Builder Tip
Issue No: 19
January 1, 2025
Updated to 2024 OBC

Supply and Return Air Ducts in Exterior Walls

The Building Standards Department issues Builder Tips as part of our customer service program. They are designed to provide an improved understanding of the Building Code and to reduce the costs associated with correcting infractions. Please contact your area building inspector for further information or call the Building Standards Department at 905.475.4848 extension 2189

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 sufficient thermal insulation to prevent moisture condensation on their room side during the winter and to ensure comfortable conditions for the occupants. (See Note A-9.1.1.1.(1))

9.25.2.3. Installation of Thermal Insulation

(7) Except as permitted in Sentence (7.1), insulation and vapour barrier located in areas where it may be subject to mechanical damage shall be protected by a covering such as gypsum board, plywood, particleboard, OSB, waferboard or hardboard.

(7.1) In unfinished basements, the protection required in sentence (7) need not be provided for mineral insulation, provided it is covered with a membrane which complies with the requirements of Section 9.25.4.

9.25.3.1. Required Barrier to Air Leakage

(1) Wall, ceiling and floor assemblies that separate conditioned spaces from unconditioned space 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 or the ground inward sufficient to

(i) prevent moisture condensation on the room side during winter,

(ii) ensure comfortable conditions for the occupants, and

(iii) minimize the ingress of soil gas

(See Note A-9.25.3.1.(1))

(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 as required by Sentence (2.1), lapped not less than 100 mm and clamped, such as between framing members, furring or blocking and rigid panels.

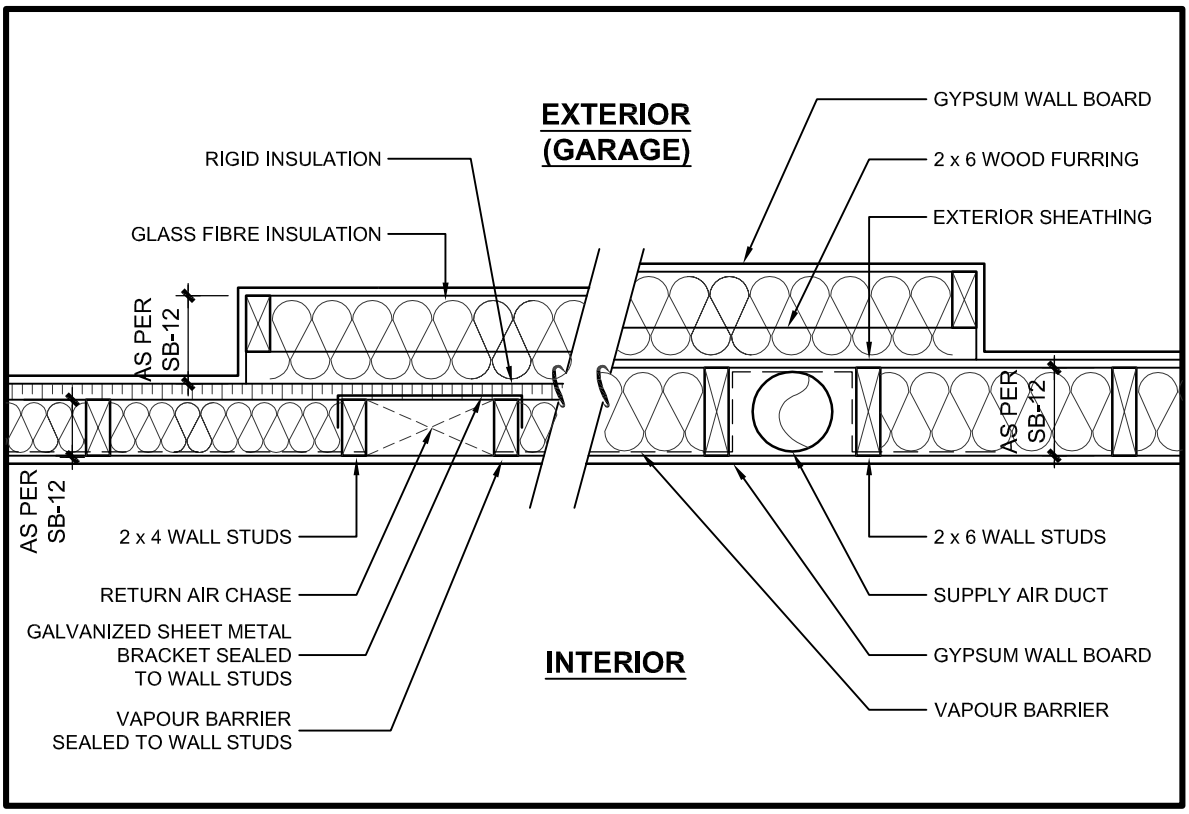
9.25.4.1. Required Barrier to Vapour Diffusion

(1) Thermally insulated wall, ceiling and floor assemblies shall be constructed with a vapour barrier so as to provide a barrier to diffusion of water vapour from the interior into wall spaces, floor spaces or attic or roof spaces.

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


EXTERIOR
(GARAGE)
RIGID INSULATION
GLASS FIBRE INSULATION
AS PER SB-12
AS PER SB-12
2 x 4 WALL STUDS
RETURN AIR CHASE
GALVANIZED SHEET METAL BRACKET SEALED TO WALL STUDS
VAPOUR BARRIER SEALED TO WALL STUDS
GYPSUM WALL BOARD
2 x 6 WOOD FURRING
EXTERIOR SHEATHING
AS PER SB-12
2 x 6 WALL STUDS
SUPPLY AIR DUCT
GYPSUM WALL BOARD
VAPOUR BARRIER
INTERIOR