

**WAC 246-225-030 General requirements—Plan review.** (1) Before construction, the floor plans and equipment arrangement of medical installations (new or modifications of existing installations) utilizing X-rays for diagnostic or therapeutic purposes shall be submitted to:

(a) A qualified expert for determination of shielding requirements using National Council on Radiation Protection and Measurements (NCRP) Report No. 147, available at the NCRP website at <https://www.ncrppublications.org>, or equivalent; and

(b) The department for subsequent review.

Review shall not imply approval.

(2) The review of such plans shall not preclude the requirement of additional modifications should a subsequent analysis of operating conditions indicate the possibility of an individual receiving a dose in excess of the limits required under WAC 246-221-010, 246-221-050, and 246-221-060.

(3) Diagnostic veterinary, podiatric, and dental facilities shall be exempt from submitting shielding calculations and floor plans.

(4) In order for the department to provide an evaluation, technical advice, and official review of the shielding requirements for a medical radiation installation, a floor plan drawn to scale and the following data are required:

(a) The normal location of the X-ray tube, along with an indication of anode-cathode orientation to the cassette holders;

(b) The limits of the tube travel;

(c) The directions in which the tube is pointed;

(d) Window locations;

(e) The location of the control booth or operator's position;

(f) The exposure switch location;

(g) The position of the viewing window, if any;

(h) The composition and thickness of the walls;

(i) If more than one story, the height floor-to-floor;

(j) If more than one story, the composition and thickness of materials in the ceiling or floor;

(k) The make and model of the X-ray machine;

(l) The maximum kVp and mA;

(m) The types of examinations or treatments (for example, chest, spine, general X-ray, or therapy);

(n) The identification and occupancy of areas adjacent to the X-ray room;

(o) The anticipated X-ray workload expressed in number of patients and exposures per week including:

(i) Technique factors used, or milliamperere-seconds or milliamperere-minutes per week; and

(ii) Estimates of the percentage of the workload expected to occur for a particular beam direction.

(5) For new and modified installations only, the following are minimum design requirements for medical X-ray machine operator booths. These requirements do not apply to dental, podiatry, and veterinary installations. See subsections (6) and (7) of this section for dental panoramic and cephalometric requirements.

(a) The operator shall be allotted 0.7 sq. meters (7.5 sq. ft.) or more of unobstructed floor space in the X-ray booths.

(i) The 0.7 sq. meters (7.5 sq. ft.) of minimum space specified under subsection (5)(a) of this section shall be a geometric configuration where no dimension is less than 61.0 centimeters (2.0 ft.).

(ii) The allotted space shall exclude an encumbrance by the console, such as an overhang, cables, or other similar encroachment.

(iii) An extension of a straight line drawn between any point on the edge of the booth shielding and the nearest vertical edge of a vertical cassette holder, corner of the examination table, or any part of the tube housing assembly shall not impinge on the unobstructed space.

(iv) The booth walls shall be 2.1 meters (7.0 ft.) or more and shall be permanently fixed to the floor or other structure as may be necessary.

(v) When a door or moveable panel is used as the integral part of the booth structure, it must have a permissive device which will prevent an exposure when the door or panel is not closed.

(b) Switch placement. The operator's switch for the radiographic machine shall be fixed within the booth. The switch shall:

(i) Be at least 102 centimeters (forty inches) inside the protected area; and

(ii) Allow the operator to use the available viewing windows.

(c) Viewing system requirements.

(i) Each booth shall have at least one viewing device which shall:

(A) Be placed so the operator can view the patient during exposure; and

(B) Be placed so the operator can have full view of the entries into the room.

(ii) When the viewing system is a window, the following requirements also apply:

(A) The window shall have a visible area of 930 square centimeters (1.0 square foot) or more; and

(B) The glass shall have the same lead equivalence or more as that required in the booth's wall where the glass is mounted.

(iii) When the viewing system is by mirrors, the mirrors shall be located to accomplish the general requirements under subdivision (i) of this subsection.

(iv) When the viewing system is by electronic means (for example, TV):

(A) The camera shall be located to accomplish the general requirements under subdivision (i) of this subsection; and

(B) There shall be an alternate viewing system as a backup for electronic failure.

(d) New or modified facilities shall maintain a copy of the floor plan and shielding calculations required under subsection (1) of this section.

(6) Dimensions of primary beam shielding shall exceed the largest possible beam size by 30.5 centimeters (one foot) or more in every direction. Cephalometric primary beam shielding shall be deemed adequate if, for a maximum workload of twenty films a week, two-pound lead is installed (for occupied areas).

(7) A viewing device shall be present in dental panoramic and cephalometric X-ray installations, so the requirements of subsection (5)(c) of this section are met.

[Statutory Authority: RCW 70.98.010, 70.98.050, and 70.98.080. WSR 17-12-046, § 246-225-030, filed 6/1/17, effective 7/2/17. Statutory Authority: RCW 70.98.050. WSR 94-01-073, § 246-225-030, filed 12/9/93, effective 1/9/94. Statutory Authority: RCW 70.98.050 and 70.98.080. WSR 91-15-083 (Order 183), § 246-225-030, filed 7/23/91, effective

8/23/91. Statutory Authority: RCW 43.70.040. WSR 91-02-049 (Order 121), recodified as § 246-225-030, filed 12/27/90, effective 1/31/91. Statutory Authority: RCW 70.98.080. WSR 87-01-031 (Order 2450), § 402-28-032, filed 12/11/86; WSR 83-19-050 (Order 2026), § 402-28-032, filed 9/16/83; Order 1084, § 402-28-032, filed 1/14/76. Formerly WAC 402-28-030 (part).]