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**Short Memo on Modulating DOAS code change proposal for 2028
Title24**

Additional submitted attachment is included below.



To: CA Energy Commission, Building Efficiency Standards Div.
From: Jonathan Heller, President, Ecotope Inc.
Subject: Docket 25-BSTD-03: Comment on 2028 Title 24
Date: April 27, 2026

I am mechanical engineer with 40 years of experience in the building energy efficiency field. I was the lead author of the 2018 WA State Energy Code code change proposal to require high efficiency DOAS designs. I have several concerns regarding the proposed Modulating DOAS code change proposal for 2028 CA code.

The 2018 WSEC proposal was based on Ecotope's design approach which we call "Design for Off". The basic tenets of this approach are:

1. Separate the ventilation air from the heating/cooling system delivery.
2. Deliver ventilation with a high performance HRV or ERV (low fan energy and high thermal effectiveness) – typically with no tempering of the ventilation air.
3. Provide all heating and cooling with a system that has zonal control that can be turned off when there is no call for heating or cooling.

With this approach we deliver buildings that use 50% less energy than traditional design approaches while saving capital cost of the HVAC system. See [Rice Fergus Miller Office and Studio: Bremerton, WA](#)

The reason that this approach is so efficient is that with a well-insulated envelope in a relatively mild climate (most of WA State and CA), ventilation drives the primary heating load, fan energy drives a very large fraction of overall HVAC energy, and zoning and controls causing simultaneous heating and cooling frequently leads to high levels of unnecessary energy use. By separating the ventilation completely, the HRV fan (which is moving a small fraction of the air needed for the heating and cooling system) is the only energy needed for HVAC for much of the year. The zoned heating and cooling only needs to come on to satisfy individual zone loads when called. This is a simple, efficient, and inexpensive design approach that can serve most commercial building types well.

The current Title24 Modulating DOAS proposal has several problems:

- 1) It allows the ventilation air to be delivered to the return air duct of the heating and cooling system (Submeasure C). This defeats the purpose of separating the ventilation from the heating and cooling since now the heating and cooling fans will have to run continuously to distribute the ventilation air. Now you have two fan systems running all the time instead of one much smaller fan system.

- 2) Tempering the ventilation air to 55F (Submeasure D). This adds significant unnecessary cost to the system. With ventilation provided by an HRV system with high thermal effectiveness the ventilation air enters as “neutral air” with very little impact on the humidity or thermal conditioning load. Let the ventilation system provide ventilation and let the heating/cooling system address the moisture and thermal loads.
- 3) Per-zone air valve controls (Submeasure A). Again, this adds significant unnecessary cost to the system. The only zones that need air valve controls are zones with widely varying occupancy (schedule and # occupants) such as conference rooms. Otherwise the ventilation fans should be controlled from simple DCV sensors and time clock schedule.

I therefore recommend:

- 1) Remove Submeasures C and D.
- 2) Look to WSEC for guidance on ventilation isolation areas rather than requiring per-zone air valves everywhere.