



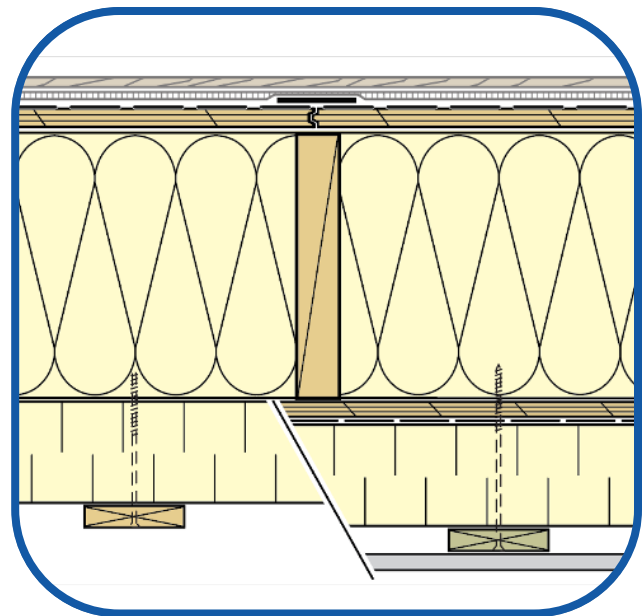
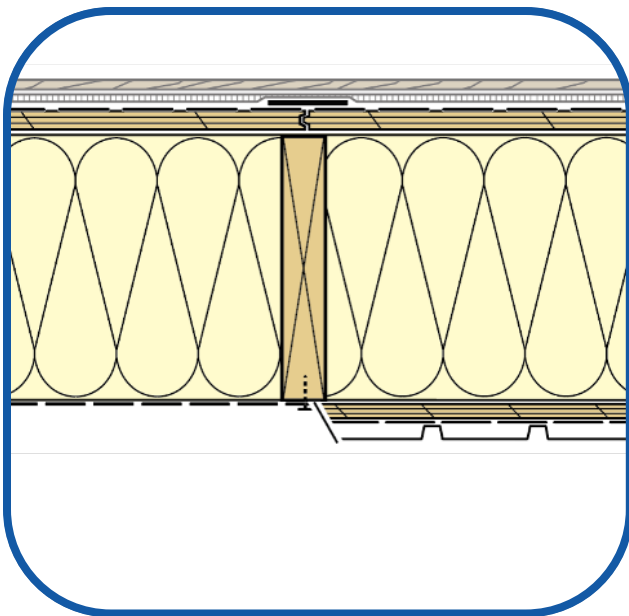
LEEP

LOCAL ENERGY
EFFICIENCY
PARTNERSHIPS

NET ZERO
ENERGY

Foundation Guide #3

Exposed Floor Assemblies



Developed by Natural Resources Canada's
Local Energy Efficiency Partnerships (LEEP) team

LEEP Net Zero Energy Foundation Guide #3 Exposed Floor Assemblies

M154-220/3-2026E-PDF (On-line) ISBN 978-0-662-71499-6

Aussi disponible en français sous le titre:

«LEEP ENZ Guide #3 sur les fondations : Assemblages de planchers exposés»

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Acknowledgements

The Local Energy Efficiency Partnerships (LEEP) team at CanmetENERGY would like to express appreciation to the many Canadian builders, designers, and industry partners who participate in LEEP programs across the country. Builders are invited through their regional Home Builders Associations to take part in technical forums, workshops, and training. Their input has consistently identified the need for practical, building science based resources, including this updated guide series focused on foundation and roof assemblies for high-performance homes.

We would like to acknowledge RDH Building Science for leading the development and illustration of these guides, for coordinating the technical analysis, and for integrating the broad range of industry feedback received during the review process. We also thank our technical reviewers whose comments and technical insights strengthened the clarity and accuracy of this material.

We would like to acknowledge the valuable support of the many regional partners who help deliver and support LEEP initiatives and make this work possible. We also recognize the provincial and local Home Builders Associations whose participation has been essential, along with ongoing leadership and support from CHBA National.

This Foundation and Roof Guide Series was developed by the team at RDH Building Science under the direction of Graham Finch. This project, *LEEP guides for Net Zero Energy Construction*, was led by Clarice Kramer from the NRCan LEEP team at CanmetENERGY Ottawa. Funding for this work was provided by Natural Resources Canada through the Green Infrastructure Fund.

Disclaimer

This document does not provide assurances or information related to structural systems, seismic performance, or fire safety. It is intended only as a guide on building enclosure science and foundation and roof assembly selection, detailing, materials and performance. The aim of this publication is to provide builders and designers with a framework for making decisions on the type of foundation and roof assemblies to use for individual homes and for new communities.

Natural Resources Canada assumes no liability for injury, property damage, or loss resulting from the use of information contained in this publication. This guide is intended to provide information only and does not express views of the Government of Canada nor does it constitute an endorsement of any commercial product, manufacturer or any individual.

Building science, related products, and construction practices change and improve over time. It is advisable to regularly consult up-to-date technical publications on building science, products, and practices rather than relying solely on this publication. Seek specific information on the use of products, the requirements of good design and construction practices and the requirements of the applicable building codes before undertaking a construction project. Consult the manufacturer's instructions for construction products and also speak with and retain professional consultants who hold a valid license and have appropriate engineering or architectural qualifications. Work with your municipality or local authority having jurisdiction to ensure compliance with issues of design, zoning and construction practices, including life and fire safety.

The effective R-value ranges and assemblies illustrated in this guide represent potential strategies to reach high-performance targets including the upper tiers of the National Building Code of Canada. As with any performance-based energy target, energy modeling must be used to determine appropriate designs for each individual project. Compliance strategies may be influenced by design choices such as building form, window placement, orientation, mechanical systems, and equipment efficiency.

The information included in this guide is generic in nature and is not tied to any specific voluntary labeling program. Builders and renovators looking to qualify their homes under the Canadian Home Builders' Association Net Zero Home Labeling Program must ensure their homes meet all the Technical Requirements of that Program.

LEEP Context

The LEEP Team at CanmetENERGY works with groups of builders, through their Home Builders Associations (HBAs). LEEP programs offer opportunities to identify barriers and gaps in technology and to discuss and evaluate Net Zero Energy (NZE) and high-performance home building strategies. Builders use forums and workshops to identify key technology challenges and invite experts and manufacturers to respond by proposing solutions, innovations and direction on how to integrate these ideas into construction practices. Through their HBAs, builders use LEEP to define and solve technology challenges, and to connect with design professionals who can help them deliver the homes of tomorrow. The goal is builder-driven enhancement to local building practices.

The Need

There is a need for updates to exposed floor assembly design and construction. Canadian builders are moving beyond typical practices to assemblies that reach higher levels of performance. LEEP technical forums have been delivered in many locations across Canada. Regional LEEP builder groups have consistently identified high-performance exposed floor assemblies as a key technological challenge. They have requested information on:

- › Increased effective R-values; continuous insulation and reduced thermal bridging
- › Continuous air barrier systems and airtight building enclosures; improved thermal performance, reduced heating and cooling loads, reduced risk of condensation within wall cavities
- › Water-protection systems; reduced risk of water intrusion from rain and snow using reliable water control details
- › Effective vapour control; reduced risk of trapping moisture within the assembly

There is great diversity in Canadian foundation construction. Foundation details and assembly types vary by region and climate zone. Local construction practices can also vary, along with access to reliable technical information and training. Coordination with trades and consultants is critical when introducing new technology and this should not be overlooked. It is our hope that by providing these guidelines for foundation assemblies with construction details, we will help builders select, plan and construct robust assemblies with success. Project-specific details should always be developed to account for the unique conditions of each project.

We see the LEEP guides for Net Zero Energy Construction not as the end goal, but as an essential tool for the next generation of high-performance buildings.

