DISTRICT OF NORTH VANCOUVER

355 West Queens Road
North Vancouver, BC V7N 4N5
604-990-2311 DNV.org

Vapour Barrier and Air Barrier Penetration Requirements

Bulletin

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Purpose

Purpose of this bulletin is to clarify the code requirements for vapour barrier and air barrier systems where they are penetrated by other building components.

Background

2012 BC Building Code has been in force since December 20, 2012. Subsequently a Ministerial Order M111on December 19, 2014 implemented the new energy requirements. Amongst many other requirements, the current Building Code requires that new homes, or substantially renovated homes to be air and vapour tight.

Air Barrier and Vapour Barrier Requirement

Subsection 9.25.3 and 9.25.4 imposes the requirement of air barrier and vapour barriers systems between heated and unheated spaces in houses. In most wood frame construction homes, the conventional method of complying with both air barrier and vapour systems is achieved by a single membrane such as 6MIL polyethylene sheet. The 6 MIL polyethylene sheet must have air leakage characteristics less than 0.20L/(s·m^2) at 75 Pa, and vapour permanence less than 60ng/(Pa·s·m^2).

Article 9.36.2.10 requires that where an air barrier or vapour barrier system to be penetrated or joined, it must be appropriately lapped, sealed with compatible sealant (acoustical caulking), and structurally supported.

Therefore, the 6MIL polyethylene must be continuous behind all electrical components such as pot lights, electrical boxes or panel, or HVAC component such as fan housings. Where the 6MIL poly is penetrated or joined by poly pans, it must be structurally supported at the joints and sealed with acoustical caulking. The smaller penetrations such as wires or plumbing pipes up to 1 inch in OD may be caulked and taped.

Illustrated Examples

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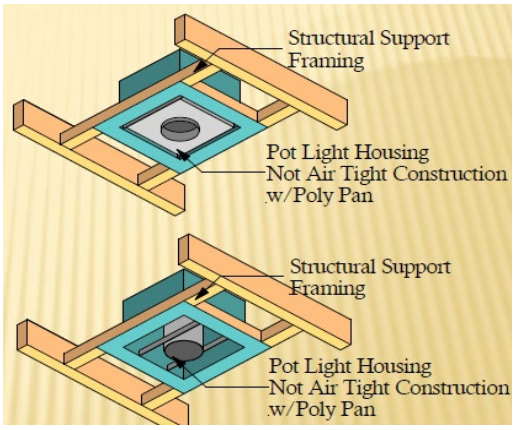

Figure 1- Pot Light or Exhaust Fan Penetration

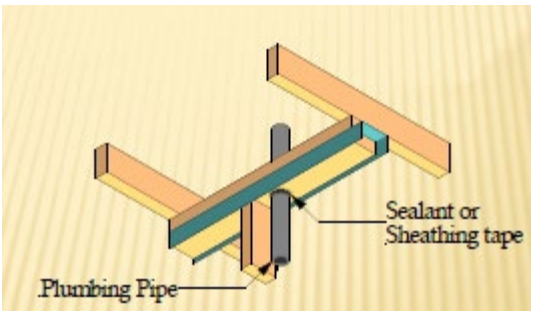

Figure 2 – Vertical or horizontal pipe penetration with more than 1 inch outside diameter.

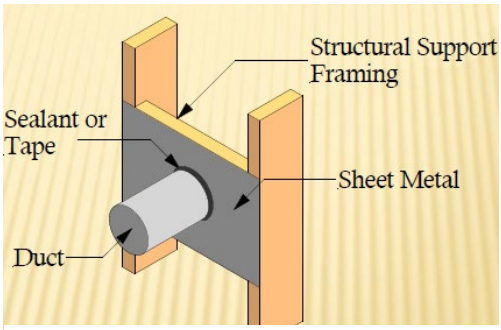

Figure 3 - HVAC duct with sheet metal support

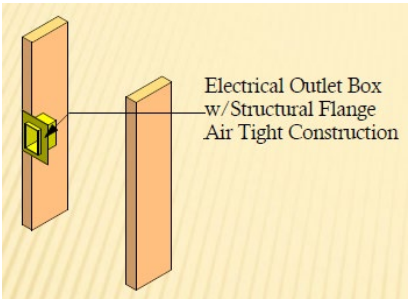

Figure 4 - Electrical Outlet with built in air tight construction.

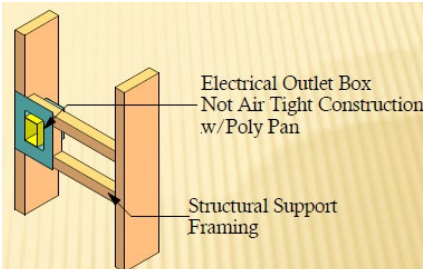

Figure 5 - Standard electrical outlet with ploy pan

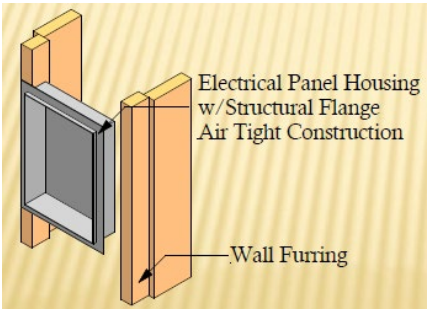

Figure 6 -Electrical panel with built-in air tight construction

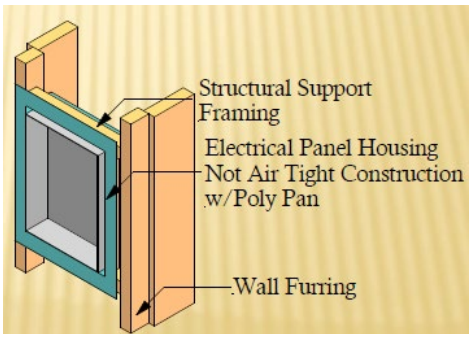

Figure 7 - Standard electrical panel with poly pan behind.

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Note: For Clarity purposes the insulation, vapour barrier and other components have been removed in these diagrames.

The above are selected few examples. Any penetration through the air barrier or vapour barrier system must be sealed and supported as required by the code.

The owner or builder may choose alternative methods for compliance where the owner or builder has submitted a Schedule B from a Registered Professional with items 1.20, 1.22 and 1.23 are for design and field review by the registered professional.