

The Radiation Protection Services

X-ray Owner/Operator Information Series

## Radiation Protection Wall Shielding Specification

You, as the owner/operator of the x-ray equipment, are responsible for the safe use of your equipment in the facility. Even though you may assign protective actions to other staff members, it's important to remember that responsibility for the protection and safety of staff, patients and the general public ultimately falls to you.

One of the mandatory steps you must take is to ensure the installation of the equipment complies with Manitoba X-ray Safety Regulation 341/88R. This includes registering your equipment, and obtaining specification of the protective shielding walls around the installation. Radiation Protection Services will assist you in both of these tasks.

### **What is Protective Shielding?**

When installing x-ray equipment, the owner must ensure that the x-rays generated within the x-ray room or operatory do not expose staff or members of the public in adjacent rooms. As x-ray radiation can penetrate and be absorbed by ordinary material in varying degrees, using construction materials that absorb x-rays ensures the safety of all involved.

Lead is an excellent shielding material. Various thicknesses of drywall may also be appropriate, depending on the x-ray workload and other circumstances.

### **Who Specifies the Shielding?**

It is **mandatory** to contact our group and apply for the specifications of the shielding of the x-ray room barriers prior to renovating or constructing the area. Our department will require a floor plan, and the operating times of the x-ray equipment. From that information, we will determine the required thickness of the lead and drywall (or drywall only, depending on the circumstances).

It is your responsibility to ensure the shielding is installed according to our specifications.

Please contact us for full and detailed information on shielding specifications and installation prior to moving ahead with your application.

### **Primary and Secondary Shielding**

Primary shielding is placed in the surfaces in the direct path of the x-ray beam. This barrier must have sufficient shielding to absorb a direct x-ray beam.

Secondary shielding is included in surfaces that are indirectly exposed to x-rays. The shielding in a secondary barrier may be less than in a primary barrier.

### **Building Plans, Workloads and Occupancy**

You'll need to provide us with a drawing showing the dimensions of the operatory, the orientation and location and the use of the space adjoining the x-ray room or operatory (e.g. corridors, reception area, washroom or an external wall). You'll also need to specify the operating time of the equipment

(workload) at the particular x-ray tube voltage.

How often the areas around the x-ray room are in use will also affect shielding specifications. For example, a washroom may be occasionally occupied, while an examination room can be fully occupied.

### **Contact Information**

Questions and enquiries are welcome; our goal is not only to ensure that x-ray regulations and codes are followed, but also to provide information and assistance to anyone involved with x-ray technology.

Radiation Protection Services  
Medical Physics Division  
CancerCare Manitoba  
Room ON 2118  
675 McDermot Avenue  
Winnipeg, Manitoba  
R3E 0V9

Phone: 204.787.4145  
Fax: 204.775.1684