Select DOAS, Ceiling Radiant Cooling Panel-Chilled Beam Projects.
Updated 9/23/2008
Classroom Building-1, PA
Classroom Building-2, PA
Classroom Building-2, PA
DOAS-Chilled Ceiling
Classroom Building-3, PA
Classroom Building-3, PA
DOAS-Chilled Beam
Original campus building during renovation into administrations use
Active chilled beam system during construction
The active chilled beam solved 4 problems in this renovated building:
1. Allowed year-round use of the building by providing cooling and ventilation air,
2. Avoided HVAC equipment setting on the ground outside,
3. Ductwork fit in this older building,
4. Provided multi-zone / multi-use control.
Active chilled beam panels before ceiling installation. Primary air introduced in insulated duct. Chilled water piping insulated with Armaflex.
The chilled beam panel can be mounted and connected during rough-in. And the chilled beam / coil and grilles can be installed anytime later – such as after the ceiling is installed and the space is clean.
DOAS main air handler was located in the attic. Shown is the supply ducts providing ventilation air to the chilled beams. Relatively small main duct. Also small 4” and 5” duct branches to the beams.
Active chilled beam after construction.
Active chilled beams after construction
Close-up view of the chilled beam grilles. This chilled beam panel has 2 primary air slots – providing ventilation air to the space.
Municipal Bldg, Denver
Municipal Bldg, Denver

Max points, 272: VAV 53%, DOAS-Rad 90%

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<tbody>
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<td>FCU w/ DOAS</td>
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<td>7/35</td>
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- Category Feature rating/score
- System performance in a category (i.e. 1st cost) rating 1-8 (8 Best): i.e. FCUw/ DOAS meeting 1st cost earns a 7
- Importance weighting of a category 1-5 (5 most important)
- Score: in a cell: product of importance weighting and system performance. i.e. for CRCP-DOAS in the category of Op $, the score is 4*8=32

Conventional VAV 145 pts: DOAS-Rad 254 pts
Hospital, NY
Technical Project, NH
Technical Project, NH.
Jr. High School in PA. DX DOAS roof mounted visible.
Jr. High School in PA. DX DOAS with FCUs. A retrofit from Unit Ventilators. 
Jr. High School in PA. DX DOAS ceiling supply with cabinet FCUs.

Jr. High School in PA. Chiller for FCUs.
Jr. High School in PA. DX DOAS roof mounted visible.

DX DOAS, Installed in 2002

Photo: Courtesy Rob Christensen, PE of C C Engineering, Inc., & Linnwood Elementary school in Lafayette, Indiana.
The ventilation air supply and return were ducted overhead in the building attic space to ceiling diffusers in each classroom, office, workroom, and toilet room. Classroom unit ventilator outside air dampers were closed, actuators removed, and outside air louver blanked off and sealed.
The Linnwood Elementary pilot project was such a success that the DOAS design was implemented throughout the rest of the facility and another elementary school, Glen Acres, in 2004. The director of facilities has since required DOAS be included in the design of Sunnyside Middle School Expansion & Renovation and the addition of a performing arts wing to Jefferson High School.