Combustion Appliance Zone (CAZ) Depressurization Testing

The information provided in this CAZ Quick Guide is intended to assist technicans performing CAZ depressurization testing meeting the minimum requirements of the Building Performance Institute ANSI/BPI-1200-S-2017 standard. The content in this guide is not exhaustive and may not cover all possible scenarios or considerations related to CAZ depressurization testing. Users of this guide should always consult program policies for guidance and recommendations specific to their circumstances and requirements. NREL reserves the right to make changes to this guide.

Step 1: Configure the Home

- Ensure combustion appliances are off or in standby mode.
- Make sure solid fuel stoves or fireplaces are not in use (e.g., no hot coals).
- Turn off all exhaust fans and forced air heating/cooling fans.
- Check dryer filters and clear any vent termination blockage.
- Close exterior windows and doors.
- Close all CAZ doors.
- Close fireplace dampers and doors.
- Interior door positioning:
  - Close all interior room doors without a central forced air return vent or exhaust fan.
  - Ensure all interior room doors with a return air grill or exhaust fan are open.

BPI 1200-S-2017 Reference

7.9.1,
7.9.1.1,
7.9.1.2,
7.9.1.3,
7.9.1.4

Step 2: Configure the digital pressure gauge and record the baseline CAZ pressure. Indicate if baseline feature was used Yes ☐ No ☐

CAZ Pressure Reading

- The gauge should be configured to measure the CAZ pressure with reference to the outside for each step (See Image 1 and Image 2). Make sure the pressure hose to outdoors is not constricted.
- Use the baseline feature of your digital gauge according to manufacturer specifications to adjust for weather and building conditions. Note: If not using baseline feature of the gauge, you will need to manually subtract the baseline reading during Steps 3-6.

BPI 1200-S-2017 Reference

7.9.1.5

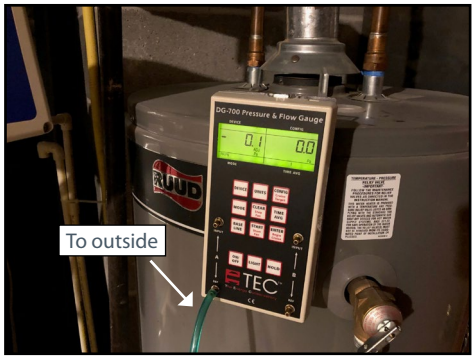

Image 1. Hose configuration when gauge is located inside the CAZ.
Photo by Cory Chovanec, NREL

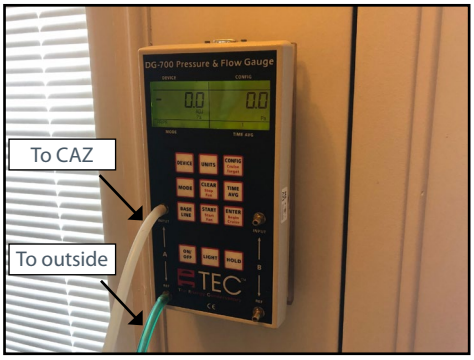

Image 2. Hose configuration when gauge is located outside the CAZ.
Photo by Cory Chovanec, NREL

CAZ Pressure Reading

Step 3: Turn on all exhaust appliances and record the pressure

- Turn on all bathroom fans, kitchen fans, and dryers. Do not turn on whole-house fans. Exhaust fans should be set to the highest setting.
  Note: If appliances such as Category III power vented water heaters or Category 4 systems that take their combustion air from the CAZ (e.g., no intake air pipe to outdoors) are present, turn them on if required by your program, as they can contribute to CAZ depressurization.

BPI 1200-S-2017 Reference
7.9.1.6,
7.9.1.7

Step 4: Turn on any central forced air system blower fans and record the pressure

- Turn on the air handler fan; if equipped, use the "Fan On" option at the thermostat.
- If the thermostat is not equipped with fan-only operation, place the forced air system in the mode with the highest air flow.
- If the CAZ pressure becomes more negative with central fan on, leave the fan on.
- If the CAZ pressure becomes more positive, turn the fan off before continuing to Step 5.

BPI 1200-S-2017 Reference
7.9.1.8,
7.9.1.8.1,
7.9.1.8.2

Step 5: Open the CAZ door/s and record the pressure

- If the CAZ pressure becomes more negative, leave the CAZ door/s open.
- If the CAZ pressure becomes more positive, close the CAZ door/s.

BPI 1200-S-2017 Reference
7.9.1.9,
7.9.1.9.1

Step 6: Record the greatest CAZ depressurization achievable

- With the CAZ configured in the most depressurized condition possible, continue to spillage and carbon monoxide testing, starting with the smallest BTUh-rated appliance. Test natural draft appliances for spillage (Image 3) and measure undiluted flue gas carbon monoxide (Image 4) according to your agency protocols, in alignment with the BPI-1200-S-2017 standard.

BPI 1200-S-2017 Reference
7.9.1

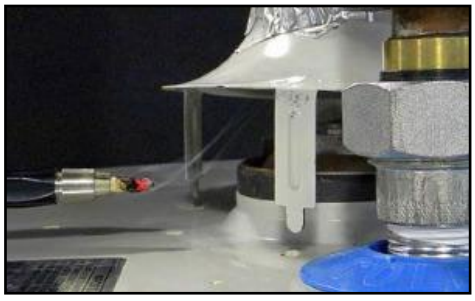

Image 3. Technician checking for combustion gas spillage with a smoke pen after performing the steps outlined above.
Photo from Building America Solution Center

Image 4. Technician measuring undiluted carbon monoxide with a combustion analyzer after performing the steps outlined above.
Photo by Cory Chovanec, NREL

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