

CBR Protection for Buildings

A chemical, biological, and radiological (CBR) filtration system can serve as a significant defense component for your building during an airborne chemical and/or biological attack from an external release.

BACKGROUND

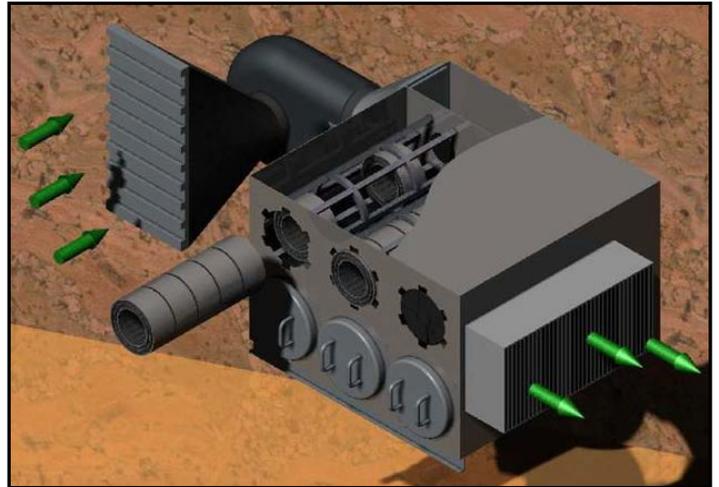
The Protective Design Center (PDC) has been specifying, and overseeing design and construction of chemical, biological and radiological filtration systems for nearly twenty years. During an accidental or premeditated external release of CBR agents the filtration system protects building inhabitants by supplying a sufficient quantity of filtered air to the building to overpressurize it, thus prohibiting contaminated outdoor air from entering and if configured correctly, limits the spread while removing an internal release. Overpressurizing allows building operations to continue or its inhabitants to shelter-in-place.

Filtration systems vary in size, complexity and scope. The basic filtration system is designed to remove all weaponized chemicals and many toxic industrial chemicals from the airstream. However, as there no available air filters that will adequately remove all harmful chemicals, customized filters can be installed in the system to remove chemicals specific to customer's needs.

Although not as effective as HEPA deep bed carbon adsorbers, significant protection can be provided using lower cost 95% particulate filters and pleated carbon adsorbers in a modified standard HVAC air handling unit.

Past and current customers of these systems include DoD and other federal agencies. The PDC has been responsible for creating over 150 overpressurized or shelter-in-place facilities both stateside and abroad.

PDC's expertise includes defining the air barrier perimeter, pressure testing the perimeter to locate and minimize leaks, sizing and specifying the filtration unit, and overseeing field filter certification testing.



CBR PROTECTION CONSIDERATIONS

In designing CBR protection for a facility the PDC uses an integrated approach consisting of:

- Access control security screening
- Fixed and forced entry resistant perimeter (incl. doors and windows)
- Ventilation system isolation of mailroom, lobby, loading dock and other high risk areas.
- Central air handling unit to pressurize and deliver filtered air to the building.

FILTRATION SYSTEM CAPABILITIES & OPTIONS

Current capabilities and options include:

- Filtration system with building pressurization
- No pressurization (Shelter-In-Place)
- Airlocks (single stage or two stage)
- Defining building envelope boundary
- Building envelope pressure and leakage testing
- HEPA filter to remove particulates of biological and radiological agents
- Activated carbon adsorber to remove chemical agents.

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