

APPROVAL FOR ENCLOSURE

Definition of an Enclosed Installation

In the case of industrial radiography, installation in which radiography operations are carried out in an enclosure, which has walls providing adequate radiation protection to persons working outside the enclosure, and which prevents unauthorised entry of persons into the enclosure during radiography operations. Such installations may include open top installations also.

Requirements for Enclosed Radiography

The following requirements in respect of enclosed radiography shall be complied with:

Prior to construction of a radiography enclosure, plans and details of construction and of proposed operations are submitted to the Competent Authority for approval

- 1) The room housing of exposure device shall be in a location where the occupancy is as low as practicable and shall be located in industrial area. The installation shall be fully enclosed and shielded, or enclosed on all sides with the exception of open top.
- 2) The installation shall provide adequate structural shielding for walls/doors, ceiling and floor so that the radiation levels outside the shielding do not exceed the annual dose limits for occupational workers and general public. In case of open top enclosed radiography installations, the scattered radiation (sky-shine) shall also be considered and necessary measures shall be implemented to minimize it.
- 3) An enclosed radiography installation shall provide for a control room from where the operation of the radiography equipment within the shielded enclosure shall be controlled remotely.
- 4) The conduit/opening for cables provided in the wall between the control room and exposure room shall be so designed as to prevent direct streaming of radiation.
- 5) In enclosed radiography installations where X-ray equipment or accelerator is operated, the door between the control room and the exposure room shall be provided with an electrical interlock. The interlock shall activate an audio and visual alarm and a placard to caution persons during exposure.
- 6) Exposure controls for the IGRED/X-ray equipment/accelerator shall be located outside the exposure room. Identification of each control shall be distinct and unambiguous.
- 7) The concentration of ozone in an accelerator installation shall not exceed 0.1 ppm at the time of entry in the exposure room.
- 8) The radiation symbol specified in the Rules shall be conspicuously posted at the entrance. A placard indicating 'RADIATION:RESTRICTED ENTRY' shall be posted in Hindi/ local language also.

- 9) There shall be sequentially operated search buttons in accelerator installations with long maze which does not offer direct view from the control panel or entry door to ensure that no person remains in the exposure room when the machine is energised. A trip wire shall be provided at an easily accessible height around the inside periphery of the accelerator room so that a person inadvertently present in the room when the machine is 'ON' may pull the wire to trip off the operation of the accelerator. There shall be an audible alarm inside the radiography room during radiation generation.
- 10) A suitable zone monitor, preferably with extended radiation detector with pre-set audio-visual alarm provision, shall be installed in the enclosed radiography installation. The display unit of the zone monitor shall be in the operator's location and the detector probe shall be affixed appropriately inside the exposure room.
- 11) There shall be a suitable provision, such as a storage pit, inside the enclosed radiography installation for safe and secure storage of IGRED when not in use.
- 12) Effective physical security shall be provided for the source(s) at all times as per the guidance provided in AERB Safety Guide on 'Security Of Radioactive Sources In Radiation Facilities' (AERB/RF-RS/SG-1).

Prior to commissioning a radiography installation, approval shall be obtained by the licensee from the Competent Authority. Also, approval shall be obtained from the Competent Authority prior to movement of IRED for undertaking radiography work in the enclosed radiography installation.