The Comfort Within: Understanding the Walls of Your Home

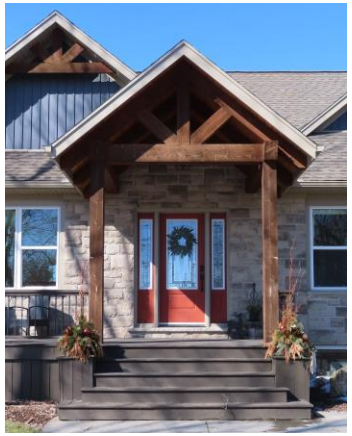
Aurthor: Rose Xu Published: April 23rd 2025

Home is a warm and comforting place to be. People have been thoughtfully designing and building homes for generations. But what elements and materials help create a warm, inviting atmosphere? What exactly makes our homes feel so welcoming and comforting?

In this article, I will explore the key materials that not only strengthen residential walls but also contribute to the overall warmth and comfort of a home. To do this, I will reference the **National Master Specification (NMS) of Canada**, we can better understand how materials like insulation, sheathing, cladding, and vapour barriers play a role not just in structural integrity, but in creating homes that feel safe, warm, and welcoming.

Division 03-06: Structural:

A wall must be structurally capable of supporting itself and accommodating various activities within the structure, while providing a safe and comfortable environment for occupants to live and work. In this section, we will go through Division 03-Concrete, Division 05- Metals, Division 06-Wood, Plastics and Composites in NMS.



Division 07: Thermal Comfort:

To maintain a comfortable indoor temperature, insulation is essential for reducing heat loss in cold climates and minimizing heat gain in hot climates. It helps keep the indoor environment stable and energy efficient. In this section we includes Division 07-Thermal and Moisture Protection that includes Thermal uses in residential wall.

Division 07: Moisture and Vapour Control:

External precipitation and moisture can negatively impact the building's interior. Proper materials and barriers are necessary to prevent moisture infiltration and condensation, ensuring a dry and healthy indoor environment. In this section we includes Division 07-Thermal and Moisture Protection that includes Moisture, Vapour and Ventilation uses in residential wall.

Division 08: Openings:

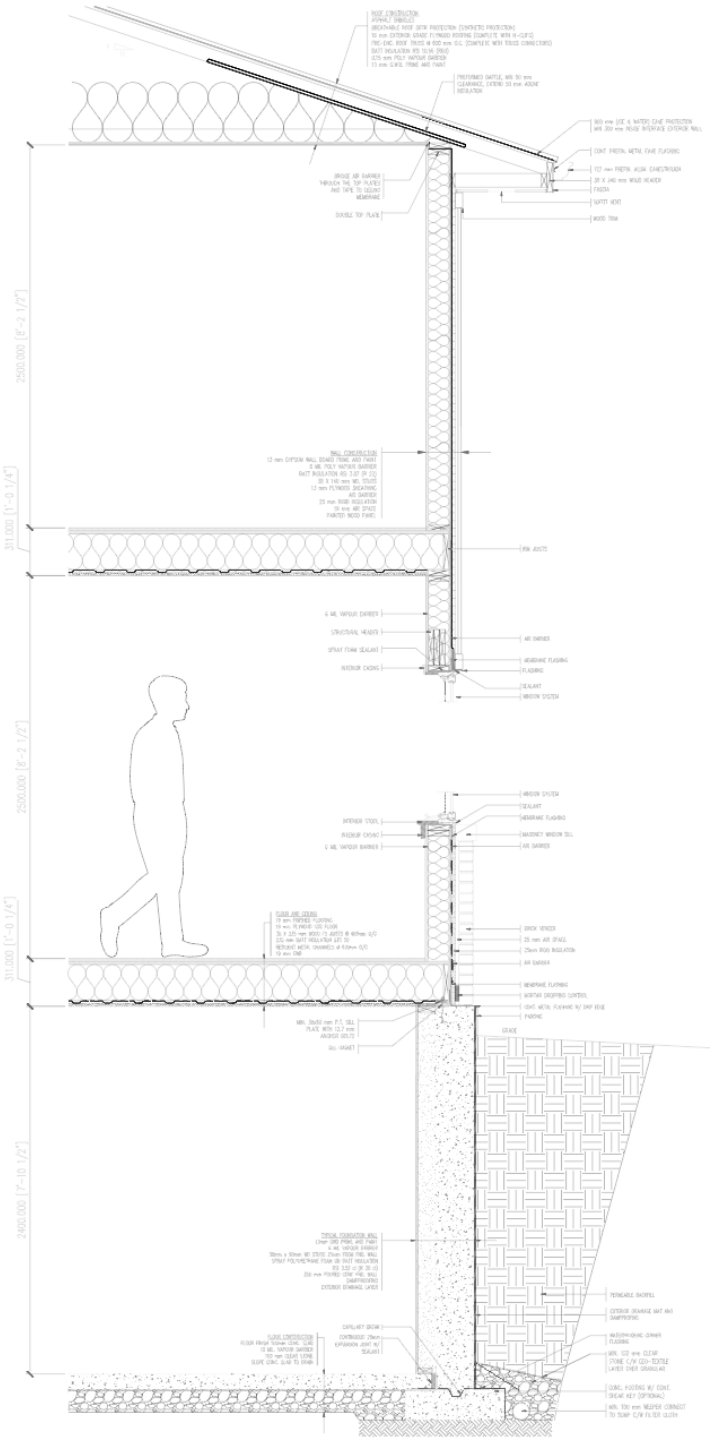
Windows and doors provide natural light, ventilation, and accessibility. Well-designed openings can enhance the aesthetics, functionality, and comfort of interior spaces.

Division 06-09: Cladding and Finishing:

The exterior and interior finishes of a building provide both protection and aesthetic appeal. Cladding shields the structural components from environmental damage, while interior finishes enhance the visual quality and character of the space. In this section, we will go through Division 06-Wood, Plastics and Composites, Division 07-Thermal and Moisture Protection, Division 09-Finishes in NMS.

Division 21-28: Services Integration:

The integration of plumbing, electrical wiring, heating, and air conditioning systems is essential for ensuring a comfortable and functional indoor environment. In this section, we will go through Division 21-Fire Suppression, Division 22-Plumbing, Division 23-Heating, Ventilation, and Air Conditioning (HVAC), Division 26-Electical. Division 27-Communications, Division 28- Electronic Safety and Security in NMS.



Division 03 Concrete:

Division 03-03 30 00 (Cast-in-Place Concrete) **Concrete**

What is it?

