



GOVERNMENT OF BERMUDA
Ministry of Health and Environment
Department of Health

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 Department of Health, Environmental Health – Occupational Safety & Health Office for assistance.

Note: the shielding specified in this guideline is to protect workers outside the x-ray room to the Bermuda Radiation Protection 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, 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/ft²) 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.

Note: Submit Building plans to the Department of Health – Environmental Health Section, Occupational Safety & Health Office at osho@gov.bm or by hand to the attention of the Senior Safety and Health Officer, Radiation Safety.