Adjusting the Bypass Hand Damper:

Before adjusting the hand damper, the installer should confirm the following:

1. The zone system and all zone dampers are functioning properly.
2. The HVAC System is functioning properly in highest (CFM) speed.
3. Make sure all zone dampers are open and the Barometric or Electronic Bypass Damper is fully closed.
4. Make sure the air filter is new or clean.

See Figure 2:
EXAMPLE - Measure the HVAC system Differential Pressure (Delta P) with all zones calling and the bypass fully closed.
1. Measure the static pressure at the Supply Plenum (0.16"wc)
2. Measure the static pressure at the Return Plenum (-0.35"wc)
3. Observe the Delta P readout on the Manometer. (0.51"wc)
4. Or solve for Delta P = 0.16 - (-0.35) = 0.51"wc (Delta P Target to Match)

See Figure 3:
EXAMPLE - Measure the HVAC system Differential Pressure (Delta P) in the worst case scenario (smallest zone calling and all other zones closed). Bypass damper is forced open and the Hand damper is open.
1. Measure the static pressure at the Supply Plenum (0.29"wc)
2. Measure the static pressure at the Return Plenum (-0.15"wc)
3. Observe the Delta P readout on the Manometer. (0.44"wc)
4. Or solve for Delta P = 0.29 - (-0.15) = 0.44"wc Delta P (NO MATCH)

Adjust the Hand Damper (towards the closed position) and keep adjusting until the Delta P readout on the Manometer reads the same or close to the 0.51"wc target above.

EXAMPLE - Measure again.
1. Measure the static pressure at the Supply Plenum (0.22"wc)
2. Measure the static pressure at the Return Plenum (-0.29"wc)
3. Observe the Delta P readout on the Manometer. (0.51"wc)
4. Or solve for Delta P = 0.22 - (-0.29) = 0.51"wc Delta P (Matches Target)

You are finished. Lock the Hand Damper in place. Release all forced Zone dampers and place the Zone system and Thermostats back to normal operation.

NOTE: Values provided above are examples only. Your actual pressure readings will vary, but the procedure will always be the same.
**STEP 1:** Place the system into single zone scenario. (All zones are calling and the bypass is closed). If necessary, use the hand damper to close-off the bypass completely. Observe the Total ESP value at the bottom of the Manometer or do the math yourself. Record the value. That value is now the target.

\[
P_1 = 0.16 \\
N_2 = -0.35 \\
0.16 - (-0.35) = 0.51''wc
\]

**STEP 2:** Place the system into worst case scenario. (Smallest zone calling, all other zones closed). Force the bypass damper to the full open position & open the hand damper as well. Start closing the bypass hand damper until the Delta P value matches the target value obtained in Step #1. When finished, lock it down and place the system back to normal operation.

\[
P_1 = 0.21 \\
P_2 = -0.30 \\
0.21 - (-0.30) = 0.51''wc
\]