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Department of Electrical Inspectorate
Office of the Chief Electrical Inspector
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No.B1-14881/2008/CEI

Thiruvananthapuram
Dated : 13/11/2008

CIRCULAR

- Subject :- **X-ray installations** – Revised guide lines - reg.
- Reference :-
1. Circular No. B4-3362/99/CEI dated 1/2/99
 2. Circular No. B1-3844/99/CEI dated 2/6/99
 3. Circular No. B1-12455/06/CEI dated 14/7/06
 4. Letter No. DRS/377/08 dated 19/8/08 from the Director, Directorate of Radiation Safety, Government of Kerala, Thrissur-1.

As per the reference 4th cited the Director, Directorate of Radiation Safety, Government of Kerala, Thrissur requested co-operation of this department for the strict implementation of the "Safety Code for Medical Diagnostic X-ray Equipment and Installations" approved by Atomic Energy Regulator Board, Government of India. As such the circulars cited (1) to (3) are modified as follows:-

1. **Location:-** **A.** Rooms housing diagnostic X-ray units and related equipment shall be located as far away as feasible from areas of high occupancy and general traffic, such as maternity and pediatric wards and other departments of the hospital that are not directly related to radiation and its use.
B. In case the installation is located in a *residential complex*, it shall be ensured that:
 - (i) wall(s) of the X-ray rooms on which *primary* X-ray beam falls is (are) not less than 35 cm thick brick or equivalent,
 - (ii) walls(s) of the X-ray room on which *scattered* X-ray fall is (are) not less than 23 cm thick brick or equivalent, and
 - (iii) there is a shielding equivalent to at least 23 cm thick brick or 1.7 mm lead in front of the door(s) and windows of the X-ray room to protect the adjacent areas, either used by general public or not under possession of the owner of the X-ray room.
2. **Layout:-** The layout of rooms in an X-ray installation shall be such that the number of doors for entry to the X-ray rooms shall be kept to the minimum. The unit shall be so located that it shall not be possible to direct the primary X-ray beam towards dark room, door, windows, and control panel, or areas of high occupancy.
3. **Room Size:-**
 - (i) The room housing an X-ray unit shall be not less than 18 Sq.m for general purpose radiography and conventional fluoroscopy equipment.
 - (ii) The size of room housing the gantry of the CT unit shall not be less than 25 Sq.m.
 - (iii) Not more than one unit of any type shall be installed in the same room.
 - (iv) No single dimension of these X-ray rooms shall be less than 4 m.
4. **Shielding:-** Appropriate structural shielding shall be provided for walls, doors, ceiling and floor of the room housing the X-ray unit and the dark room to keep the radiation doses, within limit prescribed by the competent authority.
5. **Openings and Ventilation:-** Unshielded openings in an X-ray room for ventilation or natural light shall be located above a height of 2 m from the finished floor level *outside* the X-ray room.
6. **Illumination Control:-** Rooms housing fluoroscopic X-ray equipment shall be so designed that adequate darkness can be achieved conveniently, when desired in the room.

7. Control Panel:-

- (i) The control panel of diagnostic X-ray equipment operating at 125 kVp or above shall be installed in a separate room located outside but contiguous to the X-ray room and provided with appropriate shielding, direct viewing and oral communication facilities between the operator and the patient.
- (ii) In case of X-ray equipment operating up to 125 kVp, the control panel can be located in the X-ray room.
- (iii) The distance between control panel and X-ray unit/chest stand shall be not less than 3 m for general purpose fixed X-ray equipment.

8. Waiting Areas:- Patient waiting areas shall be provided outside the X-ray room.**9. Warning Light and Placard:-** A suitable warning signal such as red light shall be provided at a conspicuous place outside the X-ray room and kept "ON" when the unit is in use to warn persons not connected with the particular examination from entering the room. An appropriate warning placard as specified with the safety code shall also be provided outside the X-ray room.**10. Dark Room:-** The dark room shall be located adjacent to the X-ray room such that no primary or secondary X-rays reach inside the dark room.**11. Approval & Sanction:-** Scheme approval shall be released with condition that copy of the approval from the Directorate of Radiation Safety shall be furnished along with completion report. In no case, completion reports shall be accepted without the approval duly signed and seal affixed from the Directorate of Radiation Safety is enclosed.

The above guide lines shall come into effect immediately.

Yours faithfully,

Sd/-

Chief Electrical Inspector

To

1. The Director, Directorate of Radiation Safety, Government of Kerala, Thrissur-1
2. The Deputy Chief Electrical Inspector, Ernakulam
3. All Electrical Inspectors
4. All Technical officers of the Chief Electrical Inspector's office
5. B1, B3 & B4 Section
6. Stock File