

# Blower Door Usage during COVID-19

## A position statement by Building Performance Association

Many people have been wondering about the wisdom of conducting blower door tests in the time of COVID-19. The Building Performance Association takes the following position regarding performing blower door tests in single-family detached homes:

### **Background:**

- It is assumed that workers/firms have done their due diligence to ascertain whether anyone in the home is currently infected. (Note: this has no impact on the merits of doing the blower door test, but it should be given when we go into homes.)
- Multiple organizations, including the CDC and ASHRAE, have published the position that increasing ventilation is a benefit.
- The viability of the virus on surfaces ranges from a few hours up to a few days depending on the surface.
- Therefore, the primary concern relates to homes in which someone is asymptomatic but is shedding the virus. In this case, there will likely be virus in the air where it can survive for up to a few hours, and there may be virus on surfaces.
  - In the case of airborne virus, ventilation can help.
  - While there are very few data on resuspension of surface particles of a size that may contain the virus, studies on the effects of walking on particle resuspension show that particles in that size range resuspend one to two orders of magnitude LOWER (1-10%) of the level of larger particles.

The blower door can be seen as an opportunity to increase ventilation. Therefore, operating the blower door should be expected to lower concentrations of all indoor contaminants.

While significant resuspension is unlikely, if the velocity of air across surfaces is sufficient to resuspend particles, these particles should make their way to and out the fan.

### **Blower Door-Assisted Purge**

It is SUGGESTED that the blower door be operated as soon as possible following arrival. Depressurization mode is preferred. Good practice is to have the resident open up windows in several rooms, and then run the blower door at maximum flow for about 2-4 minutes\*. This should effectively make the indoor air equivalent to outdoor air regarding contaminant levels. Do NOT have anyone directly in the airflow pathway through the blower door.

### **Blower Door Diagnostics**

Following this “purge”, the blower door test can be done at any time.

### **Sample Calculations**

\* Consider a 1500 square foot home with 8 ft ceilings. Volume =  $1500 * 8 = 12000$  cubic feet. Assume a blower door can move 6000 cubic feet per minute. Then,  $12000/6000 = 2$  minutes to replace all of the air of the house with outdoor air.

\* If the house was twice as big (3000 square feet) then the volume would be 24000 cubic feet. Then,  $24000/6000 = 4$  minutes to purge the house air.