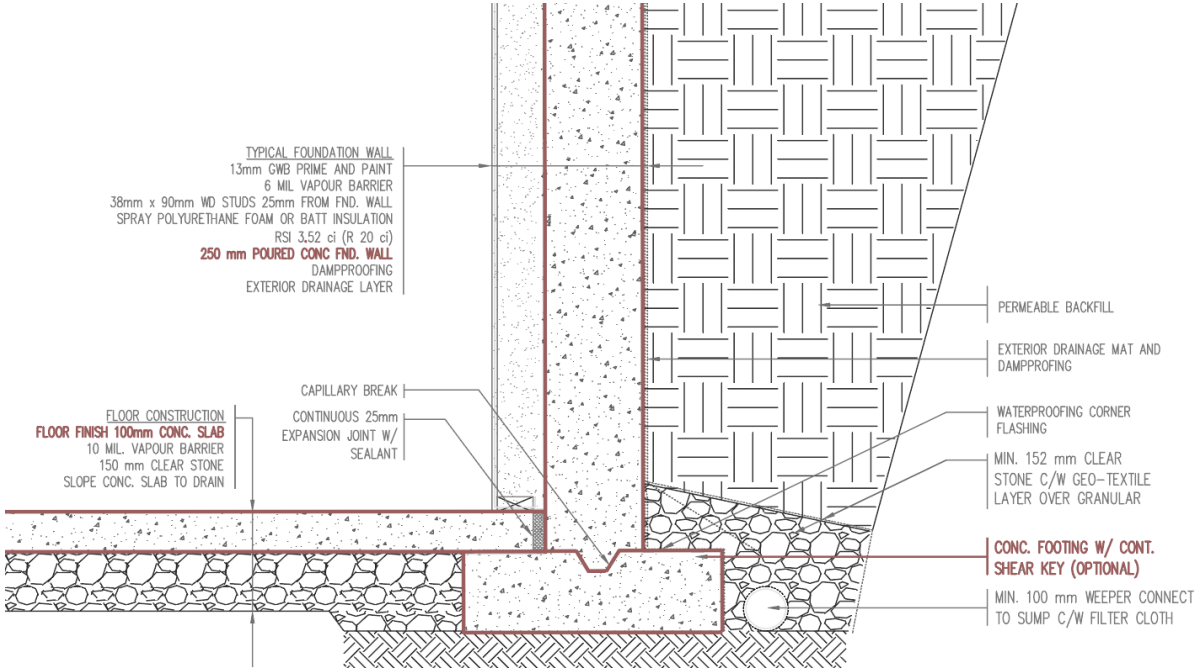
- **Concrete** is a **composite material made from cement, water, aggregates (sand, gravel, or crushed stone), and additives**.
- Commonly used for **foundations, footings, slabs, walls, driveways, sidewalks, and structural elements**.
- Known for its **high compressive strength, durability, fire resistance, and versatility**.

Why is it necessary?

- **Provides Structural Stability**
- **Long-Term Durability**
- **Versatility**
- **Cost-Effective:** Provides excellent performance for its cost, especially for large-scale projects.
- **Compatibility with Reinforcement:** Works well with steel reinforcement (rebar) to enhance tensile strength.

Canadian Manufacturers/Suppliers:

- **Amermix :** Amerimix Commercial Pre-Blended Products
- **Sakrete:**Concrete Products | Sakrete



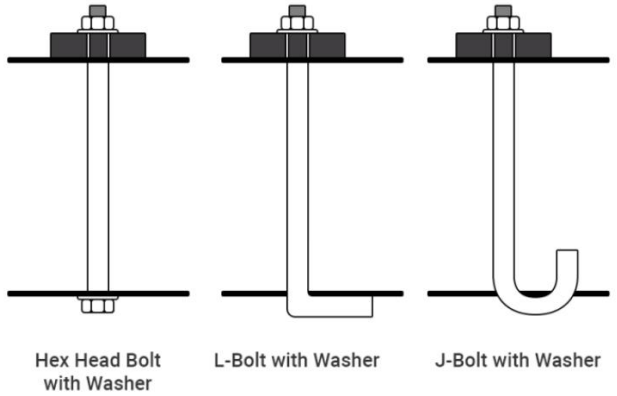
Type of Concrete	Common Uses	Key Features	Main Benefits
Normal Strength Concrete	General construction (slabs, pavements)	Standard mix of cement, water, and aggregates	Reliable and cost-effective
High-Strength Concrete	High-rise buildings, bridges	>50 MPa compressive strength	Greater load capacity, reduced section size
Reinforced Concrete	Beams, columns, slabs	Embedded steel reinforcement	Handles tension and compression
Gypsum Concrete	Floor underlayment, soundproofing	Mixture of gypsum, Portland cement, and sand	Lightweight with good fire resistance
Ready-Mix Concrete	General construction, large projects	Mixed at a central plant and delivered to site	Consistent quality and reduced on-site labor
Pervious Concrete	Driveways, sidewalks, parking lots	High porosity	Allows water infiltration, eco-friendly
Lightweight Concrete	Roof decks, precast panels	Lightweight aggregates	Reduced structural load

Division 05 Metals:

Division 05-05 05 23 (Metal Fastenings) **Anchor Bolt**

What is it?

- **Anchor Bolts** are **steel fasteners embedded in concrete or masonry foundations** to provide secure attachment for **structural components such as sill plates, steel columns, and beams**.
- Designed to **transfer loads from structural members to the foundation**.
- Available in various shapes, including **L-shaped, J-shaped, wedge anchors, and threaded rods**.

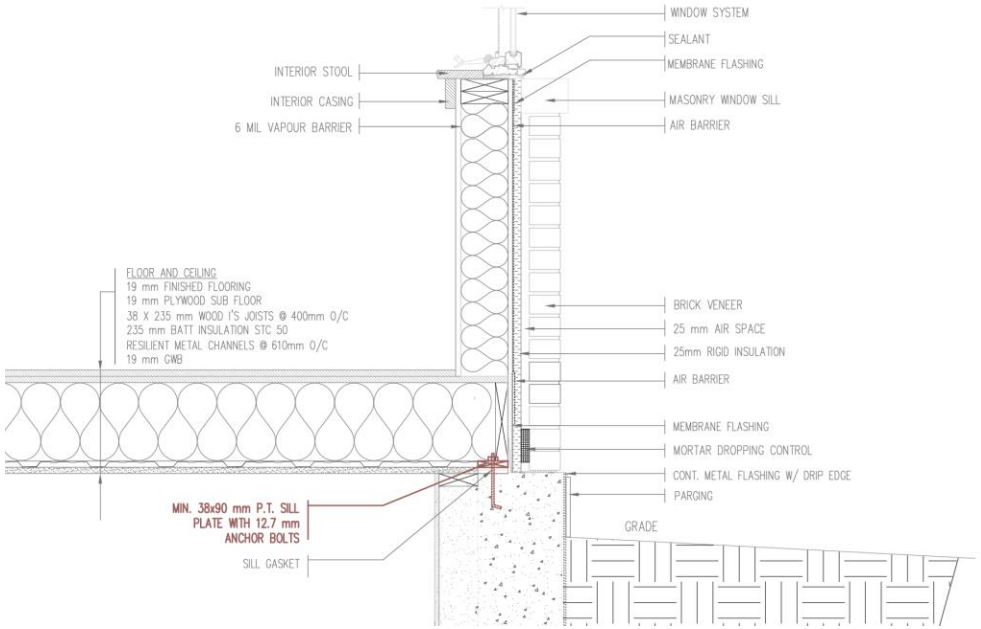


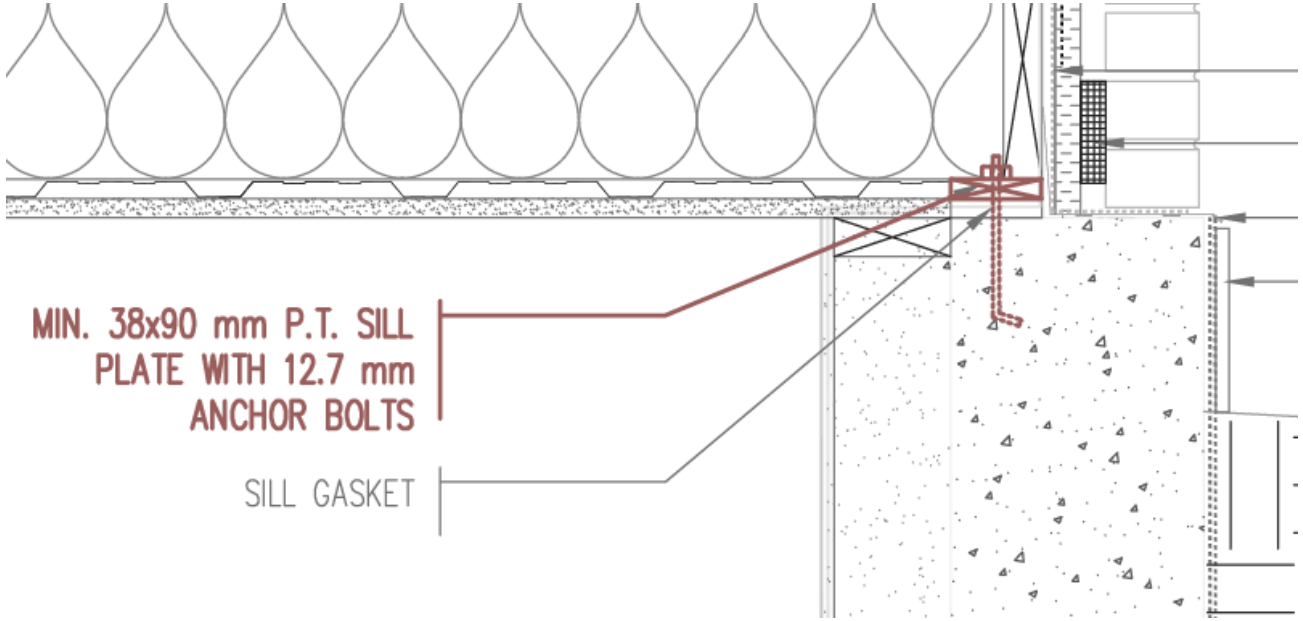
Why is it necessary?

