



Washington State Building Code Council

Improving the built environment by promoting health, safety and welfare

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STATE BUILDING CODE INTERPRETATION NO. 18-05

CODE: 2015 Washington State Energy Code, Commercial

SECTION: C403.6 DOAS, C402.4.1.4 Increased Fenestration, C403.3 Exception 1 Economizers, and C406.6 DOAS Additional Efficiency Credit

QUESTION 1: Do mechanical systems that utilize Section C403.6 Exception 1 (natural ventilation) or Exception 2 (High-efficiency VAV) qualify as DOAS systems for the purpose of Sections C402.4.1.4, C403.3 Exception 1, or C406.6 Additional Efficiency Credit for DOAS?

ANSWER: **No. Natural ventilation systems or high-efficiency VAV systems do not qualify as a dedicated outdoor air systems per Section C403.6. Therefore, the additional fenestration allowance, the exception to airside economizer, or the Section C406.6 DOAS additional efficiency credit do not apply to these systems.**

Additionally, natural ventilation cooling systems that are provided without mechanical cooling capacity are not required to have an airside economizer and do qualify for using Exception 1 of Section C403.6. These systems do not qualify for the additional fenestration allowance or Section C406.6 DOAS additional efficiency credit.

QUESTION 2: Do mechanical systems that utilize Section C403.6.1 Exception 1 (DOAS without Energy Recovery but with DCV) or Exception 2 (Make-up air for qualifying exhaust systems) qualify as DOAS systems for the purpose of Sections C402.4.1.4, C403.3 Exception 1, or C406.6 Additional Efficiency Credit for DOAS?

ANSWER: **Yes. Section C403.6.1 Exception 1 qualifying DOAS systems that utilize demand control ventilation instead of energy recovery and provide the ventilation air in parallel with the heating and cooling system are considered DOAS. Section C403.6.1 Exception 2 qualifying make-up air systems that also comply with the exception 1 of Section C403.3 are considered DOAS. Therefore, the additional fenestration allowance, the exception to airside economizer, and the Section C406.6 DOAS additional efficiency credit would apply to these systems.**

QUESTION 3: Do mechanical systems that utilize the Exception to Section C403.6.2 qualify as DOAS systems for the purpose of Sections C402.4.1.4, C403.3 Exception 1, or C406.6 Additional Efficiency Credit for DOAS?

ANSWER: Yes.

QUESTION 4: Do mechanical systems have to provide the ventilation air directly to the occupied space in parallel with the heating and cooling system fans to qualify to utilize the Exception to Section C403.6.2.

ANSWER: No. The exception to Section C403.6.2 is silent on how the ventilation airflow needs to be delivered to the space so the ventilation air can be delivered in series or in parallel with the heating and cooling system fan. The heating and cooling system fan power must be less than 0.12 watts per cfm during deadband ventilation only operation between heating and cooling to qualify for this exception but may have higher fan power during heating and cooling modes.

The heating and cooling terminal unit must be controlled by the temperature of the zone that it serves per Section C403.2.4.1

QUESTION 5: DOAS is required at Retail areas used for the "...display and sale of merchandise..." per Interpretation 17-09. Based on this definition are food service or grocery stores required to comply with Section C403.6? Provide examples of which types of food service or grocery store areas are or are not required to comply.

ANSWER: Only food service or grocery areas where the primary use is for the display and sale of merchandise would be required to comply with Section C403.6. See below for some examples:

DOAS per Section C403.6 IS REQUIRED at areas with display and sale of food service product merchandise such as:

- a. Grocery Stores
- b. Mini-Marts Food Stores
- c. Convenience Food Stores
- d. Grab-n-Go Food Markets
- e. Food Markets
- f. Markets

DOAS per Section C403.6 IS NOT REQUIRED at food prep and food service areas such as:

- a. Restaurants
- b. Kitchens
- c. Cafes
- d. Coffee Shops
- e. Cafeteria/Dining

QUESTION 6: Is energy recovery required for all DOAS ventilation systems to comply with Section C403.6?

ANSWER: All DOAS ventilation systems that do not meet the requirements of Exception 1 or Exception 2 of Section C403.6.1 are required to have energy recovery per Section C403.6.1. Per Section C403.6.1 the energy recovery media effectiveness must meet the minimum efficiency requirements of Section C403.5.1 regardless of hours of operation and outdoor airflow volume.

QUESTION 7: Is tempering of the DOAS unit supply air allowed?

ANSWER: Yes. Section C403.6 does not restrict the tempering of the supply ventilation air from the DOAS. See Interpretation No. 17-25.

QUESTION 8: Can the Air Economizer Exception 1 of C403.3 be applied to both the DOAS ventilation unit and the heating/cooling system?

ANSWER: Yes. Exception 1 of Section C403.3 for air economizers can be applied to both the DOAS ventilation unit and the heating/cooling system terminal units where the system complies with Section C403.6 without exceptions, Section C403.6.1 or exceptions to C403.6.1, and Section C403.6.2 or exception to C403.6.2.

SUPERSEDES: None

REQUESTED BY: City of Seattle