



Project Case History

Tacoma Housing Authority: Vent system rerouted to rid apartments of exhaust fumes

Contractor insists on Tjernlund modulating draft inducer for multi-boiler 5-story vent termination

After remodeling the five story E. B. Wilson apartment building in Tacoma, Washington, the Tacoma Housing Authority faced a major problem. Flue gases from two new boilers, installed during the renovation, were being direct vented out the side wall and sucked into six adjacent apartment units through windows and a ventilation system. The apartments were unlivable and unrentable. The Authority's engineers came up with a solution: reroute the venting vertically within the five-story building, through the roof and use a variable-speed mechanical exhaust fan at the termination.

When the problem was first discovered, the Tacoma Authority called Bill Crandell, owner and lead technician for Burner & Control Services of Tacoma, for advice. There were two 992,000 BTU/hr. Raypak boilers—one for domestic water and the other for heating. The 10" flue outlets were stacked one above the other and were 20 inches from the wall.

According to Crandell, who has more than 30 years of experience correcting boiler problems, he agreed the draft sensitive power burners were unable to generate enough exhaust velocity to push the flue gases far enough away from the building. The best solution was to route a 12 inch diameter vent pipe



The E. B. Wilson apartment building had its venting system for boilers rerouted from sidewall to roof to eliminate exhaust fumes entering apartments making them unlivable.

vertically inside the building and through the roof using a variable speed draft inducer at the termination to maintain proper draft.

When he returned to review the plans and specifications, Crandell saw another potential problem. The specifications called out a brand of exhauster that he was very familiar with.

"I told them I would only be interested in doing the job if Tjernlund equipment was used," said Crandell. "I recommended the Tjernlund product because I had very poor experiences with their competitor. In fact, when I walk into the motor rebuild shop with a motor from the other brand in hand, the

person behind the counter can identify what equipment it came from before I get to the

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Above: Contractor Bill Crandell
Right: Tjernlund VSAD AutoDraft® Inducer installed on roof of E. B. Wilson apartment building.



counter.

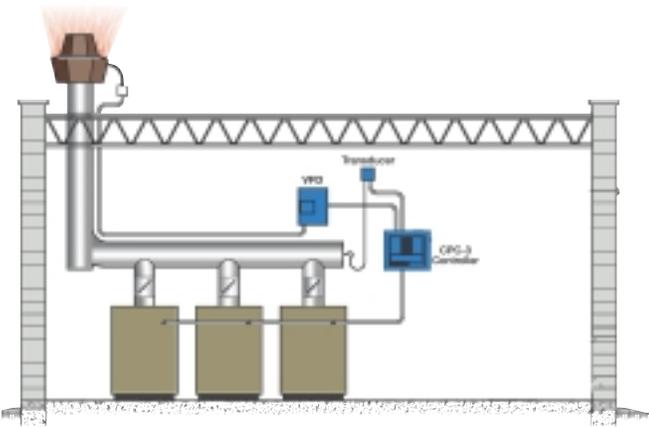
"What also stood out in my mind was the idea of having equipment with standard motors that we could get from the motor shops and not be stranded with a particular vendor's decision on what they were going to do with their proprietary motors and price structure," said Crandell.



As two boilers operate at different times, the CPC-3 Constant Pressure Controller and VFD installed in mechanical room function as the system brains to control inducer speed.

Crandell was successful in having the specified draft inducer changed to Tjernlund's Model VSAD10 with a CPC-3 controller. The package also included a matched VFD, TD-2 Transducer, Roof Mounting Kit and two ABD-10 balancing baffles.

Crandell is impressed with Tjernlund's modulating draft inducers. "Particularly in multi-appliance scenarios like we had on the Housing Authority project. They can pick up the draft of one or both units and automatically compensate for different firing rates of each unit." Crandell is also bidding combustion air jobs using Tjernlund's variable speed Universal Blowers.



Typical multi-appliance vent configuration using a Tjernlund modulating inducer.

More about patented Tjernlund VSAD-Series Auto-Draft® Inducers

Auto-Draft Inducers mount directly on top of a vertical vent/chimney or directly on an outside wall for side wall vented applications. They are coated with Ryton® PPS and are suitable for condensing flue gas applications.

■ Critical for low/no speed operation is a patented motor cooling system that uses a thermostatically activated cooling fan that operates independent of the inducer motor. In traditional variable speed inducers, motor cooling decreases with a reduction in RPM.

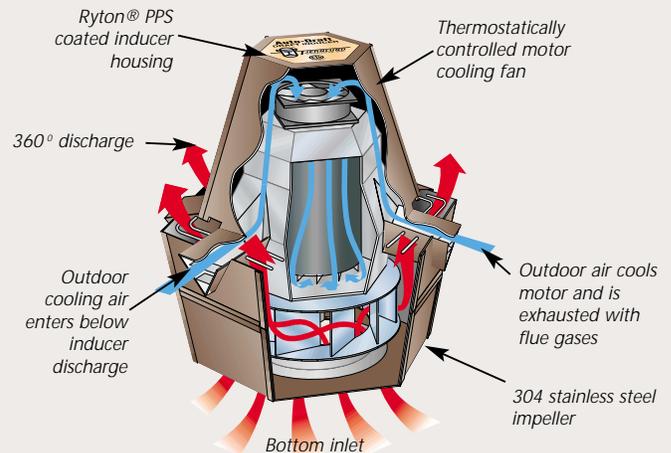


■ Auto-Draft Inducers also feature a hinged housing for easy blower wheel access. Opening the hinged housing automatically disables the inducer and all interlocked burners. The hinge pin is removable so that the mounting base can be separated from the motor/wheel assembly, dramatically simplifying installation and service.

■ VSAD-Series available in 3 sizes up to 3000 CFM.

■ Available in 230 VAC single or three phase, 460 VAC three phase.

■ Fixed Speed FSAD-Series models available up to 2500 CFM.



TJERNLUND PRODUCTS, INC.

1601 Ninth Street White Bear Lake, MN 55110-6794

Phone: 651.426.2993 800.255.4208 Fax: 651.426.9547

Visit our web site: www.tjernlund.com