Radiation protection

Three basic concepts apply to all types of ionizing radiation. When regulations or standards are developed to determine how much radiation a person can receive, these concepts are taken into consideration.

Time
Radiation exposure increases and decreases with the amount of time people spend near a source of radiation.

Distance
The further away people are from a radiation source, the less their exposure. The safe distance depends on the energy of the radiation and the size of the source. The rule is that if the distance is doubled, the factor of exposure is reduced by four.

Shielding
The greater the shielding around a radiation source, the smaller the exposure. Shielding absorbs radiation between the source and the person exposed. Lead is very good shielding because it is thick and dense, and protects against gamma and beta rays.

Lead Specifications	
Color	Bluish gray
Atomic #	8 (high)
Weight	709 lb per cu. ft.
Density	1.35 g per cc (uniform)
Melting point	327.4°C/621°F

Lead sheets are available in thicknesses of 1/64" to 1". Adequate physical support and hardware is required for heavy lead-lined doors. For lead thicknesses greater than 1/8" (3 mm), door thickness will increase as lead thickness increases. Baillargeon's standard lead-lined doors are manufactured with lead under the door skins on both sides of the core. Center lead-lined doors are also available, but we recommend lead thicknesses of 1/4" (6 mm) or more.

IMPORTANT:

- The amount of lead required in these doors must be determined by a licensed radiation shielding physicist.
- Lead is among the best sound absorption materials because of its high and uniform density, high level of stability and high degree of flexibility.

Visit the websites of the following organizations for more info:

- National Council on Radiation Protection (NCRP)
- EPA Radiation Protection Division
- Construction Specifications Institute (CSI)