- **Provides Structural Stability:** Prevents movement of structural members during lateral or vertical loading.
- **Improves Load Transfer:** Distributes loads effectively from framing members to foundations.
- **Ensures Safety and Durability:** Prevents structural failure due to improper attachment.
- **Resists Uplift and Shear Forces:** Essential in areas prone to high winds, seismic activity, or heavy loads.

Canadian Manufacturers/Suppliers:

- **Simpson Strong-Tie:** L-Bolt Anchor Bolt | Simpson Strong-Tie
- **Fastenal Canada:** Bent Anchor Bolts | Fastenal





Division 06 Wood:

Division 06-06 11 00 (Wood Framing) **Pressure Treated Sill Plate:**

What is it?

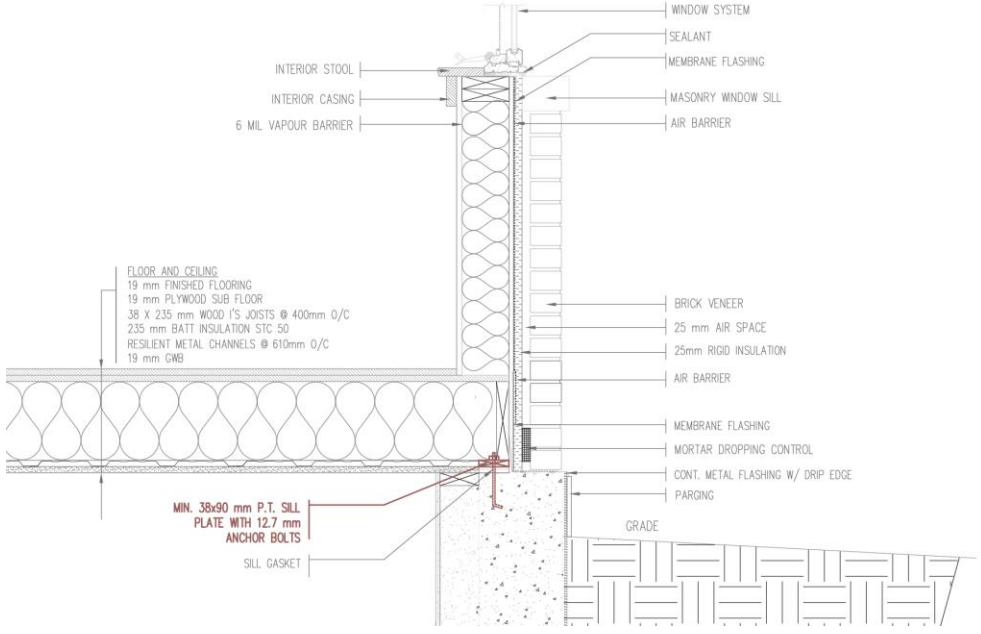
- A **Pressure-Treated (PT) Sill Plate** is a **horizontal structural framing member installed on top of a foam gasket (rubber)**.
- It serves as a **base for wall framing members (studs) and provides a connection point between the foundation and the wood framing above**.
- **Pressure-treated lumber** is infused with chemical preservatives to **resist moisture, rot, insects, and decay**, making it suitable for direct contact with concrete or masonry.

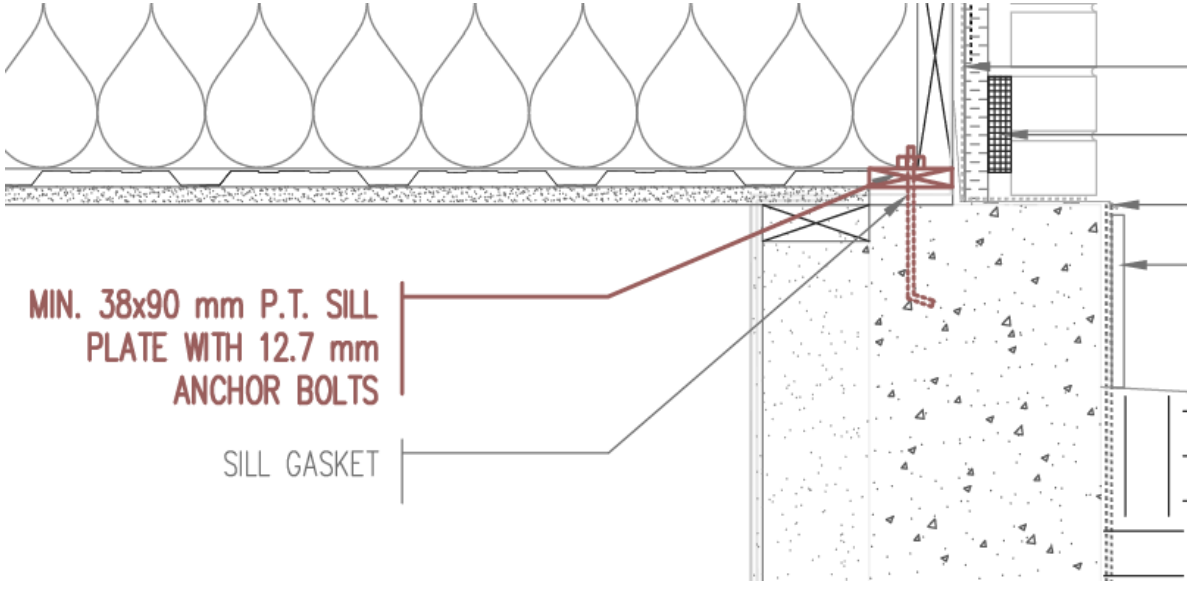
Why is it necessary?

- **Moisture Resistance:** Prevents rot and decay due to moisture from concrete or masonry surfaces.
- **Insect Protection:** Treated with preservatives to deter termites and other wood-damaging insects.
- **Improved Durability:** Extends the lifespan of the framing assembly by resisting moisture-related damage.
- **Structural Stability:** Provides a stable and level base for framing walls.

Canadian Manufacturers/Suppliers:

- **Doman (Also can be find in Rona) :** Doman | Premier supplier of building materials in North America
- **Canfor:** Canfor — Lumber, Pulp, Paper & Sustainable Wood Products
- **Interfor (Also can be find in Rona) :** Interfor | Quality Lumber | Moving Ahead in Bold Directions
- **RONA Canada**: Major building materials retailer with location throughout Canada. Renovation Projects And Home Construction | RONA





Division 06-06 11 00 (Wood Framing) **Structure Header:**

What is it?