Documents in This Series

The following is a list of the documents in the LEEP Net Zero Energy Foundation and Roof Technical Guide series:

YOU
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- › **Foundation Guide #1:** Basement Below-Grade Assemblies
- › **Foundation Guide #2:** Crawl Space and At-Grade Assemblies
- ➔ **Foundation Guide #3:** Exposed Floor Assemblies
- › **Roof Guide #1:** Vented Attic Roof Assembly
- › **Roof Guide #2:** Vented Vaulted Roof Assembly
- › **Roof Guide #3:** Exterior-Insulated Sloped Roof Assembly
- › **Roof Guide #4:** Vented Flat Roof Assembly
- › **Roof Guide #5:** Conventional Flat Roof Assembly

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Exposed Floor Assemblies Overview

This guide outlines key design and construction considerations for two kinds of insulated exposed floors. These wood-frame assemblies can be used over exterior space for various building configurations as shown in Figure 1 below. The elevated floor assembly uses control layers provided within the assembly itself, regardless of the structural support system below. Refer to Foundation Guide #1: Basement Below-Grade Assemblies and Foundation Guide #2: Crawl Space and At-Grade Assemblies for information on enclosure assemblies in direct contact with the ground.

Exposed floors over vented or open-air crawl spaces generally provide lower overall performance and durability than enclosed conditioned crawl space approaches. Refer to Foundation Guide #2: Crawl Space and At-Grade Assemblies for further information on conditioned crawl space assemblies.

The best practice guidance and construction details typically show approaches that exceed the minimum requirements of the building code. However, this guide does not specifically reference building code requirements regarding foundation drainage and below-grade assemblies.

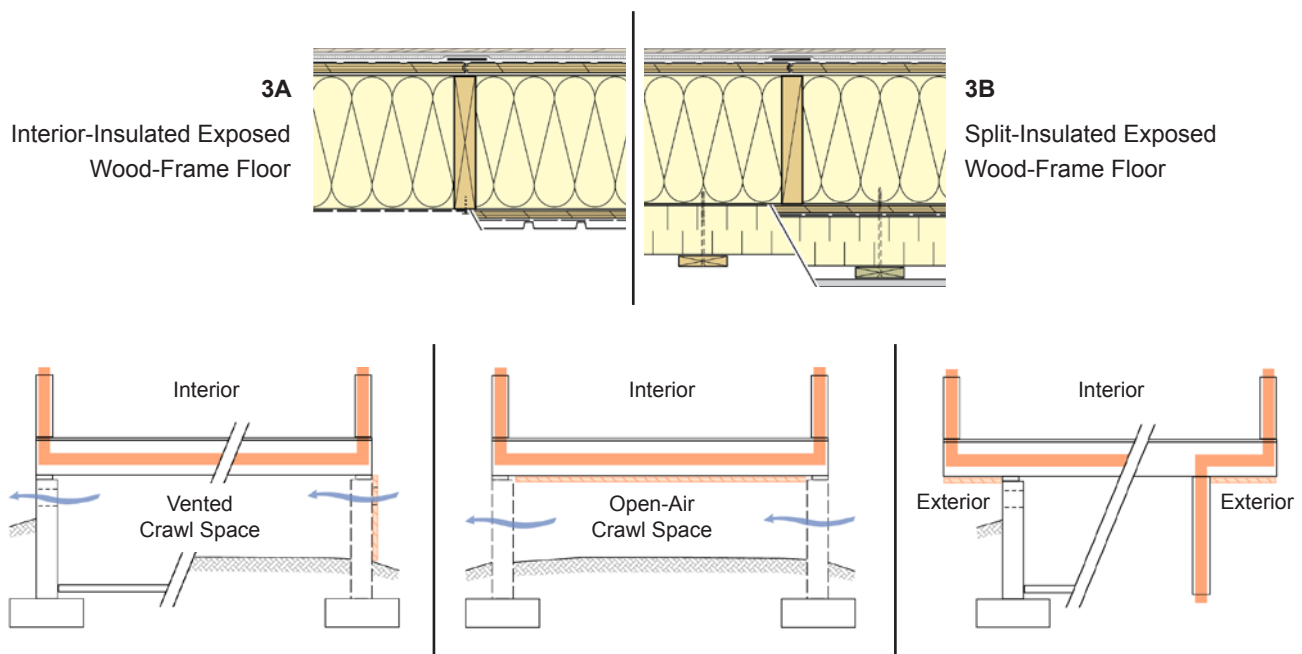


Figure 1 Various common configurations of exposed wood-frame floor assemblies (section view).

Site Water Management and Foundation Drainage

Even for exposed floors over vented crawl spaces or pier foundations, site grading and drainage remain essential to limit unnecessary water accumulation around and beneath the structure. Although there is no direct below-grade enclosure at risk, managing surface runoff, roof discharge, and subsurface moisture reduces soil saturation, protects structural elements, and supports long-term durability. Positive grading, controlled downspout discharge, and an effective foundation drainage system help direct water away from the building footprint. Refer to Foundation Guide #1: Basement Below-Grade Assemblies for detailed discussion of site water management and foundation drainage strategies.

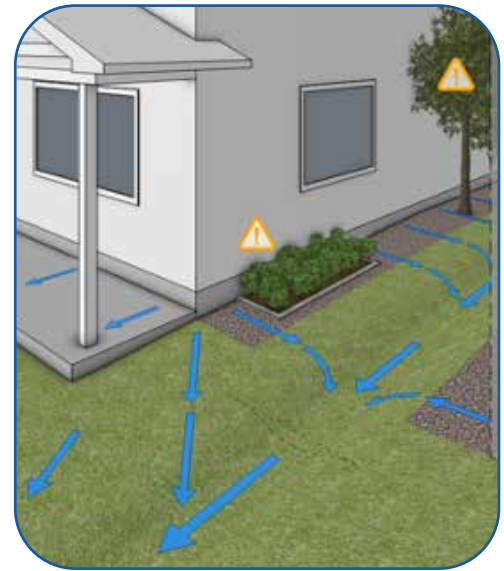


Figure 2 Overview of surface drainage best practices around the building site.

Exposed Floor Foundations

Perimeter Strip and Pier Footings

For exposed floors supported by conventional strip footings or bottom bearing pier footings, full foundation waterproofing is typically not required because the floor structure is elevated above grade. However, the crawl space or open area beneath the floor must remain properly ventilated to limit moisture accumulation and reduce the risk of premature deterioration. Durable perimeter finishes are important, particularly when building services are run beneath the floor and require protection from weather, debris, and pests. These service elements, such as ducts and pipes, form part of the building enclosure and require continuity of insulation and airtightness. Bump-out and overhang floor soffits are also highly exposed to wind-driven rain and temperature extremes, and therefore require robust water control detailing, including continuous sheathing, membrane, and a durable soffit finish.

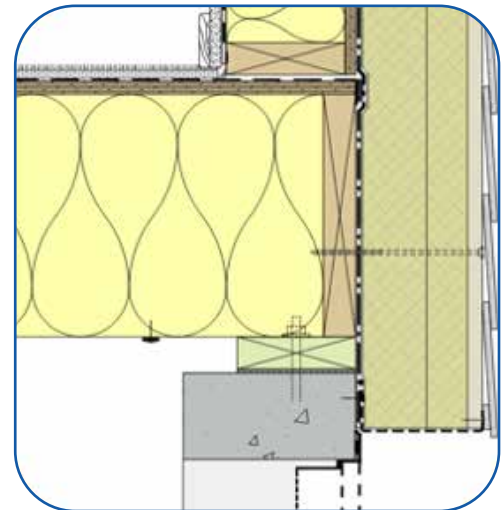


Figure 3 Section view of conventional perimeter strip footing with vented crawlspace.

Permafrost Foundations

For exposed floors constructed over permafrost, maintaining ground temperatures and avoiding unintended thaw are central performance objectives. The *CSA PLUS 4011.1 Technical Guide: Design and construction considerations for foundations in permafrost regions* provides detailed guidance on designing and building foundations on permafrost. Permafrost foundations are to be designed by qualified professionals based on confirmed site investigations, with strategies selected to preserve, allow thaw of, or avoid permafrost.

Elevated structures incorporate open-air gaps with no perimeter skirting around the exposed floors to promote effective passive cooling. Openings must remain clear of obstructions, including snow, to maintain airflow beneath the floor. Even well-insulated floor assemblies contribute to gradual heat accumulation beneath the structure if ventilation is restricted. Site grading, roof drainage, and snow management further reduce thermal and moisture loading around pads and piles, limiting differential settlement and frost heave.

