FLŌ ENERGY SOLUTIONS	Technical Guide	AF-GEN-01
Title:	Generic Air Balancing Guide	

Overview

After a Flō unit is installed on a customer site that doesn't Flō standard controller, the outdoor air damper and supply fan must be configured to ensure the unit's airflow and make-up air requirements are achieved.

Supply Fan Balance

To complete the Supply Fan Balance, the dampers will need to be overridden to allow for VFD configuration of the specified total air flow.

1. Override Dampers to the following percent
    a. OAD to – 0%
    b. RAD to – 100%
    c. BAD to – Min Percent (Default 30%)
    d. Supply Fan to – 100%

2. Adjusting the Supply Fan on the VFD

    a. Measure Current Supply CFM. If good go to step 3. If you need to adjust the CFM continue with steps b-g.
    b. Pull SF-R1 (Supply Fan Relay).
    c. Wait until the fan ramps down.
    d. Use the DOWN ARROW key to navigate to drive parameters. The drive will show either PAR (J1000 or V1000) or Programming (A1000 or Z1000). Press the ENTER key once. The first parameter shown is A1-01, and the "A" will be flashing. Use the UP ARROR key to change the "A" to "H." Press the RIGHT ARROW/RESET key to select the number next to "H." Change the now flashing "1" to "3." Press the RIGHT ARROW/RESET key once again, and the "0" will be flashing. Leave the "0" as is. Press the RIGHT ARROW/RESET key for the final time, and the "1" will be flashing. Using the UP-ARROW key, change the "1" to "3". H3-03 should be displayed on the screen. Press the ENTER key.
    e. H3-03 Upper Limit Frequency (100%=60Hz See chart below for Reference)

YASKAWA VFD UPPER LIMIT FREQUENCY REFERENCE

Hertz Setting	Speed %	Hertz Setting	Speed %	Hertz Setting	Speed %	Hertz Setting	Speed %	Hertz Setting	Speed %	Hertz Setting	Speed %	Hertz Setting	Speed %
60	100.0	55	91.7	49	81.7	43	71.7	37	61.7	31	51.7	25	41.7
59	98.3	54	90.0	48	80.0	42	70.0	36	60.0	30	50.0	24	40.0
58	96.7	53	88.3	47	78.3	41	68.3	35	58.3	29	48.3	23	38.3
57	95.0	52	86.7	46	76.7	40	66.7	34	56.7	28	46.7	22	36.7
56	93.3	51	85.0	45	75.0	39	65.0	33	55.0	27	45.0	21	35.0
		50	83.3	44	73.3	38	63.3	32	53.3	26	43.3	20	33.3

    f. Press ENTER key to save the changes. Use the ESC key to return to the display that shows the operating drive frequency
    g. Press the RUN key on the VFD. If the CFM is correct now go to step 4. If speed still not right do step 3 again.

3. Once the VFD has been set, remove overrides.

Outdoor Air Damper (OAD) Balance

To complete the OAD Balance, the RAD & BAD dampers will need to be overridden. The OAD position can then be adjusted to set the specified outdoor air flow.

1. Override Dampers to the following percent
    a. RAD to – Max Occupied Percent (Default 60%)
    b. BAD to – Min Percent (Default 30%)

2. Adjust the OAD Input Value(s) until the desired outdoor air flow is achieved.
    a. No CO2 sensor OAD Input Value is the only value to set. Move to next step 3. If CO2 sensor continue to step b.
    b. If CO2 Sensor the OAD input Value should be set to the desired outdoor air flow when CO2 level is below the Min CO2 level (Default 800ppm). There is a second value that needs to be set which is the Incremental CO2 OAD Position% (Default 20%). This amount will be added to the OAD input value on a linear scale as the CO2 level increases to the Max CO2 level (Default 1000). With both values added together the unit should be at the desired total CFM.

3. Once the OAD position is set, remove the overrides.