

Ontario's Building Code

ONTARIO ONLY	PROPOSED CHANGE TO THE 2006 BUILDING CODE		
CHANGE NUMBER	E-B-06-02-01	CODE REFERENCE	Div. B 6.2.4.3.
DESCRIPTION OF PROPOSED AMENDMENT	Require sealing of joints in all supply and return ducts in dwelling units governed by Part 9.		

EXISTING 2006 BUILDING CODE PROVISION(S)

6.2.4.3. Construction and Installation of Ducts and Plenums

- (1) Rectangular panels in *plenums* and ducts more than 300 mm wide shall be shaped to provide sufficient stiffness.
- (2) Where the installation of heating *supply ducts* in walls and floors creates a space between the duct and construction material, the space shall be fire stopped with *noncombustible* material at each end.
- (3) Ducts shall be securely supported by metal hangers, straps, lugs or brackets, except that where zero clearance is permitted, wooden brackets may be used.
- (4) All round duct joints shall be tight-fitting and lapped not less than 25 mm.
- (5) Rectangular duct connections shall be made with S and drive cleats or equivalent mechanical connections.
- (6) Trunk *supply ducts* shall not be nailed directly to wood members.
- (7) Branch ducts shall be supported at suitable spacings to maintain alignment and prevent sagging.
- (8) *Combustible* ducts in concrete slabs-on-ground that are connected to a *furnace* supply *plenum* shall be located not closer than 600 mm to that *plenum* and not less than 600 mm from its connection to a riser or register.
- (9) Ducts in or beneath concrete slabs-on-ground shall be watertight, corrosion-, decay- and mildew-resistant.
- (10) Where a *supply* or *return duct* is not protected by an insulated exterior wall or where the duct is exposed to an unheated space it shall be insulated to provide a thermal resistance of not less than RSI 2.1.
- (11) Ductwork passing through unconditioned spaces shall have all joints taped or be otherwise sealed to ensure that the ducts are airtight throughout their length.
- (12) Underground ducts shall,
 - (a) be constructed and installed with a slope to provide interior drainage to all low points,
 - (b) not be connected directly to a sewer, and
 - (c) be installed and constructed of materials in conformance with ASHRAE Handbooks, SMACNA Manuals and the HRAI Digest.
- (13) A clean-out or pump-out connection shall be provided in an underground duct system at every low point of the duct system.

PROPOSED CODE CHANGE

Delete Sentence 6.2.4.3.(11) and replace as follows:

(11) Where a supply or return duct is located in an unconditioned space or outdoors, all joints of the ductwork shall be sealed to Class A level as described in the SMACNA “HVAC Duct Construction Standard – Metal and Flexible.” (See Appendix A.)

(12) Where a supply duct is located in a conditioned space, the ductwork shall be sealed to Class C level as described in the SMACNA “HVAC Duct Construction Standard – Metal and Flexible.” (See A-6.2.4.3.(11) in Appendix A.)

Note: Renumber existing remaining Sentences 6.2.4.3.(12) and (13) accordingly.

Add new Appendix Note A-6.2.3.4.(11) as follows:

A-6.2.4.3.(11) Duct Seal Levels

Seal Level	Sealing Requirements ⁽¹⁾
A	All transverse joints, longitudinal seams, and duct wall penetrations.
B	All transverse joints and longitudinal seams.
C	All transverse joints.
Column1	2

Notes to Table:

- (1) Longitudinal seams are joints oriented in the direction of airflow. Transverse joints are connections of two duct sections oriented perpendicular to airflow. Duct wall penetrations are openings made by any screw fastener, pipe, rod, or wire. Spiral lock seams in a round and flat oval duct need not be sealed. All other connections are considered transverse joints, including but not limited to spin-ins, taps, and other branch connections, access door frames and jambs, duct connections to equipment, etc.

RATIONALE FOR CHANGE

Problem / General Background

Although the Building Code requires the ductwork be installed using good engineering practice, this proposal further emphasizes the importance of air-tight ductwork. Leaky ducts will result in wasted energy and also cause the HVAC system to operate less effectively.

Justification / Explanation

The Building Code Energy Advisory Council recommended this proposed change be included. Sealed ductwork will improve energy efficiency and the effectiveness of the HVAC systems.

The Green Energy and Green Economy Act, 2009 signalled a commitment to using the Building Code to support energy priorities. That legislation amended the Building Code Act, 1992 to clarify that conservation was a “purpose” of the Code,

provided for regular reviews of the energy conservation provisions of the Code, and authorized the establishment of the Building Code Energy Advisory Council.

This potential change discussed above would support Ontario's priorities related to:

- Reducing electricity consumption in support of Ontario's Long Term Energy Plan;
- Supporting the Province's climate change strategy by reducing the amount of greenhouse gases produced by the operation of buildings, and reduce greenhouse gas emissions through energy efficiency requirements; and
- Supporting the growth of a green economy by creating a market for energy efficient and renewable energy technologies.

Cost / Benefit Implications

Some increase in capital cost but will reduce operating costs for homeowner.

Enforcement Implications

Some parts of the ductwork will require detailed inspection.

Who is Affected

Building officials, designers, builders, manufacturers and building owners.

Objective-Based Analysis

Provision	
Objective	
Functional Statement	