra weight, which will not detract from their appearance or radiation protection. The frames are designed to support the lead lined doors to provide a lead lined interface between the door and the adjacent lead lined wall. Usually they are attached to studs in the walls using a variety of techniques specifically designed to hold the door securely and to prevent radiation shielding leakage. Frames are available in fully-welded form or knock-down style. For maximum support MarShield recommends a welded style vs. knock-down type.





LEAD LINED DOORS & WINDOWS

WINDOW FRAMES:

Welded & Split/Slip Type

Our frames are designed to provide the foundation and support for leaded glass or leaded acrylic. The frame provides a lead-lined link between the glazing and the lead lined wall. Split-type frames that allow the frames to be manufactured in two pieces are available. This allows the installer to fit the frame into the opening from both sides of an existing wall before fastening together to form a solid assembly.

SHIELDING INFORMATION:

MarShield offers a variety of lead thickness. The lead required thickness is determined by the intended application of the product and should be determined by a qualified physicist. For hollow metal frames and doors the lead sheet is applied to the inside of the skin of the door on the "pull" side. The lead sheet is applied to the face, rabbet, stop, and part of the soffit on the door rebate side of the frame. If frames are to be installed in drywall partitions, then the manufacturer should install the stud anchors. Ensuring the continuity of the lead lining in the frame and the wall is the responsibility of the frame installer.

Our lead shielding is of a continuous sheet of lead as specified. It will meet applicable standards which are 99.94% pure lead (ASTM B-29 / Federal Spec. # QQ-L-201). The sheet lead will be unpierced, free of defects, laminations, scale blisters, cracks or penetration. The amount of shielding necessary in a door or frame should be equal to the shielding required in the wall in which it is to be installed in. The sheet lead shall be shaped to fit into the frame contour and inserted in the frame. All lead joints are welded together to insure continuity of shielding and to secure in place during transit and installation.

NOTE: The amount of lead required in doors, frames and windows must be determined by a licensed radiation shielding physicist.



1.800.381.5335 | sales@marshield.com | www.marshield.com

LEAD LINED STORAGE CONTAINERS • MODULAR RADIATION BARRIERS & WALLS • MODULAR X-RAY ROOMS • ROLLING RADIATION BARRIERS • SHEET LEAD



LEAD LINED DOORS & WINDOWS

HARDWARE:

Most standard architectural hardware can be specified and used on the door and frame. The correct specification of the finishing hardware is critical to the success of the complete closure. Adequate hinging is required to carry the heavy loads imposed by the lead lining. Hardware that fits into openings in the door and frame should be suitable to maintain the integrity of the closure. Extreme care must be taken when applying any item to a lead-lined door or frame that the fasteners do not penetrate that lead lining.

HARDWARE SHIELDING:

Hardware selection can be the toughest decision on the success of your installation process. The final hinge system has to be appropriately specified to handle the heavy weight that the sheet lead imposes on the door. Door hardware is usually specified and supplied by others. Hardware selection should ensure lead lining in its components are equal to the door and frame assembly. Necessary precautions are needed in the field when installing the hardware to prevent penetration of existing lead shielding in door and frame.

DOOR INSTALLATION:

- Do not start your installation in areas containing excessive moisture from wet plaster, or cement
- Ventilation systems should be operational and functioning correctly
- Allow doors to acclimatize to surroundings before actual installation

During installation the frame should be set plumb, square and level at the correct elevation. Ensure that the frame is adequately secured into the stud wall to properly support the door weight and size. Use a proper hinge system rated for door weight and size. MarShield recommends the use of pivot or continuous type hinges for all applications. When butt hinges are to be specified and used they must be fully rated for the weight and size of the lead lined door. A minimum of three hinges should be used for doors up to 90" in height. For every extra 30" of door height add one more hinge or portion thereof. Be sure to follow all manufacturers' recommendations and guidelines for locations and quantities, when different from above. All fire labelled frames should be installed in accordance with local codes. Secure anchorages and connections to adjacent construction. Install door and frame hardware in accordance with hardware templates and manufacturers instructions. When supplied or specified install window lites into door, door silencers, and closures in accordance of industry standards and procedures. Consult with the site physicist to insure proper shielding is maintained at each opening.



1.800.381.5335 | sales@marshield.com | www.marshield.com

BORATED POLYETHYLENE • LEAD ACRYLIC • LEAD BRICKS • LEAD CURTAINS • LEAD GLASS • LEAD LINED CABINETS • LEAD LINED DOORS & WINDOWS



LEAD LINED DOORS & WINDOWS

ORDERING INFORMATION REQUIRED:

When ordering a door and frame it is critical that all necessary information be supplied. MarShield cannot be held responsible for insufficient or missing information. It is up to the purchaser to ensure that all necessary information is provided at time of quoting.

When ordering frames for lead glass, please specify whether the width and height you provide are for the glass viewing area or the frame. E.g.: When specifying 12" x 12" the actual glass could be this size but not the viewing area. The frame can add a few inches all around and the glass sits inside of this frame. The 12" x 12" can be taken as an inside frame size but is usually considered an outside frame size. A small sketch is usually the best clarification in ensuring there are no mistakes made.

CONSIDERATIONS AND INFORMATION REQUIRED WHEN ORDERING:

- Door Size – Exact width and height
- Door Swing – See swing selector page
- Lead Shielding – Thickness or lead glass lead equivalency
- Door Frame Type: Hollow Metal – welded or knock down type
- Window Frame – Welded or Split- type
- Door Type: Metal Face or Wood – Type of finish (veneer, birch, oak, plastic, laminate etc.)
- Throat of Frame
- Wall thickness and construction: Wood stud, metal stud, masonry
- Type of Hardware required:
 - Door Closer
 - Hinges and number – pivot, butt, continuous (Hinge capacity must be verified for compatibility with door weight)
 - Passage Set – Lock set or latch
 - Labeled? (Fire rating)
 - View Window (Size, type and location)
 - If ordering double doors specify which leaf is to receive astragal
 - Any options, locations or pertinent information relevant to the ordering
 - Brand, manufacturer preference

Note: It is necessary when supplying your own hardware to provide all the pertinent information on what you're using so we can ensure our door and frame prepping match your hardware requirements.



**Learn More About
Lead Lined Doors & Windows**

1.800.381.5335 | sales@marshield.com | www.marshield.com

LEAD LINED STORAGE CONTAINERS • MODULAR RADIATION BARRIERS & WALLS • MODULAR X-RAY ROOMS • ROLLING RADIATION BARRIERS • SHEET LEAD