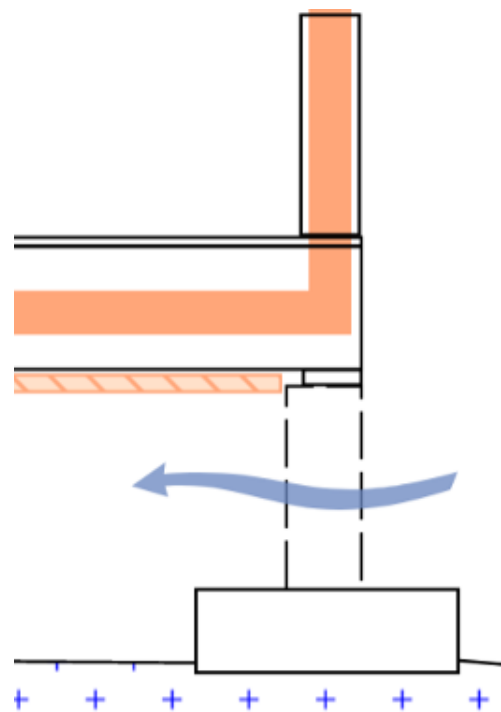


Figure 4 Schematic section view of a permafrost foundation.

High Moisture Conditions

For exposed floors constructed over muskeg or persistently moist ground, the primary concern is moisture accumulation rather than thaw settlement. High ground moisture, evaporation, and seasonal flooding can elevate humidity beneath the floor assembly, increasing the risk of condensation and damage. A robust, well-sealed sheathing membrane at the underside of the floor framing, combined with a durable soffit finish, helps limit wetting and improve durability. Attention to drainage, vegetation control, and maintaining airflow beneath the structure further reduces prolonged moisture exposure.

For exposed floors over outdoor space, such as at tall open-air crawl spaces, carports, and overhanging soffits, the same concepts apply. The membrane and soffit are used to protect the joist insulation and framing from direct exposure to moisture and wind-driven rain.

Air Barrier Systems

Continuity of the floor air control layer is one of the most important aspects of a properly performing assembly. The air barrier system is critical regardless of its location or material type. It is a common weak point in exposed floors for the following reasons:

- › Access for air sealing beneath the floor is often limited.
- › A dedicated polyethylene or sheathing membrane layer is not always included, and there is no structural concrete layer to assist with airtightness.
- › Measures to achieve continuity of the air barrier at the floor sheathing need to be incorporated during framing.
- › Building services that penetrate the floor assembly are typically installed after framing, which can complicate air barrier sequencing and detailing.

There are two possible air barrier system approaches for exposed floor assemblies.

Interior Air Barrier System Using Sealed Sheathing

This approach relies on the floor sheathing itself as the air barrier by sealing joints with tape, membrane strips, or sealant. Transitions and penetrations are detailed to maintain continuity. Because the sheathing is rigid and mechanically fastened to the joists, additional support is typically not required. The sealed sheathing layer can also serve as the vapour control layer or combined with a vapour barrier floor underlayment where needed. This approach is generally straightforward to install, easier to detail at penetrations compared to exterior approaches, and often avoids complex transitions at bearing points.

The details shown in the [construction details](#) ([see page 16](#)) highlight the air barrier components used to provide continuity across all the interfaces shown. They depict the interior air barrier approach.

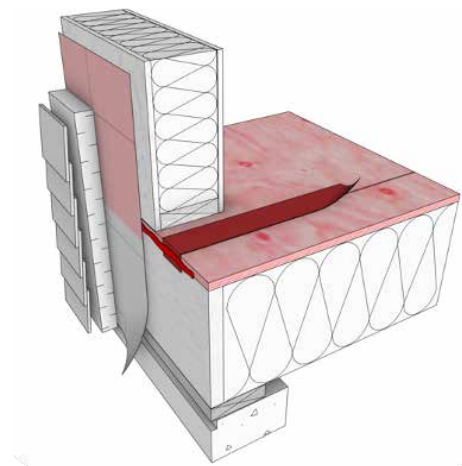


Figure 5 Interior air barrier system with sealed floor sheathing.

Exterior Air Barrier System Using a Sheathing Membrane

This approach uses a dedicated airtight membrane installed either directly over the bottom face of the floor structure or on sheathing. Continuity is achieved with compatible tapes, membranes, and sealants at joints, transitions, and penetrations. The exterior air barrier also functions as part of the water control where needed. While installation across open framing areas can be straightforward, detailing at bearing points can be complex. Furthermore, short crawl spaces less than 4 feet tall can make air sealing work difficult.

This approach can perform well where the underside of the floor remains readily accessible during and after construction, including during airtightness testing. Direct access allows inspection and correction of joints and penetrations. It is appropriate for exposed floors over above-grade walls that use an exterior air barrier, as continuity of the air control layer can be maintained on the exterior plane. It can also work on floors with limited internal structural support members.

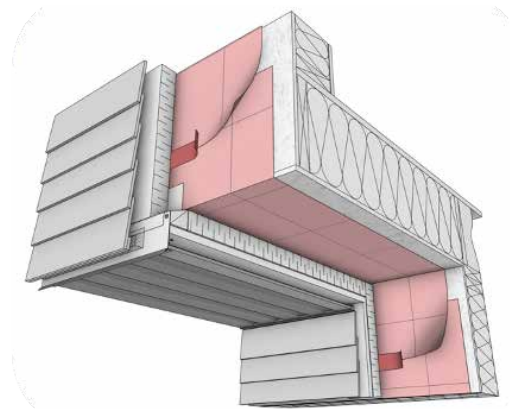


Figure 6 Exterior air barrier system with sealed vapour permeable sheathing membrane.

Assembly 3A: Interior-Insulated Exposed Wood-Frame Floor

This exposed floor assembly consists of conventional wood-frame floor framing with fibrous insulation in the full depth of the floor joists. The insulation thickness and effective R-value are limited by the floor joist depth. Sealed floor sheathing is used as the air barrier.

Water-Shedding Surface (Soffit)

Exposed floors over vented crawl spaces are typically not exposed to exterior liquid moisture and therefore do not require a dedicated water-shedding surface. However, floors over open-air crawl spaces and outdoor space typically include a durable soffit to provide moisture deflection and prevent damage to the insulation.

Water Control Layer

Exposed floors over vented crawl spaces typically do not require a water-resistive barrier. Floors over open-air crawl spaces and outdoor space typically include a vapour permeable synthetic loose-laid or self-adhered sheathing membrane product, similar to wall assemblies.

Air Control Layer (Air Barrier System)

The floor sheathing is detailed as the interior air barrier system in this assembly. Floor sheathing (i.e., plywood and/or oriented strand board) is typically sufficiently air impermeable as a material, but panels require additional seals such as continuous tape or glue between joints. All joints and penetrations must be sealed, including beneath wall bottom plates before they are installed. Air barrier transitions at exterior walls must include seals between the edges of the floor sheathing and the wall air barrier. Refer to [Construction Details on page 16](#) for more information. Refer to [Air Barrier Systems on page 11](#) for more information on exterior air barrier approaches.

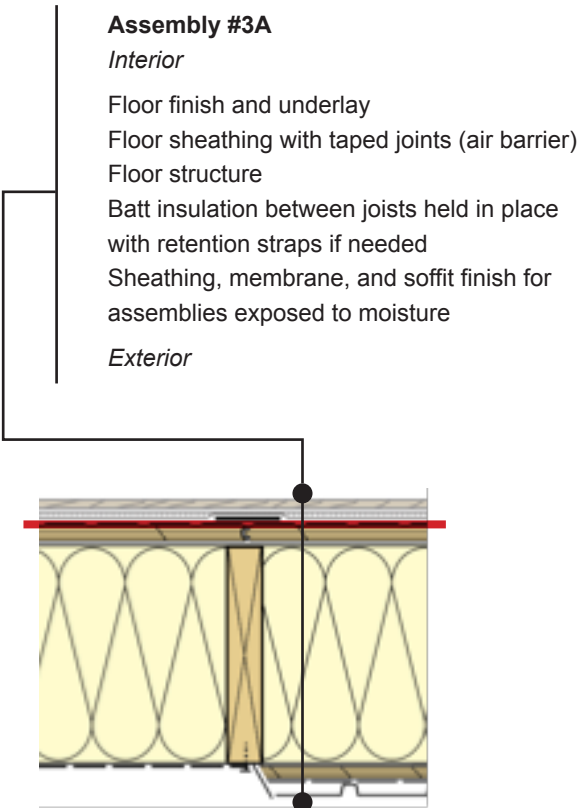


Figure 7 Typical assembly layers of the interior-insulated exposed floor assembly.

