

HVAC In-duct Air Balancing Dampers

Suggested Specification - Minimum Version

The contractor shall provide in-duct air balancing dampers in primary and branch zones as scheduled and/or shown on the drawings, and at any location logically necessary to facilitate a well balanced, and properly functioning duct system. To minimize air noise concerns, balancing dampers shall be located as far upstream as possible from room outlets.

All balancing dampers that are inaccessible for adjustment, such as those located above hard ceilings or isolated by other mechanical systems including other ductwork, plumbing and fire main piping, electrical conduit and cable raceways, etc., shall be provided with an approved means for remote adjustment. Ceiling access doors for balancing damper access above hard ceilings shall not be allowed at any location without prior approval of the Architect. The damper adjustment mechanism shall be the wireless controlled ZipSet System as described at www.zipset.net or approved equal. The actuator-controller shall have a built-in test mechanism that will minimally verify the electrical continuity and physical integrity of the damper/actuator installation prior to installing the ceiling panels.

When specified or appropriate, balancing damper adjustments shall be from Multi Input Panel(s) similar and equal to that detailed at www.zipset.net. The MIP(s) shall allow for local or wireless remote setting of the dampers and shall be logically located in utility, electrical or mechanical equipment rooms as indicated on the contract drawings. Easily extendable power/signal cables up to 150 feet shall be provided as needed. Any mechanical, twist or push-pull cable systems shall not have cable lengths in excess of six feet.

Suggested Specification - Full Version - Add to above paragraphs...

Electrically driven actuators shall operate on 24 volts AC/DC or less. All above-ceiling, enclosures, cables, etc., shall, where required by specification and/or governing building codes, be plenum-rated with flammability resistance as detailed in UL 94-5A and NFPA 262 as outlined in NFPA 90A. Care shall be taken by the contractor during damper installation to insure free movement of balancing damper blades and linkage prior to mounting any motorized actuators. The dampers shall be free of construction debris, insulation, or carelessly installed screws that might impede proper operation.

Duct mounted, **single blade** balancing dampers above 12 inches in height or 3.0 sq-ft total area shall not be allowed. Balancing dampers over 12 inches in height or 3.0 sq-ft total area shall be multi-blade with opposed blade linkage, with a minimum 3/8 inch drive shaft. Damper frame and blade construction shall be a minimum of roll-formed, v-groove 20 gage for all balancing dampers up to 4 sq-ft and roll-formed 18 ga hat section, channel frame and v-groove blades from 4 to 8 sq-ft. Aluminum or stainless steel material shall govern where specified or logically appropriate for the application or environment.

To facilitate the balancing phase, and to the benefit of the owner/occupant should later damper adjustments be needed, provide a simple, consistent and easily discernible method of identifying the inaccessible balancing dampers after the ceiling panels are installed. The tagging must be clearly transferred from the "as built" shop drawings to each damper's Ceiling Receptacle or Multi Input Panel address. A suggested system is described at www.zipset.net.