Sec. 19-25d-4. Fluoroscopic installations

(a) **Equipment**

(1) The tube housing shall be of diagnostic type.

(2) The target-to-panel or target-to-table top distance of equipment installed before January 1, 1965, shall not be less than twelve inches, and shall not be less than fifteen inches in equipment installed or reinstalled thereafter.

(3) The total filtration permanently in the useful beam shall not be less than two and one-half millimeters aluminum equivalent. This requirement may be assumed to have been met if the half-value layer is not less than two and one-half millimeters aluminum at normal operating voltages.

(4) The equipment shall be so constructed that the entire cross-section of the useful beam is attenuated by a primary barrier. This barrier is usually the viewing device, either a conventional fluoroscopic screen or an image intensification mechanism.

(A) (i) For equipment installed before January 1, 1965, the required lead equivalent of the barrier shall not be less than one and one-half millimeters for one hundred kvp, shall not be less than one and eight-tenths millimeters for one hundred twenty-five kvp, or shall not be less than two millimeters for one hundred fifty kvp.

(ii) For equipment installed or reinstalled after January 1, 1965, the required lead equivalent of the barrier shall not be less than two millimeters for one hundred kvp, shall not be less than two and four-tenths millimeters for one hundred twenty-five kvp, or shall not be less than two and seven-tenths millimeters for one hundred fifty kvp.

(iii) Insofar as related to the provisions of subparagraphs (A) (i) and (A) (ii) of the subdivision for conventional fluoroscopes these requirements may be assumed to have been met if the exposure dose rate measured at the viewing surface of the fluorescent screen does not exceed fifty milliroent gens per hour with the screen in the primary beam of the fluoroscope without a patient, under normal operating conditions.

(B) Collimators shall be provided to restrict the size of the useful beam to less than the area of the barrier. For conventional fluoroscopes this requirement is met if, when the adjustable diaphragm is opened to its fullest extent, an unilluminated margin is left on the fluorescent screen with the screen centered in the beam at a distance of thirty-five centimeters (fourteen inches) from the panel or table top. The margin requirement does not apply to installations where image intensifiers are used, but a protective shield shall be provided in these installations so that the useful beam does not produce a radiation hazard.

(C) The tube mounting and the barrier shall be so linked together that, under conditions of normal use, the barrier always intercepts the useful beam.

(D) Collimators and adjustable diaphragms or shutters to restrict the size of the useful beam shall provide a minimum of two millimeters lead-equivalent protection for one hundred kvp, two and four-tenths millimeters for one hundred twenty-five kvp or two and seven-tenths millimeters for one hundred fifty kvp.

(5) The exposure switch shall be of the dead-man type.

(6) A manual-reset, cumulative timing device shall be used which will either indicate elapsed time by an audible signal or turn off the apparatus when the total exposure exceeds a predetermined limit in one or a series of exposures.

(7) For routine fluoroscopy, the exposure rate measured at the panel or table top should

be as low as practicable and shall not exceed ten roentgens per minute.

(8) Mobile fluoroscopic equipment shall meet the requirements of this section where applicable, except that:

(A) In the absence of a table top, a cone or spacer frame shall limit the target-to-skin distance to not less than twelve inches.

(B) Image intensification shall always be provided. Conventional fluoroscopic screens shall not be used.

(C) It shall be impossible to operate a machine when the collimating cone or diaphragm is not in place.

(D) A maximum permissible dose rate of ten roentgens per minute shall be measured at the minimum target-to-skin distance.

(b) **Structural shielding.** Ordinarily, only secondary barriers are necessary except for combined fluoroscopic-radiographic installations.

(Effective October 1, 1982)