Table 1: Approximate Effective R-values of Insulated Exposed Wood-Frame Floors		
Framing Depth	Nominal Insulation	Effective R-value
2x Framing at 16" o.c.		
2x10	R-32 batt	R-26
2x12	R-48 batt	R-38
I-joist/ Wood Truss at 16" o.c.		
11.8"	R-48 batt	R-41
14"	R-56 batt	R-48
16"	R-64 batt	R-55
*Add R-1 for exterior sheathing and soffit finish.		

Thermal Control Layer (Interior Insulation)

Exposed floor assemblies can use a variety of insulation types, including stone wool, fiberglass, or wood-fibre. Table 1 provides approximate R-values for typical floor assembly configurations. Note there is no requirement to provide ventilation within the floor assembly above or below the joist insulation.

Vapour Control Layer (Vapour Barrier)

The floor sheathing, typically at least 5/8" thick plywood, combined with the floor finishes and underlay, act as the vapour barrier in this assembly. No other dedicated vapour control layer is used, including at the underside of the floor assembly.

Assembly 3B: Split-Insulated Exposed Wood-Frame Floor

This exposed floor assembly consists of conventional wood-frame floor framing with fibrous insulation in the floor joists and exterior rigid insulation below the joists. The exterior insulation is held in place with strapping fastened to the floor joists. This assembly achieves high effective R-values by using continuous insulation outside of the structural framing in combination with insulation in the joist space. Sealed floor sheathing is used as the air barrier.

Water-Shedding Surface (Soffit)

Exposed floors over vented crawl spaces are typically not exposed to exterior liquid moisture and therefore do not require a dedicated water-shedding surface. However, floors over open-air crawl spaces and outdoor space typically include a durable soffit finish to provide moisture deflection and prevent damage to the insulation.

Water Control Layer

Exposed floors over vented crawl spaces typically do not require a water-resistive barrier. Floors over open-air crawl spaces and outdoor space typically include a vapour permeable synthetic loose-laid or self-adhered sheathing membrane product, similar to wall assemblies.

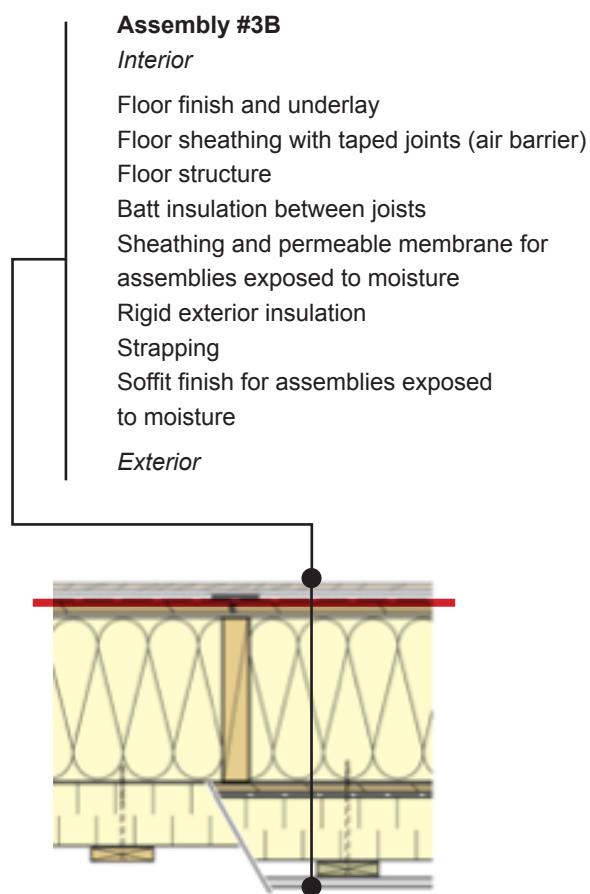


Figure 8 Typical assembly layers of the split-insulated exposed floor assembly

Air Control Layer (Air Barrier System)

The floor sheathing is detailed as the interior air barrier system in this assembly. Floor sheathing (i.e., plywood and/or oriented strand board) is typically sufficiently air impermeable as a material, but panels require additional seals such as continuous tape or glue between joints. All joints and penetrations must be sealed, including beneath wall bottom plates before they are installed. Air barrier transitions at exterior walls must include seals between the edges of the floor sheathing and the wall air barrier. Refer to [Construction Details on page 16](#) for more information. Refer to [Air Barrier Systems on page 11](#) for more information on exterior air barrier approaches.

Table 2: Approximate Effective R-values of Split-Insulated Exposed Wood-Frame Floors		
Framing Depth	Nominal Insulation	Effective R-value
2x Framing at 16" o.c.		
2x10	R-32 batt	R-26
2x12	R-48 batt	R-38
I-joist/ Wood Truss at 16" o.c.		
11.8"	R-48 batt	R-41
14"	R-56 batt	R-48
16"	R-64 batt	R-55
*Add R-1 for exterior sheathing and soffit finish. **Add R-4 per inch of exterior EPS and mineral wool and R-5 per inch of XPS and graphite-infused EPS.		

Thermal Control Layer (Split Insulation)

Exposed floor assemblies can use a variety of interior insulation types, including stone wool, fiberglass, or wood-fibre. Various types of insulation can be used, including extruded polystyrene (XPS), expanded polystyrene (EPS), and rigid mineral wool. Using a vapour-permeable insulation reduces the risk of trapping moisture in the assembly.

Vapour Control Layer (Vapour Barrier)

The floor sheathing, typically at least 5/8" thick plywood, combined with the floor finishes and underlay, act as the vapour barrier in this assembly. No other dedicated vapour control layer is used, including at the underside of the floor assembly.

If a relatively low-permeance exterior insulation is used, it does not readily allow moisture in the floor to dry outward. This can trap moisture that inadvertently gets into the assembly and can potentially lead to premature deterioration. In general, vapour permeable exterior insulation typically provides for a lower risk split-insulated floor assembly.

Construction Details

The example details in the following pages establish a common level of detailing for Foundation Guide #3. Each guide in this series provides a similar set of details for its respective set of assemblies. Builders may replicate or adapt these details to meet Net Zero Energy or other high-performance targets, provided the core principles of air barrier continuity, insulation continuity, and vapour and water control are maintained.

The assemblies shown were selected through LEEP initiatives where builder groups requested a focus on practical, regionally appropriate high-performance solutions. Building-science experts reviewed these assemblies based on climate, local construction practices, and code requirements. The details highlight key transition strategies, with red “AB” icons identifying air barrier components.

These illustrations represent best practices. Project-specific work may require additional details, assembly- and product-specific adjustments, and coordination with structural, mechanical, electrical, and life-safety systems. Any modifications should be prepared or reviewed by qualified professionals, as provincial requirements vary.

