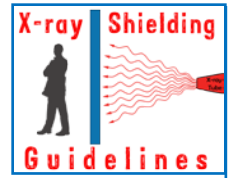


# Guideline for Determining the X-ray Shielding Requirements for a Dental Intra-Oral Film Radiography Facility



This guideline may be used to determine the shielding required for a new installation or when modifying an existing one, provided the following criteria apply to the installation. Before using the guideline, first read the Explanatory Notes provided. If the following Criteria do not apply, contact Radiation Protection, Environmental Health Services office for assistance. Note: the shielding specified in this guideline is to protect workers outside the x-ray room to the WorkSafeBC Action Level (1 mSv/year) rather than to the Exposure Limit (20 mSv/year). ***Owners wishing to shield to an exposure level greater than 1 mSv/year outside the room should not use this guideline and should be aware of the regulatory implication if the Action Level is or may be exceeded.***

## Criteria

- The x-ray unit is operated in the range from 60 kVp to 90 kVp, and is equipped with a position-indicating device.
- The room containing the x-ray unit has dimensions of at least 2m x 3m.
- The x-ray workload (number of film exposures) per workweek does not exceed 150.
- Shielding is required to provide protection outside the room, (a) for workers to meet the Action Level of 1mSv/year, as specified in the *WSBC Occupational Health and Safety Regulation* (see WSBC website: <http://www2.worksafebc.com/Publications/OHSRegulation/Home.asp>), and (b) for members of the public to not exceed the recommended public dose limit of 1 mSv/year.
- Protection of the staff involved in the taking of x-rays is required to ensure that the total doses they receive do not exceed the maximum permissible dose of 20 mSv/year and are kept as low as is reasonably achievable below the limit. When taking the x-ray exposure the operator must be capable of viewing the patient, while remaining outside the room, either through a glass window in the wall or via a mirror installed at the entrance (see room layout diagram over).
- Unexposed x-ray film is stored in a film bin lined with 0.8mm (2 lb/ft<sup>2</sup>) thickness of lead or kept outside the x-ray room prior to use.

If your facility design and use meets the above criteria, you can use the shielding information (over) to determine the thickness of materials required for the barriers. Complete the assessment and provide a copy to the responsible person carrying out the installation.

***N.B. Building plans are NOT required to be submitted to the Radiation Protection, Environmental Health Services.***

...over



**BC Centre for Disease Control**  
An agency of the Provincial Health Services Authority

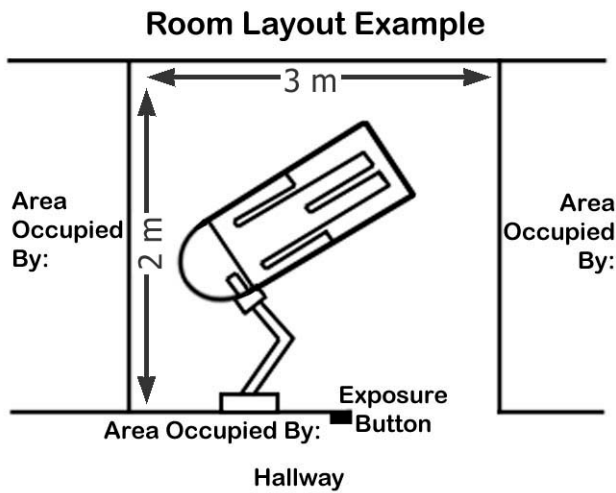
For further information, please contact:

Radiation Protection | Environmental Health Services  
LL0073, 655 12<sup>th</sup> Ave W | Vancouver BC V5Z 4R4  
T: 604.707.2442 | F: 604.707.2441 | E: [rpsinfo@bccdc.ca](mailto:rpsinfo@bccdc.ca)

**Guideline for Determining the X-ray Shielding Requirements for a  
Dental Intra-Oral Film Radiography Facility**

Check the  that corresponds to the workload (exposures/week) for your operatory.

Area Occupied By: (see Room Layout Diagram below)	Shielding Required (per operatory)		
	UP TO 20 Exposures Per Week <input type="checkbox"/>	UP TO 100 Exposures Per Week <input type="checkbox"/>	UP TO 150 Exposures Per Week <input type="checkbox"/>
<b>Regular Drywall Construction:</b>	$\frac{1}{2}'' = 1.6 \text{ lbs/ft}^2 \mid 7.8 \text{ kg/m}^2$ $\frac{5}{8}'' = 2.2 \text{ lbs/ft}^2 \mid 10.7 \text{ kg/m}^2$		
<b>Dentists, Dental Hygienists and Certified Dental Assistants</b>	No physical shielding barriers required	2.5cm (1") regular drywall construction for walls	3.8 cm (1.5") regular drywall construction for walls
		1 cm (3/8") plate glass viewing window (or mirror)	1.5 cm (5/8") plate glass viewing window (or mirror)
<b>Receptionists, waiting patients and other members of the public</b>	No physical shielding barriers required	2.5 cm (1") regular drywall construction for walls	3.8 cm (1.5") regular drywall construction for walls



**Dental Facility Name & Address:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Number of Exposures Per Week: \_\_\_\_\_

Date: \_\_\_\_\_

Signed: \_\_\_\_\_

Name: \_\_\_\_\_

*Last Updated: Feb 2014*

**Keep a copy of this signed document on record for future reference/inspection. Attach a copy of room plan showing adjacent areas and their function with this document.**