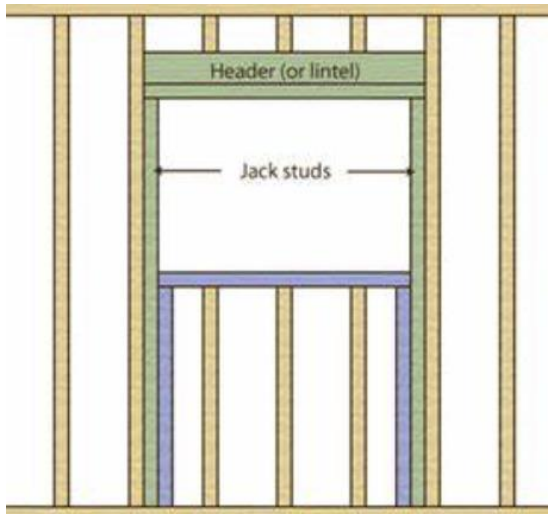
- A **Structural Header** is a **horizontal load-bearing beam installed above openings in walls**, such as **doors, windows, garage doors, or large wall openings**.
- Provides **structural support by transferring loads from above to the framing members (studs or columns) on either side of the opening**.

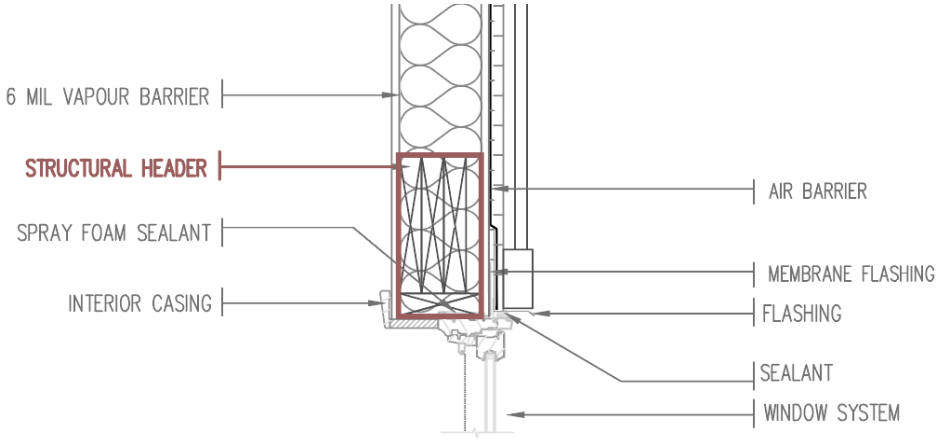
Why is it necessary?

- **Provides Structural Support**
- **Prevents Sagging or Collapse**
- **Improves Load Distribution:** Spreads loads evenly to reduce stress on framing members.
- **Enhances Safety:** Prevents structural failures due to improper framing.

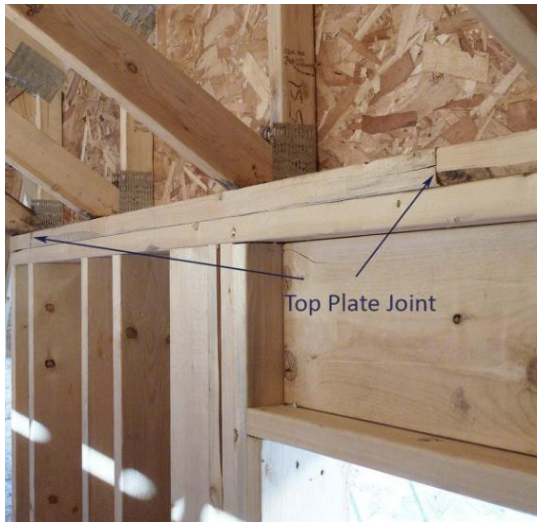
Lumber Canadian Manufacturers/Suppliers:

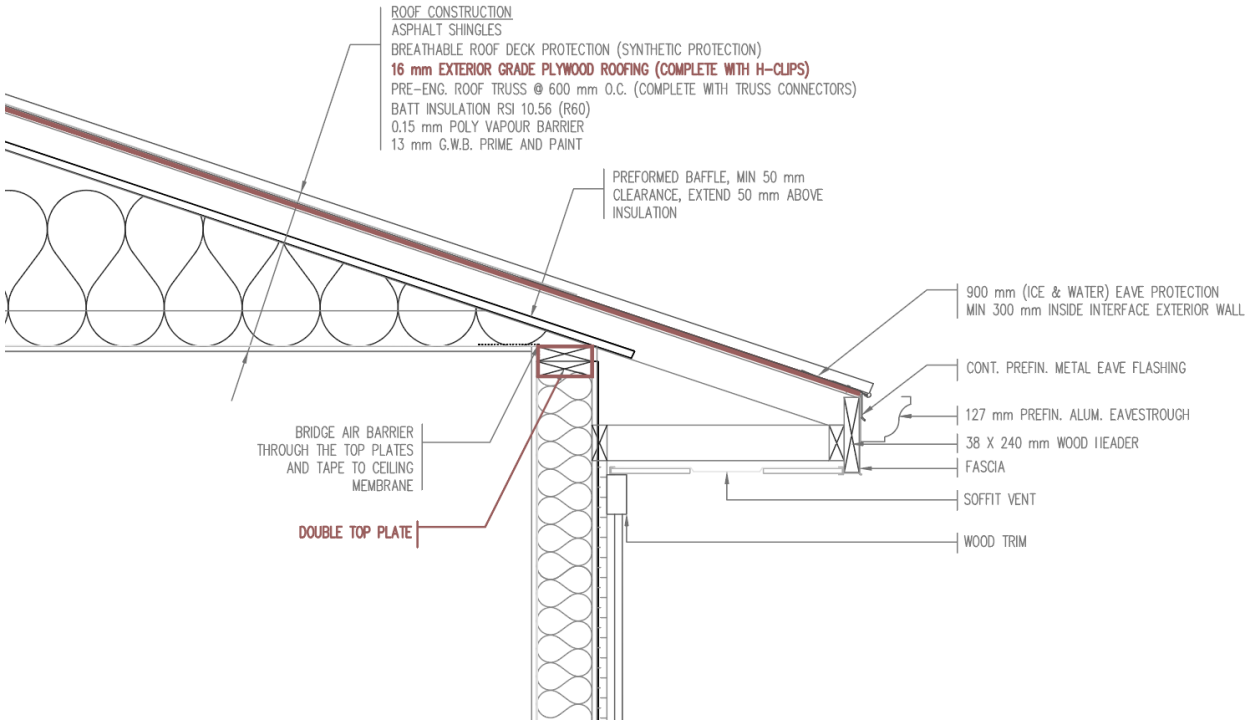
- **Doman (Also can be find in Rona) :** Doman | Premier supplier of building materials in North America
- **Canfor:** Canfor — Lumber, Pulp, Paper & Sustainable Wood Products
- **Interfor (Also can be find in Rona) :** Interfor | Quality Lumber | Moving Ahead in Bold Directions
- **RONA Canada**: Major building materials retailer with location throughout Canada. Renovation Projects And Home Construction | RONA





Lumber Type	Common Uses	Key Features
SPF (Spruce-Pine-Fir)	Wall studs, plates, general framing	Lightweight, affordable, widely available in Canada
Douglas Fir	Load-bearing walls, headers, beams	Strong, straight-grained, excellent for structural use
Hem-Fir	Interior framing, studs, non-load walls	Soft, easy to work with, stable
Southern Yellow Pine	Framing, joists, studs (less common in Canada)	High strength, good nail-holding
Cedar	Exterior walls, trim, cladding	Naturally rot-resistant, aromatic, insect-resistant
Pressure-Treated Lumber	Bottom plates, sill plates (touching concrete)	Treated to resist moisture, decay, and pests
Engineered Lumber (LVL)	Beams, headers, load-bearing framing	Very strong, stable, resists warping and shrinking
OSB (Oriented Strand Board)	Wall sheathing	Affordable alternative to plywood, structural and moisture-tolerant
Plywood	Wall sheathing, shear walls	Strong, durable, better moisture resistance than OSB





Division 06 11 00 (Wood Framing) **Top Plate**

What is it?