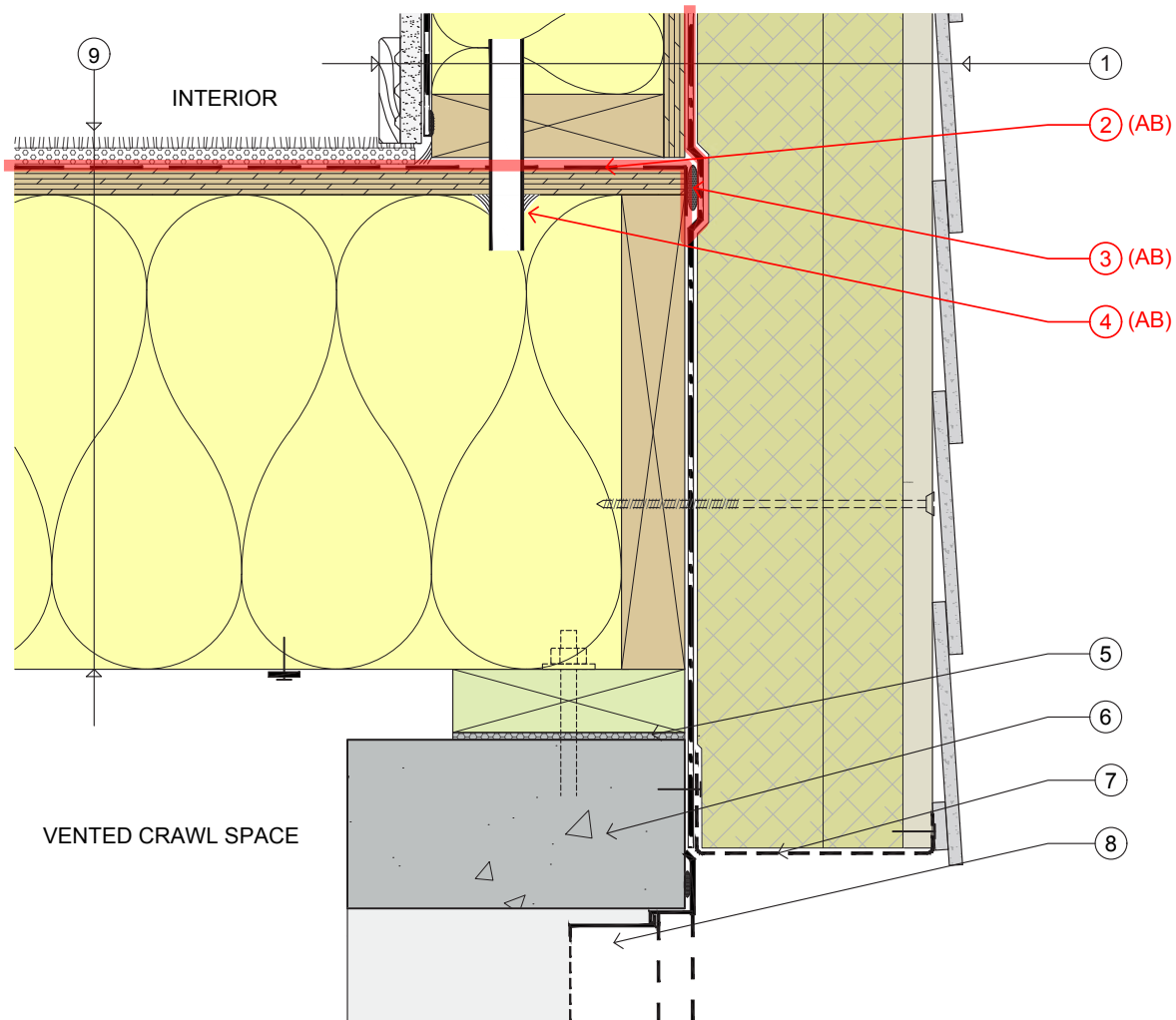
To reduce the risk of water penetration, mould, or other deficiencies, builders are encouraged to review details with a building-science engineer or architect, and to practice installation techniques using full-scale mockups for training and quality control.

Each unique project will require the development of specific details and construction documents to address the varied conditions found in each building and the capacity of local construction trades. In addition, each builder must provide quality control and assume liability for the work they complete. Reliable technical information and training are critical to your success. Builders are encouraged to take advantage of technical guides and training opportunities offered by credible sources and share this training with everyone on your crew. Work with your local Home Builders Association to find more information and to build local capacity.

For more guidance and example detailing for net zero energy exposed floor assemblies, refer to the following additional resources:

- › Builder Guide to Site and Foundation Drainage – Best Practices for Part 9 Buildings in British Columbia, BC Housing
- › Illustrated Guide – R22+ Effective Walls in Residential Construction in British Columbia, BC Housing
- › Building Envelope Guide for Houses, BC Housing
- › Canadian Home Builders' Association of BC Building Science for New Homes, CHBA BC
- › BC Energy Step Code Builder Guide, BC Housing
- › Building Enclosure Design Guide, BC Housing

Detail 3.01 Perimeter Strip Foundation at Above-Grade Wall – Insulated Exposed Wood-Frame Floor

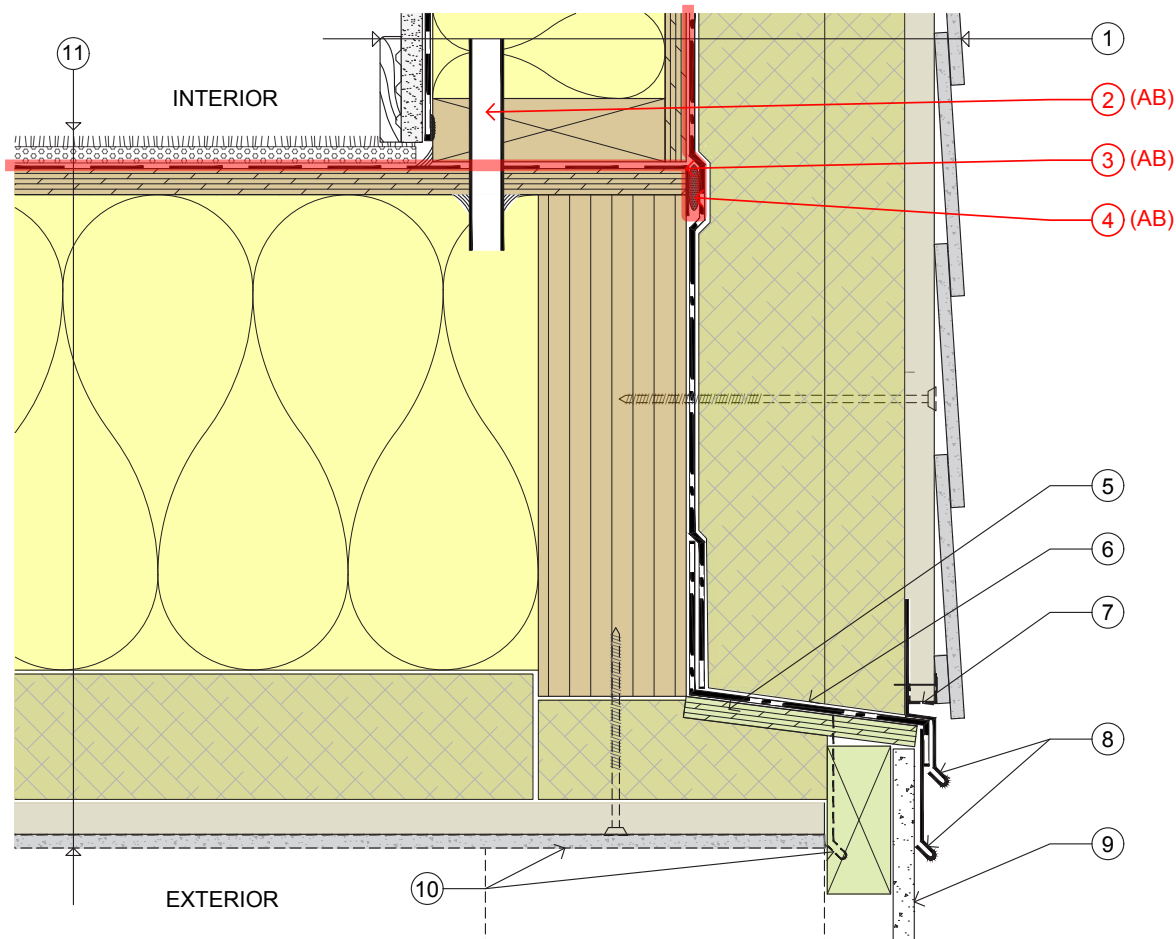


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| <p>① Wall assembly</p> <ul style="list-style-type: none"> • Fibre cement board siding • Pressure treated wood strapping/air cavity • Rigid mineral wool exterior insulation • VP sheathing membrane (AB/WRB) • Sheathing • 2x6 wood framing • Batt insulation • Vapour barrier membrane • Interior gypsum wall board <p>② High-performance tape at all floor sheathing joints including under bottom plates (AB)</p> <p>③ Sheathing membrane set in sealant at edge of floor sheathing (AB)</p> | <p>④ Floor penetration sealed at underside of sheathing (AB)</p> <p>⑤ Foam gasket</p> <p>⑥ Cast-in-place concrete foundation wall</p> <p>⑦ Perforated pre-finished metal flashing</p> <p>⑧ Crawl space vent</p> <p>⑨ Floor assembly</p> <ul style="list-style-type: none"> • Interior finish (including vapour barrier underlay) • Interior floor sheathing taped at all joints (AB) • 2x12 wood joist framing • Batt insulation with retention straps across joists |
|--|--|

