DOCKETED

Docket Number:	17-BSTD-01
Project Title:	2019 Building Energy Efficiency Standards PreRulemaking
TN #:	217493
Document Title:	Combined Intake & Exhaust Terminations
Description:	This comment addresses a pending conflict between the 2019 BEES and the California Residential Code related to combined intake and exhaust terminations used for outdoor air ventilation. Coordination is needed across codes to reduce first costs of ventilation systems while maintaining acceptable IAQ.
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Submission Date:	5/9/2017 7:27:11 AM
Docketed Date:	5/9/2017

NEWPORT VENTURES

May 9, 2017

California Energy Commission
1516 Ninth Street, MS-34
Sacramento, CA 95814

Re: Docket 17-BSTD-01, Combined Intake & Exhaust Terminations

Dear CEC Staff and CASE Initiative Team:

This comment addresses a pending conflict between the 2019 BEES and the California Residential Code related to combined intake and exhaust terminations used for outdoor air ventilation. Coordination is needed across codes to reduce first costs of ventilation systems while maintaining acceptable IAQ.

Within the 2019 update of BEES, CEC has proposed to adopt ASHRAE 62.2-2016. Unlike legacy codes and standards, which require a minimum separation distance between intake and exhaust openings, ASHRAE 62.2-2016 provides an exception to Section 6.8 that permits the specification of combined exhaust/intake openings as follows:

> *"Where a combined exhaust/intake termination is used to separate intake air from exhaust air originating in a living space other than kitchens, no minimum separation distance between these two openings is required. For these combined terminations, the exhaust air concentration within the intake airflow shall not exceed 10%, as established by the manufacturer."*

This change was adopted by the 62.2 committee to help reduce installed costs for balanced systems while still maintaining standards for minimum acceptable indoor air quality. The exception is especially important for multifamily dwelling units where it can be difficult to achieve the separation distance between supply and exhaust streams that is otherwise required by the residential code. Combined exhaust/supply terminations are regularly specified and provided with balanced ventilation systems in single family and multifamily dwelling units across the country. Their use reduces building penetrations, labor, and associated system costs. By reducing the number of penetrations, air leakage can also be reduced, resulting in space conditioning energy savings. Further, the durability of the structure can be improved through reducing entry pathways for bulk water. Manufacturer tests have demonstrated that such terminations result in negligible cross-contamination of airflow. There is currently no industry standard by which to test these terminations, so ASHRAE 62.2 simply requires that their performance be verified by the manufacturer. The maximum 10% cross contamination metric was based on language in ASHRAE 62.1 that limits cross contamination of exhaust and supply streams in H/ERVs to 10% for "air with moderate contaminant concentration, mild sensory-irritation intensity, or mildly offensive odors".

If adopted by California, Section 6.8 of ASHRAE 62.2-2016 would represent the first step needed to approve combined exhaust/intake terminations. The other critical step is coordination with the California Residential Code, which currently prohibits combined exhaust/intake terminations. No such conflicts were identified in the California Mechanical Code, but coordination with the California Building Standards Commission is recommended for verification purposes. Because the California Residential Code is more restrictive than ASHRAE 62.2, its prohibition of combined exhaust/intake terminations would prevail. To coordinate approval for

combined exhaust/intake terminations across ASHRAE 62.2, BEES, and the California Residential Code, the following change is recommended for the California Residential Code:

R303.5.1 Intake openings. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) from any hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks. For the purpose of this section, the exhaust from dwelling unit toilet rooms, bathrooms and kitchens shall not be considered as hazardous or noxious.
Exceptions:
1. The 10-foot (3048 mm) separation is not required where the intake opening is located 3 feet (914 mm) or greater below the contaminant source.
2. Vents and chimneys serving fuel-burning appliances shall be terminated in accordance with the applicable provisions of Chapters 18 and 24.
3. Clothes dryer exhaust ducts shall be terminated in accordance with Section M1502.3.
4. Combined exhaust/intake terminations shall be permitted where used to separate intake air from exhaust air originating in a living space other than kitchens, provided that the exhaust air concentration within the intake air does not exceed 10%, as established by the manufacturer.

Thank you for the opportunity to provide this comment.

Sincerely,

Mike Moore

Mike Moore, P.E.
ASHRAE 62.2 Indoor Air Quality Subcommittee Chair