- A **Top Plate** is a **horizontal structural framing member located at the top of a wall assembly**.
- Provides a **connection point for wall studs and supports the roof framing or floor joists above**.
- Commonly made from **dimensional lumber (e.g., 2x4, 2x6)** or **engineered wood products** for added strength.
- In load-bearing walls, **double top plates** are often used for increased structural capacity.

Why is it necessary?

- **Provides Structural Support**
- **Improves Wall Stability:** Prevents movement and twisting of studs, ensuring overall rigidity.
- **Acts as a Connection Point**
- **Ensures Structural Continuity:** Double top plates overlap at wall intersections to provide stability and load transfer.

Canadian Manufacturers/Suppliers:

- **Doman (Also can be find in Rona) :** Doman | Premier supplier of building materials in North America
- **Canfor:** Canfor — Lumber, Pulp, Paper & Sustainable Wood Products
- **RONA Canada**: Major building materials retailer with location throughout Canada. Renovation Projects And Home Construction | RONA

Division 06-06 16 00 (Sheath) **Exterior Grade Plywood:**

What is it?

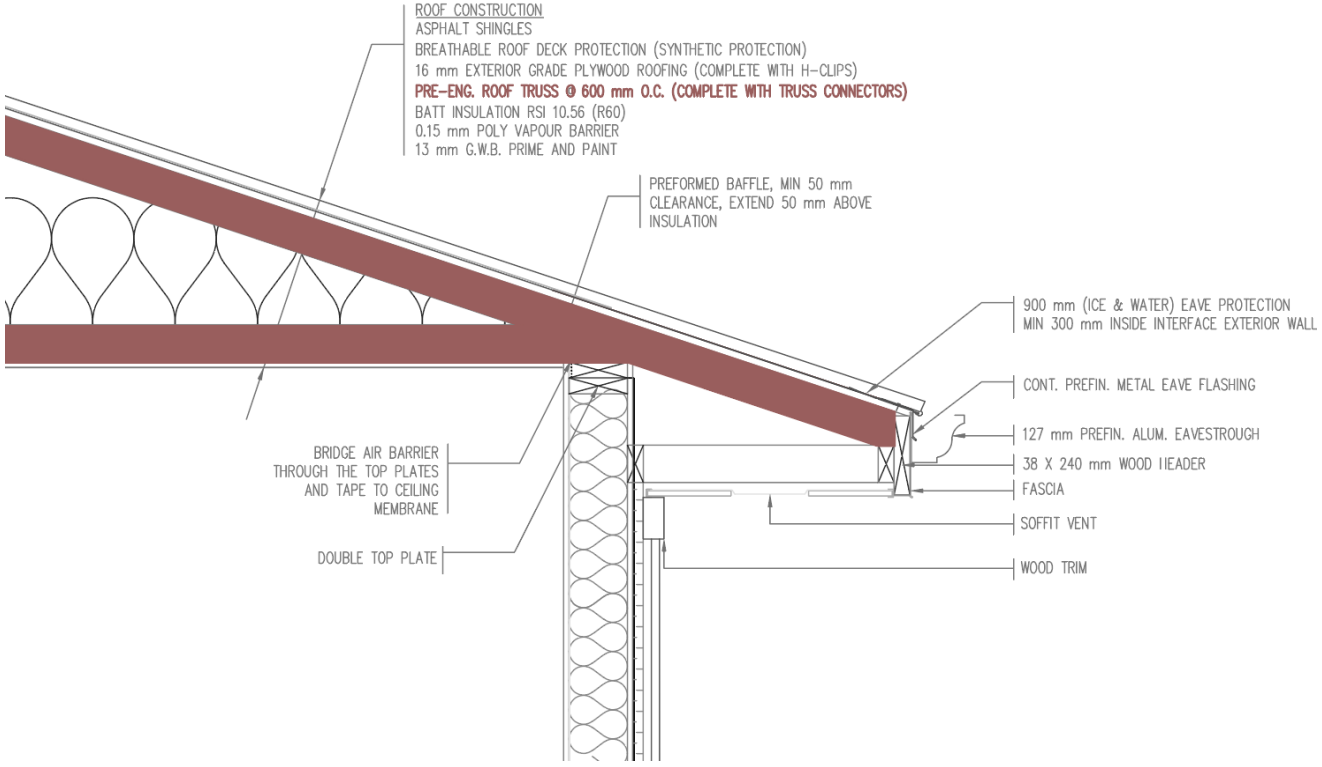
- Exterior grade plywood is a type of **engineered wood panel** made by gluing together multiple layers (or "plies") of wood veneer with **water-resistant adhesives**. It's specifically manufactured to withstand **moisture, temperature changes, and outdoor conditions.**

Why is it necessary?

- **Structural Support:** It forms the **roof deck** — the base layer that supports all roofing materials (underlayment, shingles, etc.).
- **Fastening Surface:** Provides a solid and secure base to **nail or screw roofing materials** into.
- **Durability:** Withstands **long-term exposure** to environmental conditions during construction before the final roofing is installed.

Canadian Manufacturers/Suppliers:

- **Canfor:** Canfor — Lumber, Pulp, Paper & Sustainable Wood Products
- **Doman (Also can be find in Rona) :** Doman | Premier supplier of building materials in North America
- **Home Hardware / RONA / Home Depot:** Carry plywood from multiple local and North American suppliers.



Division 06-06 17 53 (Shop-Fabricated Wood Trusses) **Roof Truss**

What is it?

- A **Roof Truss** is a **prefabricated structural framework consisting of interconnected wood or metal members (chords and webs)**.
- Designed to **support roof loads and transfer them to exterior walls**, providing strength, stability, and efficiency.
- Commonly made from **dimensional lumber (e.g., 2x4, 2x6), engineered wood (LVL, LSL, PSL), or steel**.

Why is it necessary?

- **Provides Structural Support**
- **Allows Clear Spans:** Eliminates the need for interior load-bearing walls, providing open interior spaces.
- **Cost-Effective:** Prefabrication reduces labor costs and construction time.
- **Ensures Structural Integrity:** Designed to meet building code requirements for strength and safety.
- **Lightweight Yet Strong**
- **Versatile Design Options:** Can be customized to fit various architectural styles and structural requirements.

Canadian Manufacturers/Suppliers:

- **Canfor:** Canfor — Lumber, Pulp, Paper & Sustainable Wood Products
- **Soprema:** Roof and Building Envelope Expert | SOPREMA

Division 07: Thermal Comfort

Thermal Comfort refers to the condition of mind that expresses **satisfaction with the thermal environment**. It is a critical aspect of building design aimed at maintaining comfortable **indoor temperatures, humidity levels, and air movement** that feel pleasant to occupants, regardless of outdoor conditions.

R-Value and RSI

- **R-Value** is a measure of **thermal resistance** used in the building and construction industry to **rate the effectiveness of insulation materials**. It indicates how well a material resists the flow of heat. The higher the R-Value, the better the material is at **insulating and retaining heat**.
- **Calculation:** R-Value = **Thickness of material (inches)** / **Thermal conductivity (k-value)**.

- **RSI** stands for **R-Value Système International**, which is the **metric equivalent of R-value** used to measure **thermal resistance** in building materials—especially in insulation.
- Key Points:
    - **RSI (m²·K/W)** = Resistance to heat flow (higher = better insulation)
    - It's used **in Canada** and other countries that follow the **SI (metric) system**

Conversion:
•To switch between RSI and R-value (imperial):
•R-value = RSI × 5.678
•RSI = R-value ÷ 5.678

Factors Affecting R-Value

•Material Type:

•Different materials have varying abilities to resist heat flow. For example:

•Fiberglass Batt Insulation: R-3.1 to R-3.4 per inch (per 25mm).
•Rock Wool (Mineral Wool): R-3.3 to R-3.7 per inch (per 25mm).
•Spray Polyurethane Foam Insulation (Closed-Cell): R-6 to R-7 per inch (per 25mm) (very high).
•Rigid Insulation (Polystyrene, Polyiso): R-4 to R-6 per inch (per 25mm).
•Batt Insulation (Fiberglass): R-2.9 to R-3.8 per inch (per 25mm).

