



## **RADIATION SAFETY ACT**

### **Structural Protection Assessment Package for Diagnostic X-ray Facilities**

All premises and x-ray equipment **must** be registered under the Radiation Safety Act. The possession and use of x-ray equipment without a current registration is an offence under the Radiation Safety Act.

The registrant is responsible for ensuring the appropriate plans (for structural shielding assessment) and other relevant details relating to the registration of x-ray equipment are provided to the Radiological Council. They are also responsible for ensuring that x-ray equipment and premises conform to the requirements for both design and use.

The Radiological Council is not able to approve the installation of x-ray equipment unless satisfied that there is sufficient structural radiation protection for both users of the equipment and any persons who may be in the vicinity during its operation. Appropriately experienced private consultants may advise the owner on radiation protection requirements. However, the Radiological Council **must** approve the plans for the premises and confirm any advice given by consultants before the x-ray equipment can be registered for use. This package sets out the information that we require to make an assessment of the structural protection relating to various types of installations.

Registrants modifying premises (e.g. new equipment, relocation of existing equipment, structural shielding changes) must provide **prior notice** in writing to the Radiological Council of their plans and obtain the necessary approval.

#### **Contact Us**

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## Dental x-ray equipment installations

The following information is required to assess the structural radiation protection of rooms in which dental intraoral and OPG x-ray equipment will be used.

Scale plans are required that show the following *for each room* that contains (or will contain) x-ray equipment:

- The construction material and thickness should be specified *for each wall or partition* and for the roof and floor in the case of a multi-storey building (eg. stud walls with one 13 mm plasterboard sheet on each side).

You may need to consult your building plans to obtain the construction material specifications.

- The locations and dimensions of all windows, hatches, doors and other entrances or exits should be shown.
- The purpose of each area adjacent to the x-ray room should be shown (e.g. reception, waiting room, corridor, car park, outside garden, footpath). The purpose of any occupied area above or below the x-ray room should be indicated as well.
- Mark the location of the x-ray tube (patients head) when an exposure is made. The location of the x-ray machine's control panel and operator should be shown as well.

### ***Plan template***

Should you not have building plans to provide for the assessment, a template that may be used for hand-drawn plans is provided on the next page. It includes a table for recording details of the wall materials, thicknesses etc. The scale that you use for the plan should be given in the place provided.

Please ensure that all above mentioned information is provided with the plan. Incomplete submissions for assessment may not be assessed and may be returned to you with a request that you provide the required information.

Revision	1.1	Date	1 March 2019
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## Structural Details

Partition location	Partition material and thickness (mm)	Distance from patient (metres)

**Scale = 1: \_\_\_\_\_**

## Medical, Chiropractic and Veterinary x-ray equipment installations

The following information is required to assess the structural radiation protection of rooms in which radiographic, fluoroscopic and CT x-ray equipment will be used.

Scale plans are required that show the following *for each room* that contains (or will contain) x-ray equipment:

- The construction material and thickness should be specified *for each wall or partition* and for the roof and floor in the case of a multi-storey building (eg. stud walls with one 13 mm plasterboard sheet on each side, 90 mm double-course cored brick etc).

You may need to consult your building plans to obtain the construction material specifications.

- The locations and dimensions of all windows, doors, protective screens and other entrances or exits should be shown. The construction materials and lead equivalence of doors, windows and protective screens should be specified as well.
- The purpose of each area adjacent to the x-ray room should be shown (e.g. reception, waiting room, corridor, car park, outside garden, footpath). The purpose of any occupied area above or below the x-ray room should be indicated.
- Mark the location of the x-ray tube when an exposure is made. In some cases the x-ray tube is mounted on a gantry and can be moved over an appreciable distance. If this applies to your installation, please show the most common x-ray tube location.

The location of the x-ray machine's control panel should be shown.

- Mark the location of the operator and patient during exposures.
- Indicate the location, height, and wording of radiation warning signs or lights.
- Include the locations of any radiography tables and chest stands.

### ***Plan template***

Should you not have building plans to provide for the assessment, a template that may be used for hand-drawn plans is provided on the next page. It includes a table for recording details of the wall materials, thicknesses etc. The scale that you use for the plan should be given in the place provided.

Please ensure that all above mentioned information is provided with the plan. Incomplete submissions for assessment may not be assessed and may be returned to you with a request that you provide the required information.

## Structural Details

Partition location	Partition material and thickness (mm)	Distance from patient (metres)

**Scale = 1: \_\_\_\_\_**

## Workload Information

We need to know the maximum projected radiation workload for each x-ray room in order to determine whether the existing radiation shielding is adequate.

You are required to inform us if the actual workload ever exceeds the estimate you provide for an assessment. We will then make a new assessment and may specify additional shielding requirements. It is prudent to make generous workload estimates, thereby reducing the probability of having to refit structural shielding at a later date.

Information relating to each of the following items must be supplied for us to make an assessment:

- The most commonly performed examination types should be specified. In general, you need only include the examination types that collectively comprise the bulk (i.e. 80% or more) of your work. However, information must be supplied for *all* examinations in which the primary beam is directed towards an occupied area (e.g. cross-table radiography) even if performed infrequently.
- Specify your best estimate of the maximum projected number of patients per week for each examination type. This should be a long term average based on maximum probable utilisation rates for the facility.

In addition, please specify the number of images per patient for each examination type. An average figure should be given if the exam type sometimes requires one number of views and at other times requires another number. For fluoroscopy and CT, please leave the “images per patient” field blank.

- Provide the mAs per image and the kVp for each examination type. For fluoroscopy, please write the tube current (mA) and typical exposure time (minutes) in the “mAs per image” field (e.g. 2 mA, 2 mins).

For CT, please leave the “mAs per image” field blank. Instead, please obtain from the supplier of your machine its isodose curves and forward them to us with your plans.

- The beam direction should be specified as vertical, horizontal or oblique (if the beam makes an angle of between 15 and 75 degrees to horizontal). Beam direction is not required for CT machines.

## Workload template

A template for recording workload details is provided on the next page. Please use as many copies of the template as necessary to provide information for all of the x-ray rooms on your premises.

Please ensure that all above mentioned information is provided, incomplete submissions for assessment may not be assessed and may be returned to you with a request that you provide the required information.

**Workload details**

<b>Exam type</b>			
<b>Patients x-rayed per week</b>			
<b>Images per patient</b>			
<b>mAs per image</b>			
<b>kVp</b>			
<b>Beam direction</b>			

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