083449-H: RADIATION SHIELDING DOORS AND FRAMES (13090-H)

GENERAL
In general, follow the guidelines below when designing and specifying radiation protection. Unless specifically indicated otherwise, these guidelines are not intended to restrict or replace professional judgment.

MATERIALS
Lead material should consist of a single sheet of 99.9% pure lead, meeting requirements of Federal Specification QQ-L-201-F.

DOORS
1. Sheet lead should be factory installed in hollow metal doors or solid core wood doors.
2. Typically, doors should be hollow metal, flush seamless type, 1 3/4 inches thick, with 16 gauge minimum face sheets, constructed with a single continuous sheet of lead through the center, and with offset and lapped shielding for mortised hardware. At some locations, lead-lined wood solid core doors might be selected. Lead thickness should be determined and specified by the UMHHC Physicist.
3. Lead should be secured between steel channels or “hat” shape section rib reinforcement members of door, and secured together with steel bolts and nuts.
   a. Bolt heads and nuts should be covered with equivalent lead shielding thicknesses and poured or tack welded in place, with perimeter edges of lead sheet secured with anchor clips.
4. Fire-rated lead-lined doors should be manufactured in accordance with the procedures of a certified testing laboratory, and bear the appropriate label.
   a. Doors should be reinforced for finish hardware. Provide continuous reinforcement within the frame and door if continuous hinges are specified.
5. Auto Operators and/or Overhead Door Holders should be provided at the patient entry door.

FRAMES
1. Frames should be 14 gauge minimum steel with welded joints, and anchors suitable for frames and wall construction type.
2. Steel clips secured to frame for retention of field-applied lead linings should be shop installed and have a minimum of 23 clips per individual door frame. Clips for window frames, at all four sides of frames, should have a minimum of 2 clips per side and/or be mounted at a maximum of 24 inches on center.
3. If the frame is installed in a metal stud partition, the frame must be secured to the building structure top and bottom through the use of hidden structural members within the wall cavity.
4. Frames should be reinforced for finish hardware. Provide continuous reinforcement within the frame if continuous hinges are specified.