Why Important

•Energy Efficiency: Higher R-Values reduce heating and cooling costs by minimizing heat loss in winter and heat gain in summer.
•Thermal Comfort: Proper insulation improves indoor comfort by maintaining a consistent temperature.
•Building Codes: Minimum R-Values are often specified by building codes depending on the climate zone.

Division 07-07 21 13 (Board Insulation) **Rigid Insulation**

What is it?

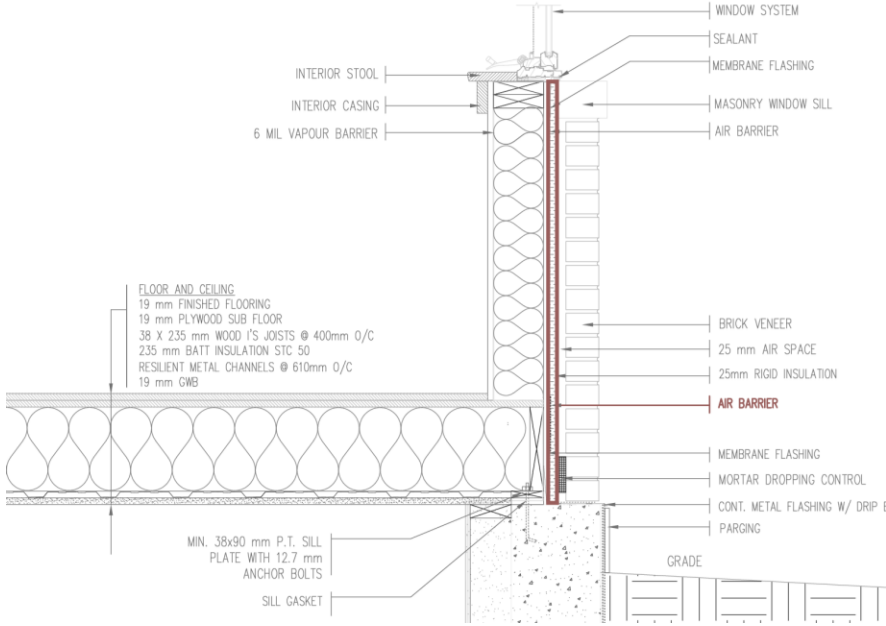
-**Rigid Insulation** is a type of **thermal insulation made from rigid foam panels** designed to provide **high R-values, moisture resistance, and structural strength**.
-Commonly used for **exterior wall sheathing, foundations, roofs, and floors**.

Why is it necessary?

-**High R-Value:** Provides effective thermal resistance, typically ranging from **R-4 to R-6.5 per inch**, depending on the material.
-**Moisture Resistance:** Closed-cell structure resists water absorption, preventing moisture-related issues.
-**Reduces Thermal Bridging**
-**Durability:** Resistant to damage from moisture, mold, insects, and environmental conditions.
-**Improves Energy Efficiency:** Reduces heating and cooling loads, contributing to lower energy bills.

Canadian Manufacturers/Suppliers:

•**Owens Corning Canada:** Residential and Home Insulation | Owens Corning Insulation
-**Roxul Inc. (Rockwool):** Fire and Soundproofing Insulation | ROCKWOOL



Division 07-07 26 00 (Foamed-In-Place Insulation) **Spray Polyurethane Foam Insulation (SPF)**

What is it?

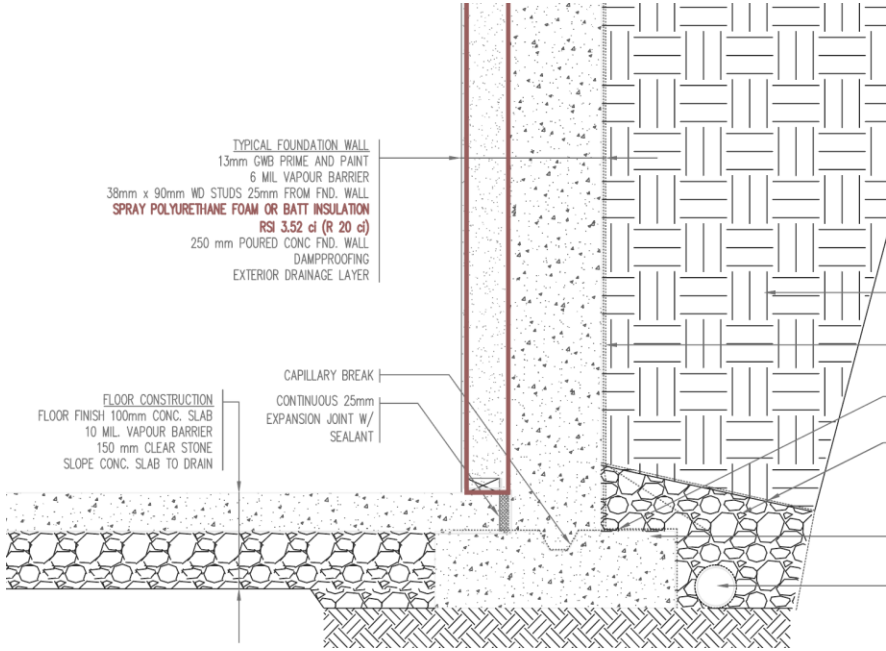
•**Spray Polyurethane Foam (SPF) Insulation** is a **liquid insulation material that expands into a rigid foam when sprayed**.
•Provides **thermal insulation, air sealing, and moisture protection** in one application.

Why is it necessary?

•**Superior Insulation Performance:** Provides high R-values per inch.
•**Air Sealing:** Effectively seals gaps, cracks, and joints, improving energy efficiency and reducing air leakage.
•**Moisture Barrier:** Closed-cell foam acts as a vapor barrier, preventing moisture infiltration and condensation.
•**Structural Strength (Closed-Cell Foam):** Adds rigidity to walls, roofs, and other structural elements.
•**Durability:** Long-lasting performance with resistance to moisture, mold, and pests.

Canadian Manufacturers/Suppliers:

•**DuPont (Froth-Pak):**DuPont Froth-Pak™: High Performance Spray Foam Sealant and Insulation Products
•**Rona:** Search Results | RONA
•**Johns Manville:** Residential Building Insulation | Johns Manville



Division 07-07 21 16 (Blanket Insulation) **Batt Insulation**

What is it?

