Why Specify the ZipSet System?

In commercial environments, air balancing ensures that the actual airflow at each diffuser matches the design specifications set by the engineer, which is critical for maintaining pressurized zones and indoor air quality. Without precise balancing, buildings often suffer from "hot and cold spots," whistling at the registers due to excessive static pressure, and—most importantly—massive energy waste as the HVAC system overcompensates for uneven distribution

Given the importance of proper air balancing, hard or inaccessible ceilings create a classic problem for both the mechanical engineer, the architect, and the installing contractor. While the physical act of installing a volume damper takes very little time, the complexity and coordination required to balance volume dampers located in rooms with drywall, plaster, wood, metal, or high ceilings is problematic.

This analysis is designed to help mechanical engineers and specifiers choose the appropriate technology for "hard" ceiling applications where traditional access doors are not feasible or desired. It highlights the functional differences when these systems are challenged by 6-foot branch runs and flexible duct transitions.

Technical Performance Breakdown

The Problems with cable operated systems:

- Difficult and time-consuming to install – adds to labor cost
- Cable systems are difficult to accurately balance
- Cable hysteresis – turning the cable creates lag and binding
- Cable systems do not work well with flexible duct
- Cable systems increase internal drag and parasitic static pressure
- Cable reach is limited or requires cable cutting
- Cables obstruct airflow which results in higher system energy cost

The Advantages of the Zipset operated systems:

- The ZipSet is quicker and easier to install – saves hours in labor cost
- Air balancing is more exact – no cable lag to overcome
- The ZipSet requires less time to balance the damper.
- Reach is not a problem with the ZipSet – never need to cut cables that are too long and can be extended to reach up to 150 feet.
- ZipSet actuators are located out of the airstream. Damper pressure loss and turbulence is minimized.

Specify ZipSet When:

Aesthetics are Critical: You want zero visible ceiling/wall ports. Operation is done through the diffuser neck or at a remote panel located in a mechanical room or closet.

Complex Duct Routing: The branch run has multiple turns that would cause a cable to bind during balancing

Speed of TAB (Balancing): The project has a high density of dampers, and the labor savings for the balancing contractor will be significant.

High-Performance Airflow: You need better linear performance and a lower noise profile at the volume damper. Bowtie radial blade type dampers should not be allowed due to their high pressure drop when wide open.

High Ceilings: Dampers located in high ceiling areas can be balanced at floor level

Underfloor Plenums: ZipSets do not require access doors for balancing

High Security Areas: Dampers located above ligature resistant air devices can be balanced from low-risk areas.

Flex Duct Issues: When you wish to avoid locating a cable operated volume damper in flexible duct because of pressure loss and/or increased drag on airflow.

Rectangular Duct: ZipSets are suitable for use with rectangular or round duct.