

# Blower Door Testing a Building

Blower door (pressure) testing is the primary way to quantify the amount of unwanted outside air that enters a building. This test is often accompanied by diagnostic tests that locate leak pathways through the building so it can more thoroughly be sealed. Sealing is an economical way to reduce the volume of clean, filtered air introduced into a building that is needed to protect inhabitants from externally released CBR agents. See the "CBR Protection for Buildings" glossy handout for more information. Other benefits of sealing a building include significant energy savings and reduced mold formation on interior surfaces. Mold can negatively impact inhabitant's health and troop readiness.



## BACKGROUND

Protective Design Center's expertise includes defining the building's air barrier perimeter and blower door testing the perimeter to locate and minimize leaks.

PDC has performed blower door tests on over 300 buildings over for the past 15 years. In over 150 of these buildings, the PDC has been responsible for creating over overpressurized or shelter-in-place areas within buildings. These buildings are both CONUS and OCONUS. Customers for blower door tests include DoD and other federal agencies.

PDC has blower door tested offices, barracks, hospitals, child/adult daycares, elderly care facilities, schools, detention centers, gymnasiums and homes.



## BLOWER DOOR TESTING CONSIDERATIONS

In preparation of a blower door test the building's air barrier perimeter is defined and its surface area calculated. This perimeter consists of all 6 building surfaces, i.e. four walls the roof and the floor.

- Building areas typically excluded from the test perimeter include ventilated attics, crawlspaces, and mechanical rooms.
- All air moving devices within and immediately surrounding the perimeter are de-energized in preparation of the test.
- Diagnostic testing to find leaks typically consists of infrared thermography, but can also include visual inspection, feel tests, and fog tests.
- Blower door testing is performed only when it's not raining and when no snow is on the roof.
- Blower door testing is performed only under low wind speed (less than 15 mph) conditions.
- Multiple blower door fans can be used together to measure airflows through larger building perimeters. Depending on the manufacturer, a single fan is capable of flowing up to 8000 cfm.
- Larger buildings may need to be blower door tested in sections, with the leakage results from all sections summed.
- To minimize disruption to building inhabitants normal activities, blower door and diagnostic testing is usually performed during non-working hours.

## POINTS OF CONTACT

U.S. Army Corps of Engineers  
Protective Design Center

### Telephone:

Mr. Curt Betts, Chief, PDC	402-995-2376
Mr. Ken Christenson, Mechanical Engineer	402-995-2361
Mr. Don Dittus, Mechanical Engineer	402-995-2364

### Internet:

Web Page: <https://pdc.usace.army.mil>  
email: [kendall.g.christenson@usace.army.mil](mailto:kendall.g.christenson@usace.army.mil)  
[donald.c.dittus@usace.army.mil](mailto:donald.c.dittus@usace.army.mil)



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