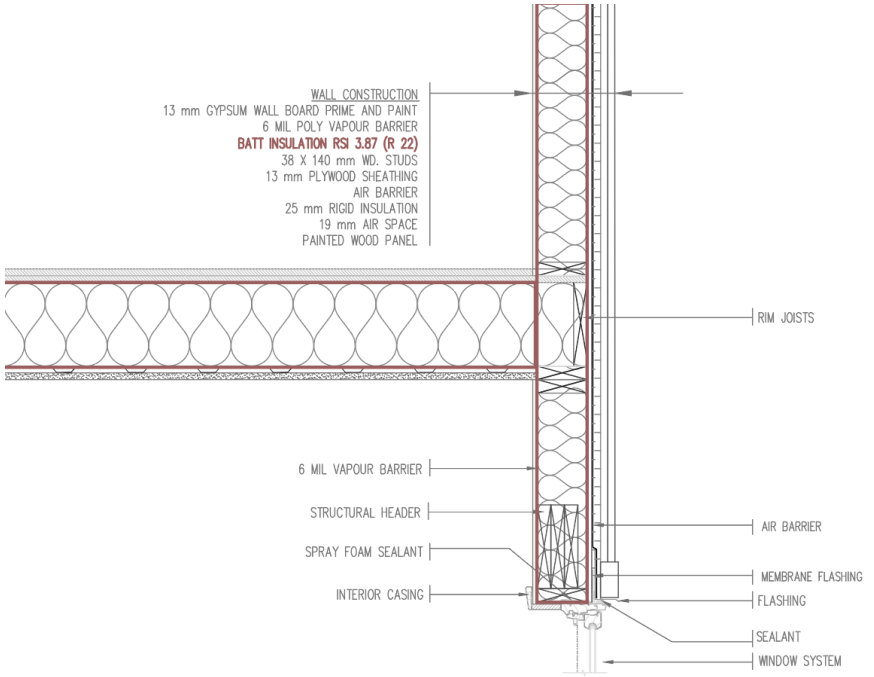
- **Batt Insulation** is a type of **thermal and acoustic insulation material made from pre-cut sections (batts) designed to fit between framing members such as studs, joists, and rafters**.
- Commonly made from **fiberglass, mineral wool (rock wool), or natural fibers like cotton**.
- Provides **thermal resistance, soundproofing, and fire protection**, depending on the material used.
- Available with or without **facing materials** (e.g., kraft paper, foil, or vapor barrier).

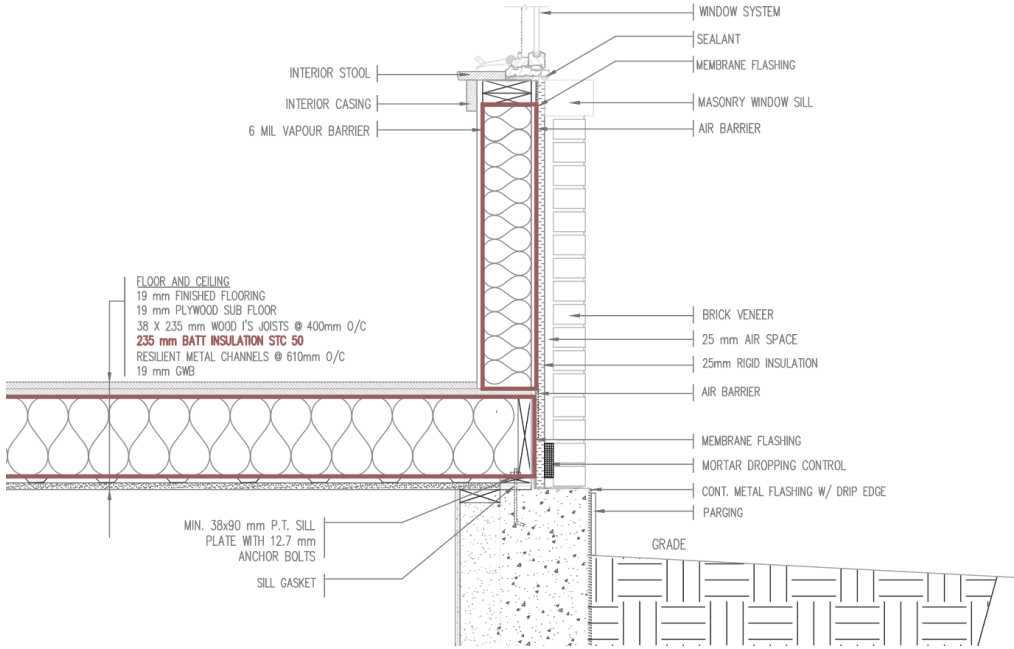
Why is it necessary?

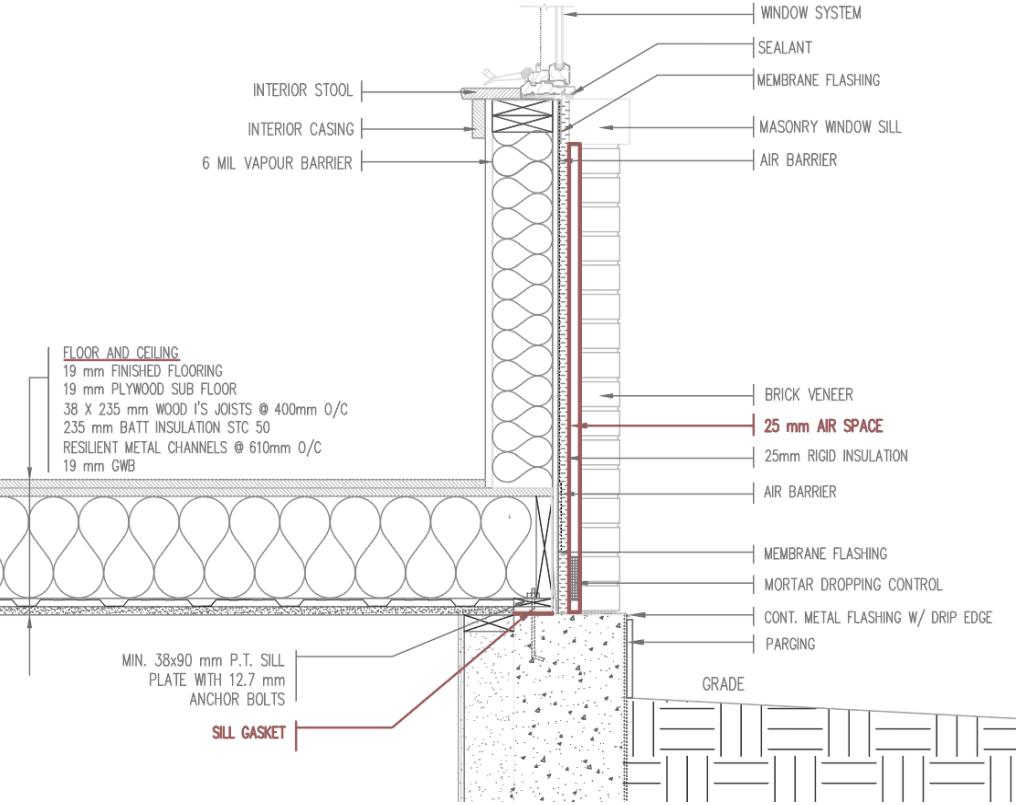
- **Thermal Insulation:** Reduces heat loss in winter and heat gain in summer, improving energy efficiency.
- **Soundproofing:** Provides acoustic insulation, particularly **mineral wool**, which has superior sound-absorbing properties.
- **Fire Resistance**
- **Moisture Resistance:** Resistant to mold, mildew, and water damage.
- **Sustainability:** Some products are made from recycled materials (e.g., fiberglass from recycled glass, cotton from recycled denim).
- **Cost-Effective:** One of the most affordable and effective insulation solutions.

Canadian Manufacturers/Suppliers:

- **Rock Wool:** Fire and Soundproofing Insulation | ROCKWOOL
- **Rona**: Search Results | RONA
- **Johns Manville:** Residential Building Insulation | Johns Manville







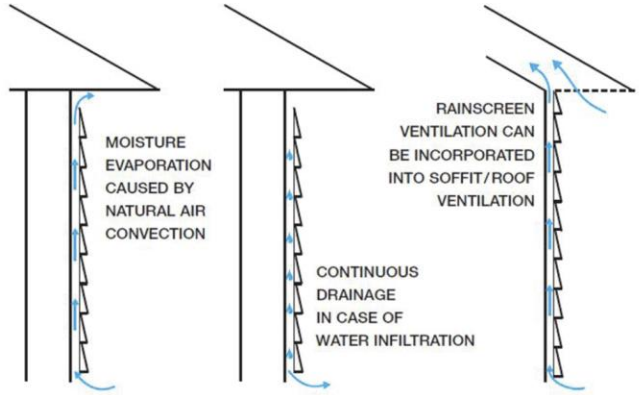
Division 07-07 27 00 (Air Barriers) **Air Space**

What is it?