PERIMETER STRIP FOUNDATION AT ABOVE-GRADE WALL | D3.01
INSULATED EXPOSED WOOD-FRAME FLOOR

Detail 3.02 Pier Foundation at Above-Grade Wall – Split-Insulated Exposed Wood-Frame Floor

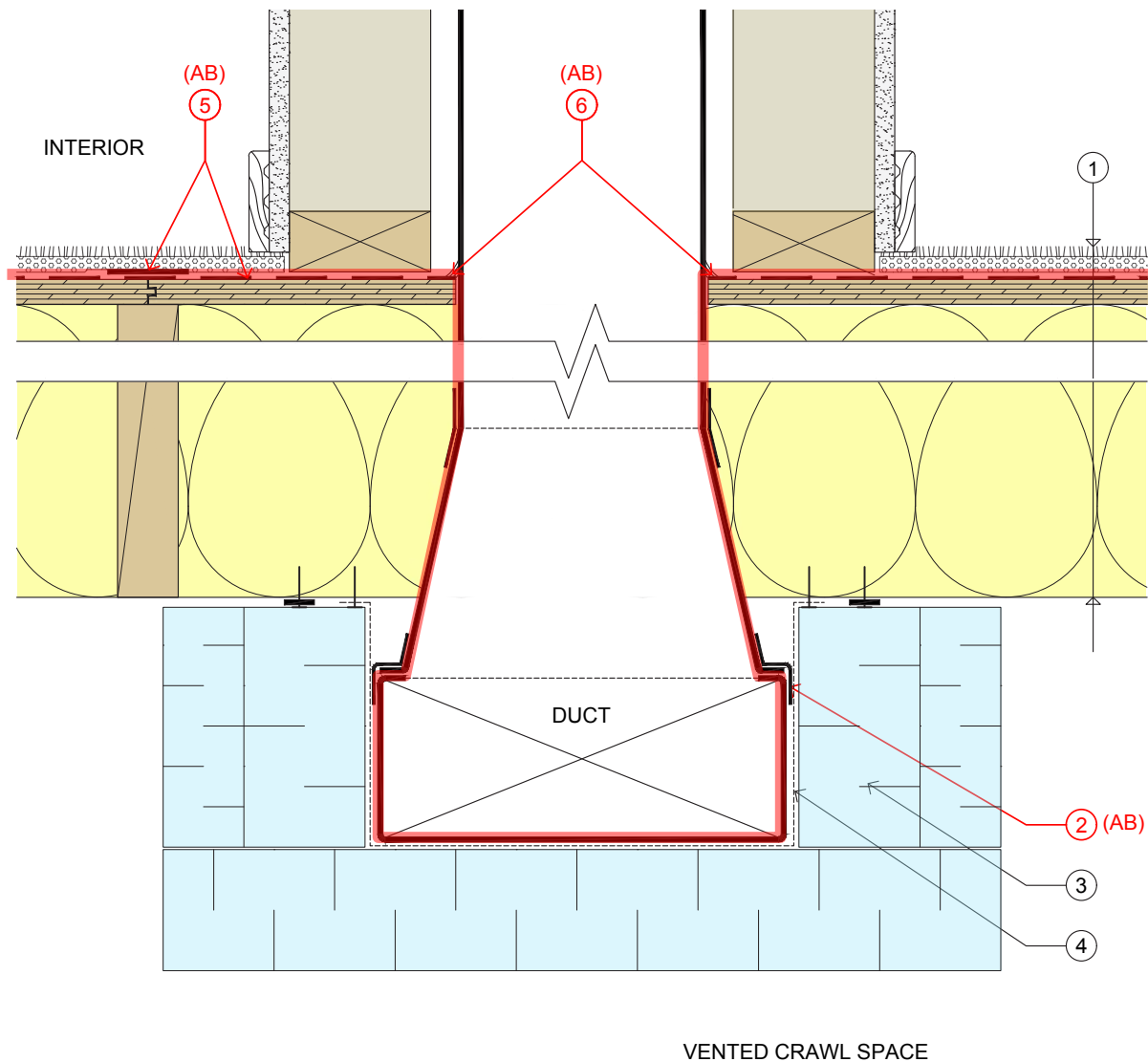


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| <p>① Wall assembly</p> <ul style="list-style-type: none"> • Fibre cement board siding • Pressure treated wood strapping/air cavity • Rigid mineral wool exterior insulation • VP sheathing membrane (AB/WRB) • Sheathing • 2x6 wood framing • Batt insulation • Vapour barrier membrane • Interior gypsum wall board <p>② Floor penetration sealed at underside of sheathing (AB)</p> <p>③ High-performance tape at all floor sheathing joints including under bottom plates (AB)</p> <p>④ Sheathing membrane set in sealant at edge of floor sheathing and lapped over through-wall membrane (AB)</p> | <p>⑤ Pressure treated plywood support for through-wall membrane</p> <p>⑥ Self-adhesive through-wall membrane</p> <p>⑦ Insect screen</p> <p>⑧ Pre-finished metal base of wall flashing and skirt flashing</p> <p>⑨ Cement board skirting on pressure treated wood strapping</p> <p>⑩ Alternate flashing and soffit if no skirting</p> <p>⑪ Floor assembly</p> <ul style="list-style-type: none"> • Interior finish (including vapour barrier underlay) • Interior floor sheathing taped at all joints (AB) • 2x12 wood joist framing • Batt insulation • Rigid mineral wool exterior insulation • Pressure treated wood strapping/air cavity |
|---|---|

PIER FOUNDATION AT ABOVE-GRADE WALL | D3.02
SPLIT-INSULATED EXPOSED WOOD-FRAME FLOOR

Detail 3.03 Insulated Airtight Duct Chase and Penetrations – Insulated Exposed Wood-Frame Floor

