

**SEALING OF JOINTS IN VENTILATION SYSTEMS DUCTWORK**

**DISCUSSION**

Sentence 9.32.3.11.(8) of the Alberta Building Code 2006 stipulates that joints in all ventilation system ducting shall be sealed with mastic, metal foil duct tape or the manufacturers' specified sealants. A number of questions have arisen concerning the application of this Article to the various types of ductwork in a single-family dwelling unit.

**CODE REFERENCES**

1. Sentence 9.32.1.2.(2) states:

**9.32.1.2. Required Ventilation**

...

2) A self-contained heating-season ventilation system serving a single *dwelling unit* shall comply with Subsection 9.32.3.

2. Sentence 9.32.3.4.(5) states:

**9.32.3.4. Ventilation Systems Used in Conjunction with Forced Air Heating Systems**

...

5) An outdoor air *supply duct* shall be installed between the outdoors and the *furnace* return air *plenum* and shall be connected

- a) not less than 3 m upstream of the *plenum* connection to the *furnace*, as measured along the length of the duct, or
- b) through an acceptable mixing device installed in the return air *plenum*.

3. Sentence 9.32.3.5.(4) states:

**9.32.3.5. Ventilation Systems Not Used in Conjunction with Forced Air Heating Systems**

...

4) The outdoor air supply fan shall be connected to the outdoors through an outdoor air *supply duct*.

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2006.

4. Sentence 9.32.3.11.(8) states:

**9.32.3.11. Ducts**

...

**8)** Joints in all ventilation system ducting shall be sealed with mastic, metal foil duct tape or the manufacturers' specified sealants.

## INTENT ANALYSIS

In addition to the requirements in the Alberta Building Code 2006, there is additional information available from the National Research Council on the intent statements for Sentence 9.32.3.11.(8).

**Intent 1:**

To limit the probability of the leakage of exhaust air, moisture and/or pollutants into the living space, or the supply or exhaust air not reaching its target destination. Moisture introduced into an unheated space could also lead to the generation of pollutants from biological growth. Occurrence of any of the above could have a negative effect on the indoor air quality and may present a health hazard to the building occupants.

**Intent 2:**

To limit the probability that leakage of humid air through duct joints could result in condensation within the building envelope and cause a deterioration of building elements, which could lead to structural failure.

## INTERPRETATION 1

**QUESTION:**

Will the requirements of Sentence 9.32.3.11.(8) only apply to the "outdoor air supply ducts" described under Sentences 9.32.3.4.(5) and 9.32.3.5.(4) as these are the ducts that bring in the necessary ventilation air from the outdoors into the building?

**ANSWER:**

No, sentence 9.32.3.11.(8). requires "joints in all ventilation system ducting" to be sealed. This is necessary so that the intended amount of ventilation air can be distributed to the various living spaces, and to avoid the introduction of moisture or other pollutants into undesirable areas from leakage through duct joints. Any ductwork that constitutes a part of the ventilation system (including all supply, exhaust and return air ducts) must be sealed for air leakage at duct joints.

## INTERPRETATION 2

**QUESTION:**

It is a common practice in the home building industry to box out joist spaces in ceiling or wall assemblies and use them as part of the return air system. Does Sentence 9.32.3.11.(8). require such spaces to be sealed as well?

**ANSWER:**

No, a boxed out joist space only serves as a transfer air plenum and is not technically considered as a duct. Mastic sealant, metal foil duct tape should only be applied to actual duct joints.

**INTERPRETATION 3****QUESTION:**

Does Sentence 9.32.3.11.(8) require the application of mastic, metal foil duct tape or other sealant along all longitudinal seams of round or rectangular sheet metal ducts ?

**ANSWER:**

No, the requirements of Sentence 9.32.3.11.(8) only apply to site assembled duct joints between two actual pieces of ducting (e.g. joints between prefabricated sections of ductwork or connections between rigid ducts and flexible duct connectors).

These INTERPRETATIONS are applicable throughout the province of Alberta.