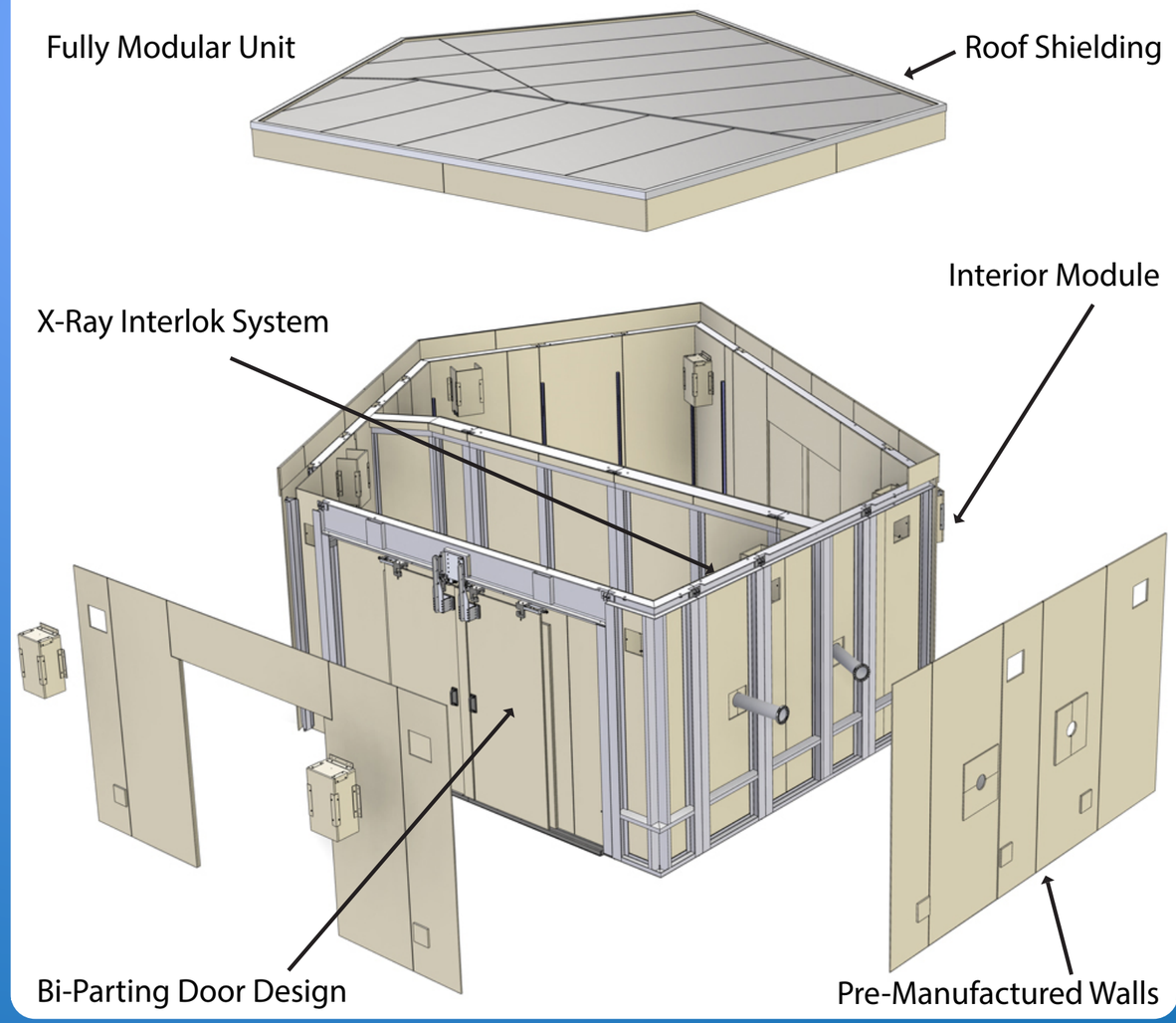
ADC Shielded Modular Room



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ISO 9001:2015

RADIATION SHIELDING

ADC
ISO 9001:2015 Certified
www.adcshielding.com

High-Energy Physics, Medical Facilities, Defense and Security

HIGH-ENERGY PHYSICS

ADC has experience providing shielding for many unique applications to facilitate cutting edge scientific developments. It is critical that high-energy beams are carefully contained and controlled to prevent them from entering populated areas or damaging sensitive equipment. Each project is assessed on an individual basis with the support of engineering simulation to assess requirements such as thicknesses, water-cooling, and other factors. Common implementations include shielded enclosures, transport pipes, water cooled beam-stops and other synchrotron safety mechanisms. Any electronics used in radiation areas are radiation hard and shielded to improve longevity and mitigate damage.

Recent projects include: Lead-shielded enclosures, also called hutches, for the Cornell High Energy Synchrotron Source (CHESS) to house experiments and optics, Beamline front ends for CHESS including water cooled X-ray Apertures, actuated tungsten beam stops, and tungsten beam collimators.

Radiation Types

High Energy X-Ray
Gamma Radiation
Neutron Beams
α and β particles

Common Shielding Materials

Lead	:	X and γ Rays
Borated PE	:	Neutrons
Tungsten	:	γ Rays
Copper	:	X-Ray

MEDICAL FACILITIES

Advances in X-ray technologies has led to radiation becoming common place in medical facilities. The same principles behind shielding X-rays in high-energy physics research can be applied to X-rays used in medical practices. Medical facilities employing radiation require X-ray tight rooms; the preferred materials to achieve this are lead-lined plywood and sheetrock. These materials are covered to prevent any lead exposure, and allow for an aesthetically pleasing design that will go unnoticed by patients. ADC can provide shielding for all kinds of applications; such asradiotherapy, X-ray imaging and CT scans. In many instances, Lead Glass is used to allow personnel to view into the room and monitor patients while keeping personnel protected. To further promote safety, doors can be integrated with the radiation source to ensure they cannot be opened while radiation source is activated.

DEFENSE AND SECURITY

The imaging power of X-rays is an invaluable tool for defense and security. High power radiation allows inspection of whole cargo vessels with the ability to detect steel objects and organic matter, guns or people. This has led to widespread implementation on border checkpoints to increase throughput and detection ability. Similar lower power systems are used in airports for bag screening to provide quick and thorough analysis of what is being brought onto the plane. Both measures provide safety, and require shielding to keep people safe and eliminate exposure to harmful radiation. With proper shielding, these processes can continue day-to-day with no accumulated dosage on the personnel responsible for their operation.