



Washington State Building Code Council

Improving the built environment by promoting health, safety and welfare

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STATE BUILDING CODE INTERPRETATION NO. 18-06

CODE: 2015 Washington State Energy Code, Commercial

SECTIONS: *WSEC Sections* - C403.6 DOAS, C403.6.1 Energy recovery ventilation with DOAS, C403.2.6 Ventilation, C403.4.4 Requirements for mechanical systems serving multiple zones, C503.4 Mechanical systems (Alterations), C403.3 Economizers, C403.3.1 Integrated economizer control, Table C503.4 Economizer Compliance Options For Mechanical Alterations

IMC Sections - 402 Natural ventilation, 403 Mechanical ventilation, 401.3 (Ventilation) When required.

QUESTION 1: If a single DOAS serves multiple zones, is this system required to comply with the VAV requirements of Section C403.4.4?

ANSWER: If a DOAS with energy recovery meeting the effectiveness requirements of C403.5 serving multiple zones is sized to provide no greater than 150% or more than 150% (where Exception 4 of C403.2.6 is applied) of the minimum required ventilation airflow rate per Section C403.2.6 for all the zones it serves, then this system is not required to comply with the VAV requirements in Section C403.4.4 per Exceptions 4.2 or 5.1.2. There would still need to be a zonal heating and cooling system to handle the space heating and sensible cooling loads. The DOAS system airflow can only be oversized by more than 150% to handle the latent cooling requirements.

If a DOAS without energy recovery serving multiple zones is sized to provide no greater than 150% of the minimum required ventilation airflow rate per Section C403.2.6 for all the zones it serves, then this system is not required to comply with the VAV requirements in Section C403.4.4 per Exceptions 4.2 or 5.1.2.

If a DOAS without energy recovery serving multiple zones is sized to provide greater than 150% of the minimum required outdoor airflow rate per Section C403.2.6, then all applicable VAV requirements per Section C403.4.4 do apply.

See [Interpretation No. 17-25](#) for further details.

Note that Section C403.4.4 Item 5 systems that have Zones with DDC have to comply with all of the following items: 5.1, 5.2, 5.3.

QUESTION 2: For all DOAS with energy recovery, are bypass devices or controls required?

ANSWER: **No. Bypass devices or controls are only required in a DOAS with energy recovery and economizer.**

QUESTION 3: For spaces such as classroom or lecture use areas, does natural ventilation per IMC Section 402 provided in lieu of a DOAS per Section C403.6 Exception 1, satisfy the ventilation requirements of these high occupancy spaces even during periods of inclement weather and peak outdoor temperatures (summer and winter)?

ANSWER: **Yes, as long as a means of delivering natural ventilation to the occupants is provided during all occupied periods per IMC Section 401.3. See also WAC 246-366 and WAC 246-366A for additional requirements for ventilation systems in primary and secondary Washington State schools.**

QUESTION 4: In Section C503.4 Mechanical systems (Alterations) paragraph 6, are the two section references pointing to Section C403.2.6 Ventilation supposed to be referencing Section C403.6 DOAS?

*Alterations to existing mechanical cooling systems shall not decrease economizer capacity unless the system complies with either **Section C403.2.6** or C403.3. In addition, for existing mechanical cooling systems that do not comply with either **Section C403.2.6** or C403.3, including both the individual unit size limits and the total building capacity limits on units without economizer; other alterations shall comply with Table C503.4.*

ANSWER: **Yes.**

QUESTION 5: In Section C503.4 Mechanical systems (Alterations) are Exceptions 1 thru 3 limited to only mechanical retrofit projects where mechanical cooling systems are added to serve spaces that were not previously cooled?

ANSWER: **Yes. Exceptions 1 thru 3 are only available for new mechanical cooling systems serving spaces that were not previously cooled.**

QUESTION 6: When new mechanical cooling systems are added to serve spaces that were not previously cooled, if the spaces that this equipment serves are required to have a DOAS per Section C403.6, may compliance with Section C403.3 Economizer be provided in lieu of Section C403.6?

ANSWER: **Yes.**

QUESTION 7: When existing mechanical cooling equipment is replaced, if the spaces that this replacement equipment serves are required to have a DOAS per Section C403.6, may compliance with Section C403.3.1 Integrated Economizer or Table C503.4 Economizer Compliance Options For Mechanical Alterations be provided in lieu of Section C403.6?

ANSWER: Yes, however the replacement equipment can only provide compliance with Section C403.3.1 Integrated Economizer in lieu of Section C403.6 DOAS. Table C503.4 is not available for a mechanical cooling equipment replacement.

QUESTION 8: For alternations to existing mechanical cooling systems that decreases economizer capacity, but does not include equipment replacement, may compliance be demonstrated with Section C403.6 DOAS, Section C403.3 Economizer or Table C503.4 Economizer Compliance Options For Mechanical Alterations?

ANSWER: Yes.

QUESTION 9: When existing heating-only mechanical equipment is replaced, if the spaces that this replacement equipment serves are required to have a DOAS per Section C403.6, may compliance with Section C503.4 Exception 1 be provided in lieu of Section C403.6?

ANSWER: Yes. Existing heating only equipment may be replaced per the first exception in Section C503.4 without complying with Section C403.6.

SUPERSEDES: None

REQUESTED BY: City of Bellingham