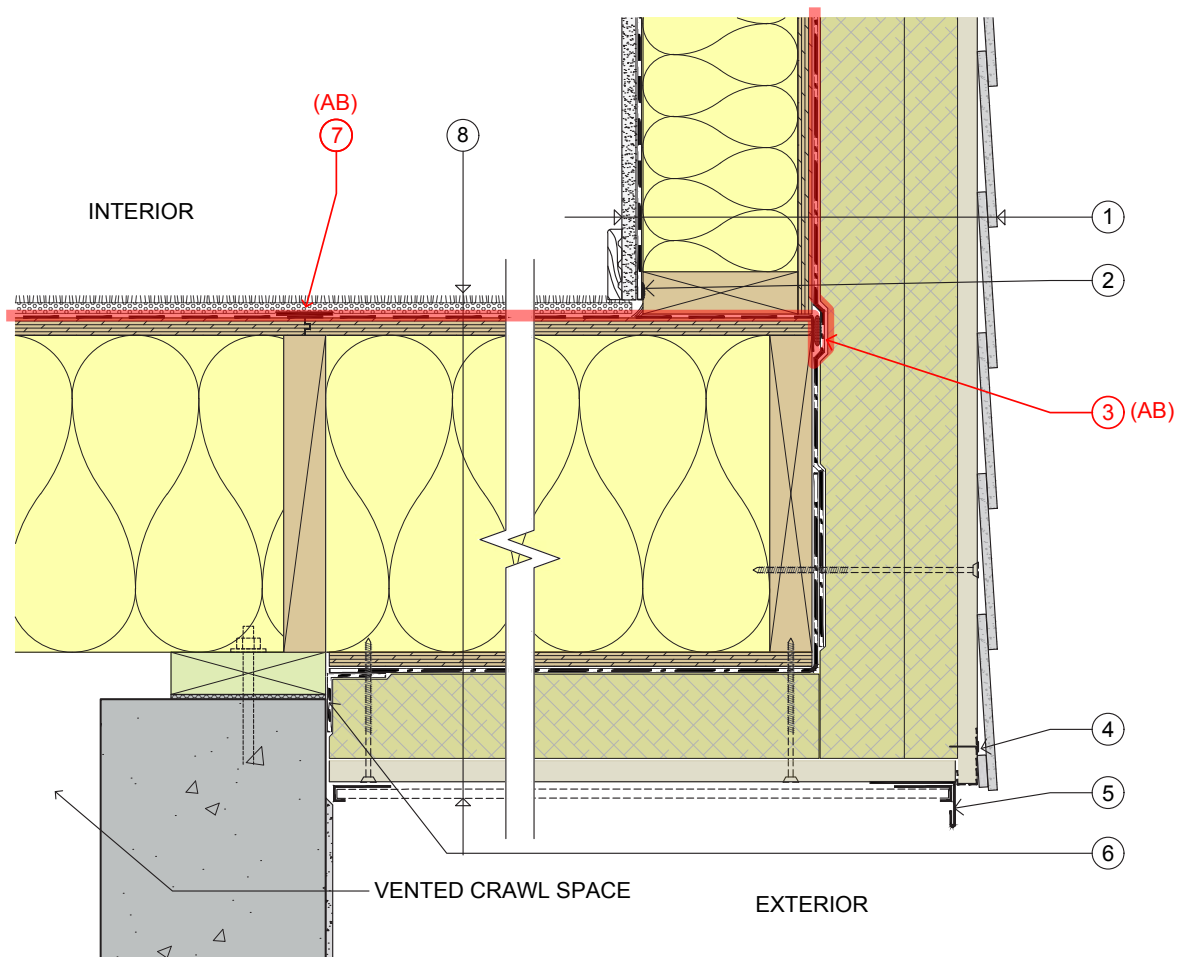


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| <p>① Floor assembly</p> <ul style="list-style-type: none"> • Interior finish (including vapour barrier underlay) • Interior floor sheathing taped at all joints (AB) • 2x12 wood joist framing • Batt insulation with retention straps across joists <p>② Air seal at all duct joints (AB)</p> | <p>③ XPS insulation glued to duct chase</p> <p>④ Duct hanger strap</p> <p>⑤ High performance tape at all floor sheathing joints (AB)</p> <p>⑥ Duct penetration sealed at floor sheathing (AB)</p> |
|--|---|

INSULATED AIRTIGHT DUCT CHASE AND PENETRATION | D3.03
INSULATED EXPOSED WOOD-FRAME FLOOR

Detail 3.04 Cantilever with Exterior Soffit – Split-Insulated Exposed Wood-Frame Floor

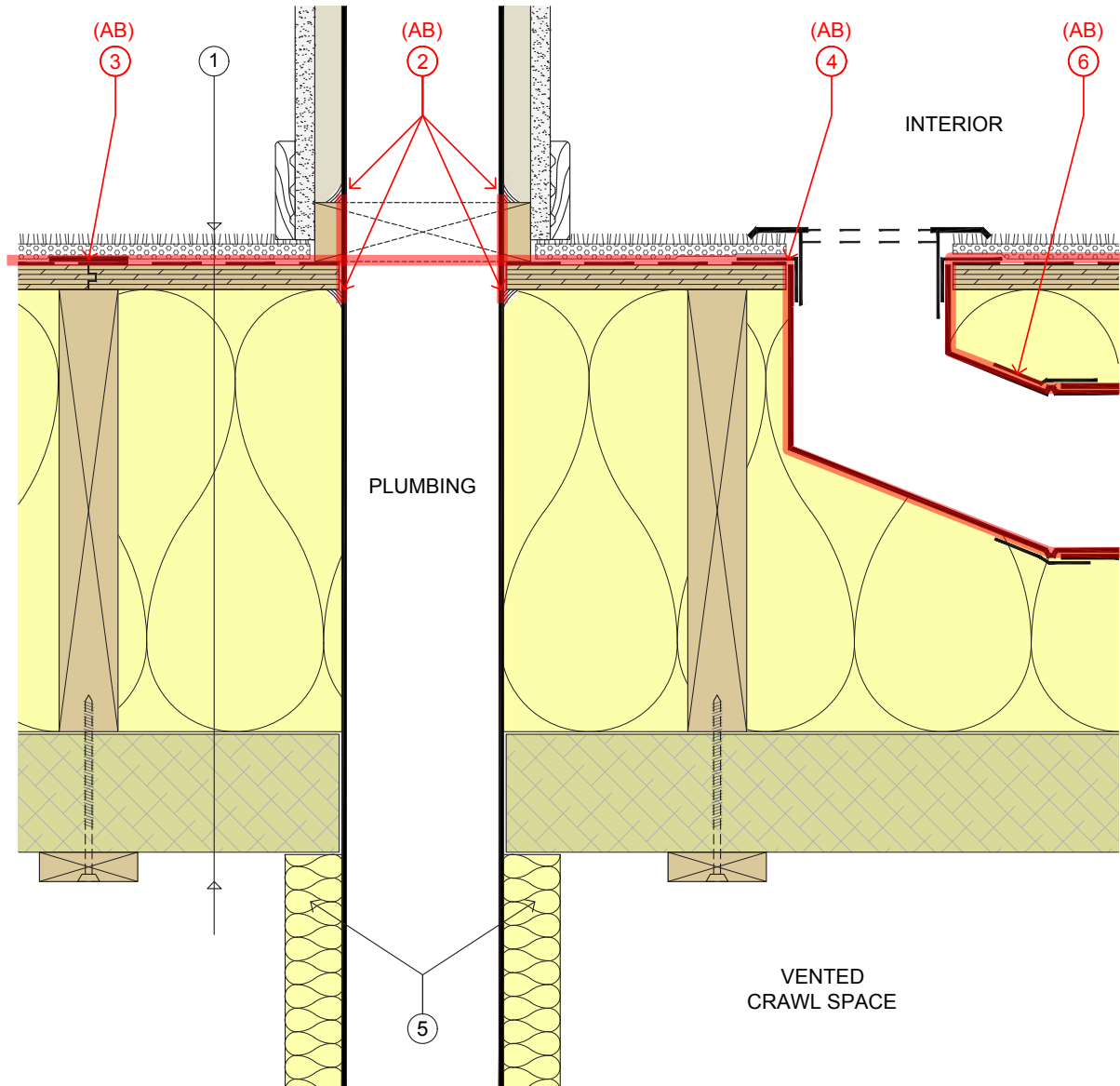


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| <p>① Wall assembly</p> <ul style="list-style-type: none"> • Fibre cement board siding • Pressure treated wood strapping/air cavity • Rigid mineral wool exterior insulation • VP sheathing membrane (AB/WRB) • Sheathing • 2x6 wood framing • Batt insulation • Vapour barrier membrane • Interior gypsum wall board <p>② Sealant</p> <p>③ Sheathing membrane set in sealant at edge of floor sheathing (AB)</p> <p>④ Insect screen</p> <p>⑤ Pre-finished metal L flashing</p> | <p>⑥ Self-adhered membrane</p> <p>⑦ High performance tape at all floor sheathing joints (AB)</p> <p>⑧ Floor assembly</p> <ul style="list-style-type: none"> • Interior finish • Interior floor sheathing taped at all joints (AB) • 2x12 wood joist framing • Batt insulation between wood joists • Sheathing • Optional VP sheathing membrane (AB/WRB) • Rigid mineral wool exterior insulation • Pressure treated wood strapping/air cavity • Perforated soffit panel |
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CANTILEVER WITH EXTERIOR SOFFIT | D3.04 SPLIT-INSULATED EXPOSED WOOD-FRAME FLOOR

