

Ionizing Radiation

CONSTRUCTION SPECIFICATIONS FOR INDUSTRIAL X-RAY OR GAMMA ENCLOSURES

- 1 All X-ray or gamma enclosures to be provided with protective barriers of sheet lead or equivalent protective materials of assured quality, uniformity and permanency
- 2 Sheet lead to be mounted so as to avoid cold-flow and to be protected from mechanical damage Sheet lead less than 1/16 in thick to be bonded to rigid supporting materials
- 3 Sheet lead joints to be overlapped with a lap at least 1/2 in , or twice the thickness of the sheet, whichever is greater Joined sheets to be in direct contact Butt joints may be used provided the welded or burned seams are not less than the minimum lead equivalent required
- 4 Joints between different kinds of protective materials to be designed to avoid leakage through the lighter material Where floor (or ceiling) is not lead-lined, lead sheet on wall to extend into floor (or ceiling) Joints may be flanged to provide, at the joint, protection equivalent to lead-lined walls
- 5 Corner construction to provide same protection as that required for body of enclosure
- 6 Lead sheets not to be perforated by nails, bolts or other fasteners unless they are adequately covered to give protection equivalent to unperforated lead sheet
- 7 Openings in barrier for pipes, conduits, air ducts, louvers, etc , to be provided with baffles so that transmitted radiation does not exceed that transmitted by the barrier itself
- 8 Observation windows and doors to have the same lead equivalent as that required of surrounding wall
- 9 Where floor is not lead lined, door sill to be provided with lead baffle, lead covering of door to overlap door jamb Radiation scattered under door or passing through door clearance spaces, not to exceed that transmitted by door

FIG 44-10

ifications are enumerated in Fig 44-10 Special attention must be given to the design of the joints between different protective materials, such as lead and concrete, in order to avoid leakage due to scattering through

the lighter material This is illustrated in Fig 44-11

Where the control room, office space or film processing room is located adjacent to the shielded enclosure and ready access from