Builder Tip

Issue No: 19
Issued October 1996
Revised March 2015
Updated to 2012 Building Code

SUPPLY AND RETURN AIR DUCTS IN EXTERIOR WALLS

ONTARIO BUILDING CODE

9.25.2.1. Required Insulation

(1) All walls, ceilings and floors separating heated space from unheated space, the exterior air or the exterior soil shall be provided with thermal insulation in conformance with section 12.2 to prevent moisture condensation on their room side during the winter and to ensure comfortable conditions for the occupants.

9.25.2.3. Installation of Thermal Insulation

(7) Except as permitted in sentence (8), insulation and vapour barrier shall be protected from mechanical damage by a covering such as gypsum board, plywood, particleboard, OSB, waferboard or hardboard.

(8) In unfinished basements, the protection required in sentence (7) need not be provided for mineral insulation, provided it is covered with polyethylene vapour barrier of at least 0.15 mm in thickness.

9.25.3.1. Required Barrier to Air Leakage

(1) Wall, ceiling and floor assemblies that separate conditioned spaces from unconditioned spaces or from the ground shall be constructed so as to include an air barrier system that will provide a continuous barrier to air leakage,

(a) from the interior of the building into wall, floor, attic or roof spaces sufficient to prevent excessive moisture condensation in such spaces during the heating season, and

(b) from the exterior inward sufficient to prevent moisture condensation on the

(2) The continuity of the air barrier system shall extend throughout the basement.

9.25.3.3. Continuity of the Air Barrier System

(2) Where the air barrier system consists of flexible sheet material, all joints shall be,

(a) sealed with compatible material such as tape or flexible sealant, or

(b) except for sentence (3), lapped not less than 100 mm and clamped, such as between framing members, furring or blocking and rigid panels.

9.25.4.1. Required Barrier to Vapour Diffusion

(1) Thermally insulated wall, ceiling and floor assemblies shall be constructed with a vapour barrier sufficient to prevent condensation in the wall spaces, floor spaces or attic or roof spaces.

6.2.4.7. Return Air System

(1) The return air system shall be designed to handle the entire air supply.

(2) Except as provided in sentences (3) and (4), return ducts shall be constructed of material having a flame spread rating of not more than 150.

OBJECTIVE

Buildings intended for occupancy in winter months on a continuous basis must be equipped with space heating equipment capable of maintaining a minimum indoor temperature of 22°C. When mechanical systems conceal heating ducts or return air chases in exterior walls or in walls located between attached garages and the dwelling, special care must be taken during construction.

The insulating value of the wall must be maintained. The vapour barrier and the air barrier require rigorous detailing to ensure continuity. The accompanying illustration provides two alternatives; one using 2x6 wall stud cavity, the other using 2x4 wall stud cavity with an exterior rigid insulation.

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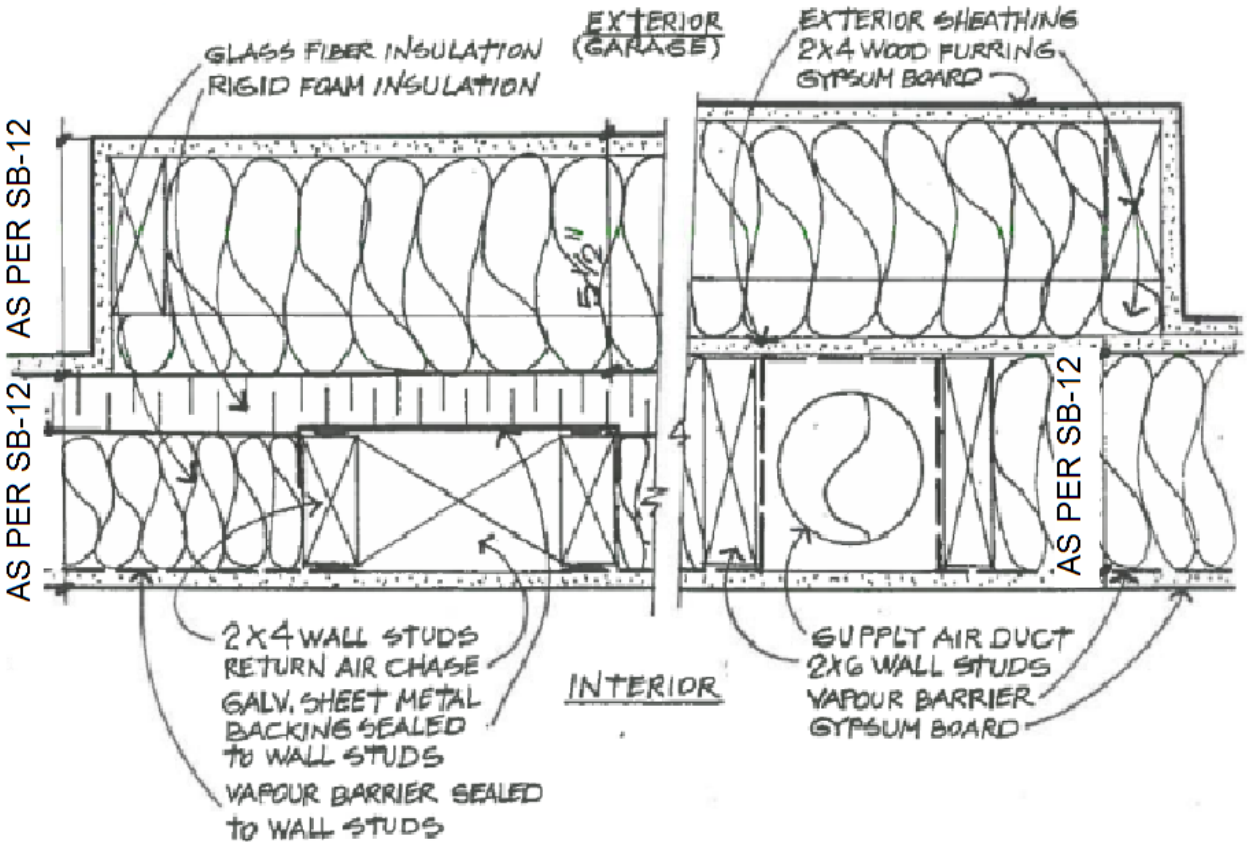

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