Detail 3.05 Plumbing and Duct Penetration – Split-Insulated Exposed Wood-Frame Floor

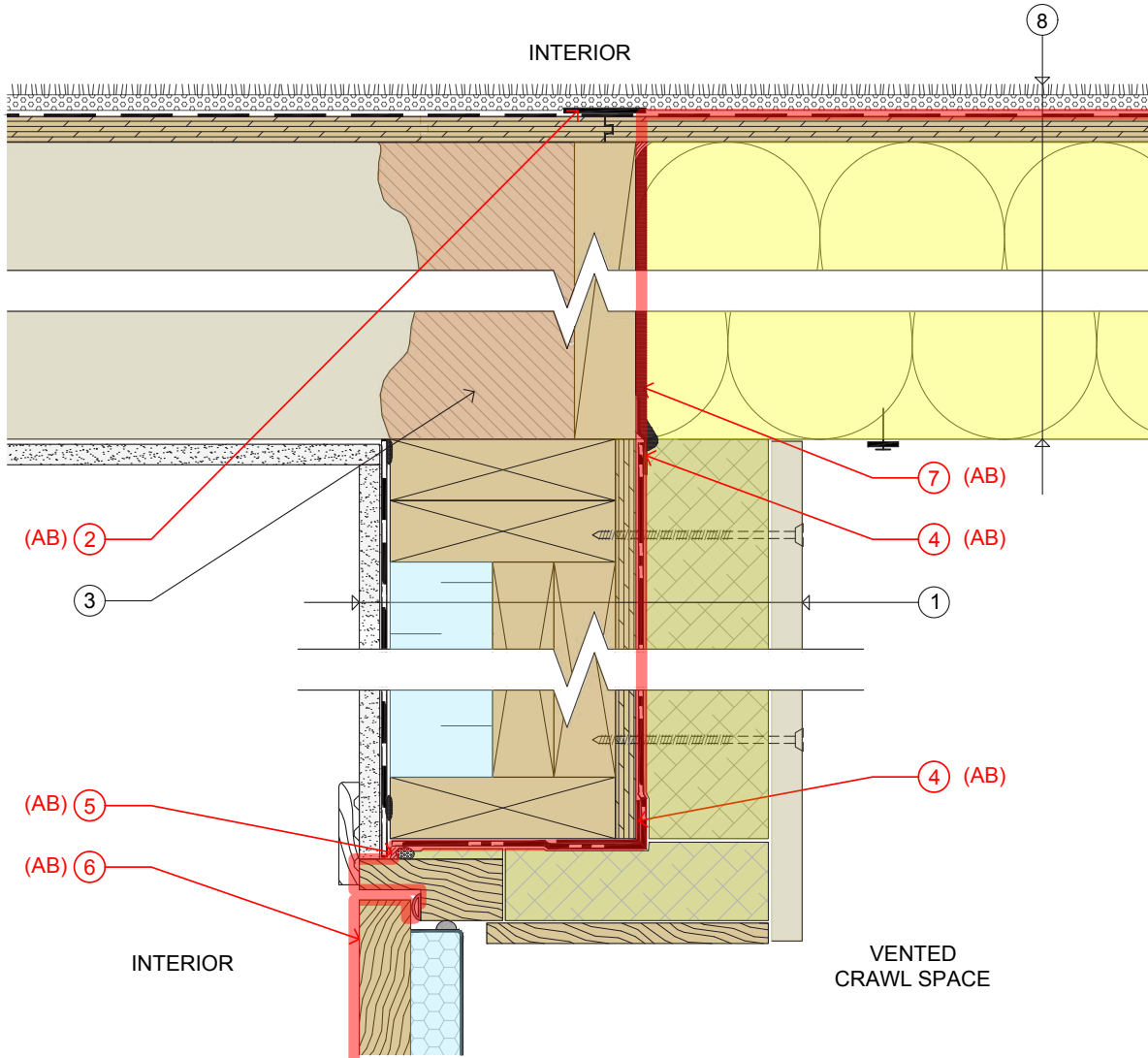


LEGEND

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| <p>① Floor assembly</p> <ul style="list-style-type: none"> • Interior finish (including vapour barrier underlay) • Interior floor sheathing taped at all joints (AB) • 2x12 wood joist framing • Batt insulation • Rigid mineral wool exterior insulation • Pressure treated wood strapping | <p>② Sealant around pipe penetration (AB)</p> <p>③ High performance tape at all floor sheathing joints (AB)</p> <p>④ High performance tape between rectangle register duct boot and floor sheathing (AB)</p> <p>⑤ Insulating wrap around pipe</p> <p>⑥ Air seal at all duct joints (AB)</p> |
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PLUMBING AND DUCT PENETRATION | D3.05 SPLIT-INSULATED EXPOSED WOOD-FRAME FLOOR

Detail 3.06 Interior Crawl Space Access Door Through Pony Wall – Insulated Exposed Wood-Frame Floor



LEGEND

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| <p>① Crawl space pony wall assembly</p> <ul style="list-style-type: none"> • Pressure treated wood strapping • Rigid mineral wool exterior insulation • Sheathing taped at all joints (AB) • 2x6 wood framing • XPS insulation at lintel • Vapour barrier membrane • Interior gypsum wall board <p>② High performance tape at all floor sheathing joints (AB)</p> <p>③ Continuous polyurethane spray foam or batt and poly</p> | <p>④ High performance tape at all pony wall sheathing joints and onto floor joist blocking (AB)</p> <p>⑤ Backer rod and sealant (AB)</p> <p>⑥ Insulated crawl space access door (AB)</p> <p>⑦ Continuous sealant around joist blocking and onto high performance tape (AB)</p> <p>⑧ Floor assembly</p> <ul style="list-style-type: none"> • Interior finish (including vapour barrier underlay) • Interior floor sheathing taped at all joints (AB) • 2x12 wood joist framing • Batt insulation with retention straps across joists |
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INTERIOR CRAWL SPACE ACCESS DOOR THROUGH PONY WALL | D3.06
INSULATED EXPOSED WOOD-FRAME FLOOR

Glossary

Air control layer	The control layer designed to resist the flow of air through the building enclosure. Also referred to as the air barrier system.
Air leakage	Uncontrolled airflow through openings in the building enclosure.
Air permeance	The degree to which a material allows air to flow through it.
Clear crushed gravel	Free-draining, washed aggregate composed of crushed stone with little to no fine particles.
Vapour control layer (vapour barrier / vapour retarder)	The control layer that manages the diffusion of water vapour through materials and resists movement of water vapour across the enclosure.
Vapour diffusion	The movement of water vapour through a material.
Water control layer	The innermost boundary against liquid water intrusion.
Dampproofing	Water-resistive coating or membrane applied to below-grade foundation surfaces to limit the passage of moisture where hydrostatic pressure is not anticipated.
Groundwater table	Refers to the interface between partially and fully saturated soil, below which hydrostatic forces would be exerted on a below-grade structure. As distinct from “ground water” which is moisture in soil and subsurface drainage pathways.
Water load	The liquid water the enclosure manages, including precipitation, runoff, groundwater, and ice melt.
Water-shedding surface (WSS)	The outer surface of the building enclosure that deflects most exterior precipitation away from inner layers.
Thermal control layer	The control layer designed to primarily resist heat flow through the building enclosure.
Radon barrier	Continuous membrane installed within a building assembly to limit the entry of radon gas from the ground into the occupied space. It is typically integrated with a sub-slab depressurization or venting system where required.
R-value / RSI value	The measure of the thermal resistance of a material or assembly of materials.
Penetration	Any intentional opening through an assembly to allow ducts, wires, pipes, or fasteners to pass.
Condensation	The change of water vapour to liquid water.
Continuity (of control layers)	Control layers that span across different material types, transitions, interfaces, and joints without breaks.



Developed by Natural Resources Canada's Local Energy Efficiency Partnerships (LEEP) team

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