- An **Air Space** is a **deliberate gap left between building materials to provide ventilation, moisture control, and thermal efficiency**.
- Typically used in **wall assemblies, roof assemblies, and rain screen systems**.
- Provides **drainage, drying, and thermal performance improvement** by reducing thermal bridging and allowing moisture to escape.
- Can be created by installing **furring strips, spacers, or using specialized cladding systems**.

Why is it necessary?

- **Moisture Management:** Prevents moisture buildup behind cladding by allowing water vapor and liquid water to drain away.
- **Improves Thermal Performance:** Reduces thermal bridging and enhances insulation effectiveness by providing a thermal break.
- **Ventilation and Drying:** Promotes air circulation to dry out trapped moisture, preventing mold and rot.
- **Enhances Durability:** Protects structural components from moisture-related damage.



Division 07 07 92 00 (Joint Sealants)/ 07 21 00 (Thermal Insultaion) **Sill Gasket**

What is it?

- A **Sill Gasket**, also known as **Sill Seal**, is a **compressible foam or rubber material placed between the sill plate and the concrete foundation or masonry wall**.
- Acts as a **moisture barrier, air barrier, and thermal break**.
- Provides **an effective seal against air infiltration, moisture penetration, and heat loss**.

Why is it necessary?

- **Prevents Air Infiltration:** Seals gaps between the sill plate and foundation to enhance energy efficiency.
- **Prevents Moisture Penetration**
- **Reduces Thermal Bridging**
- **Improves Structural Durability:** Prevents moisture-related issues such as rot, mold, and decay.

Canadian Manufacturers/Suppliers:

- **Dow Canada (Froth-Pak):** Styrofoam™ Brand Sill Seal
- **Rona:** Can-Cell Sill Plate Gasket - White - Ribbed - 75-ft x 7 1/2-in x 3/16-in SPGR71/2 | RONA

Division 07: Moisture and Vapour Control

Moisture and Vapour Control in a wall section involves designing and incorporating materials and systems to **prevent water intrusion, manage vapor diffusion, and protect the building's structural integrity and insulation efficiency.**

Division 07-07 10 00 (Dampproofing and Waterproofing) **Damp Proofing**

What is it?

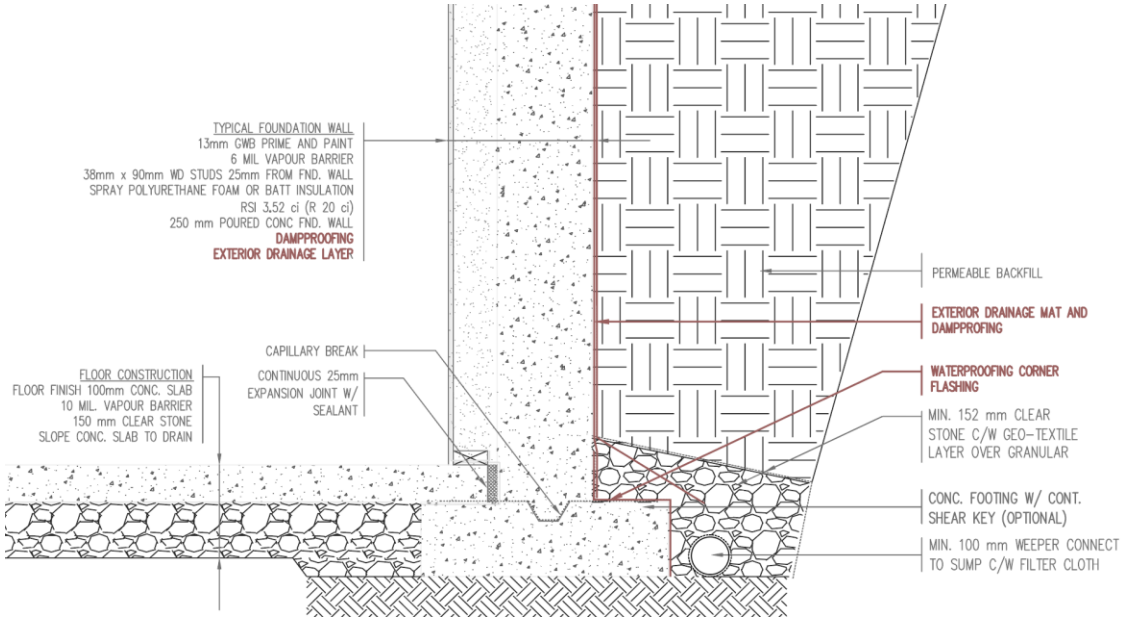
- **Damp Proofing** is the **application of materials to building surfaces to prevent moisture absorption and reduce water penetration** through **foundation walls, slabs, and masonry surfaces**.
- Provides a protective barrier against **ground moisture and capillary action**, but is **not intended to resist hydrostatic pressure**.
- Commonly used materials include **asphalt-based coatings, rubberized membranes, cementitious coatings, and liquid-applied solutions**.

Why is it necessary?

- **Prevents Moisture Intrusion**
- **Protects Insulation and Structural Materials:** Reduces the risk of **mold, mildew, rot, and deterioration**.
- **Improves Durability of Foundation Walls:** Enhances the lifespan of structural components.

Canadian Manufacturers/Suppliers:

- **Henry Company (Blueskin® WP200):** Home - Groundworks
- **Soprema:** Foundations - Building components - Products & Systems | SOPREMA



Division 07-07 13 00 (Sheet Waterproofing) **Exterior Drainage Mat**

What is it?

- An **Exterior Drainage Mat** is a **dimpled or corrugated plastic sheet or composite material installed against foundation walls to provide a drainage plane and moisture barrier**.
- Designed to **create an air gap between the foundation wall and the soil**, allowing water to flow freely down to the perimeter drainage system (drain tile).

Why is it necessary?

- **Prevents Hydrostatic Pressure:** Reduces the buildup of water pressure against foundation walls, preventing cracks and leaks.
- **Improves Drainage Efficiency:** Directs water away from the building to designated drainage points or discharge systems.
- **Reduces Moisture Infiltration**
- **Extends Building Durability**

Canadian Manufacturers/Suppliers:

- **Delta Membrane Systems (DORKEN Systems Inc.):** External Drainage Protection Systems - Delta Membranes
- **Soprema:** Products & Systems | SOPREMA

Division 07-07 13 00 (Sheet Waterproofing) **Waterproofing Corner Flashing**

What is it?

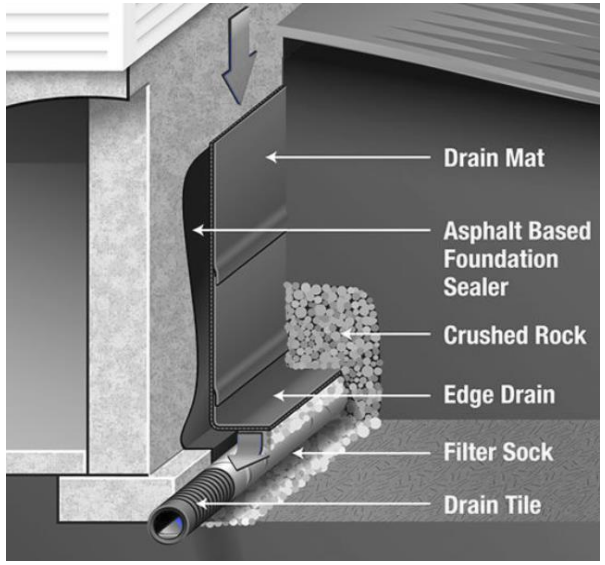
- **Waterproofing Corner Flashing** is a **flexible or rigid material used to protect corners, joints, and other vulnerable areas of a building envelope from water penetration**.

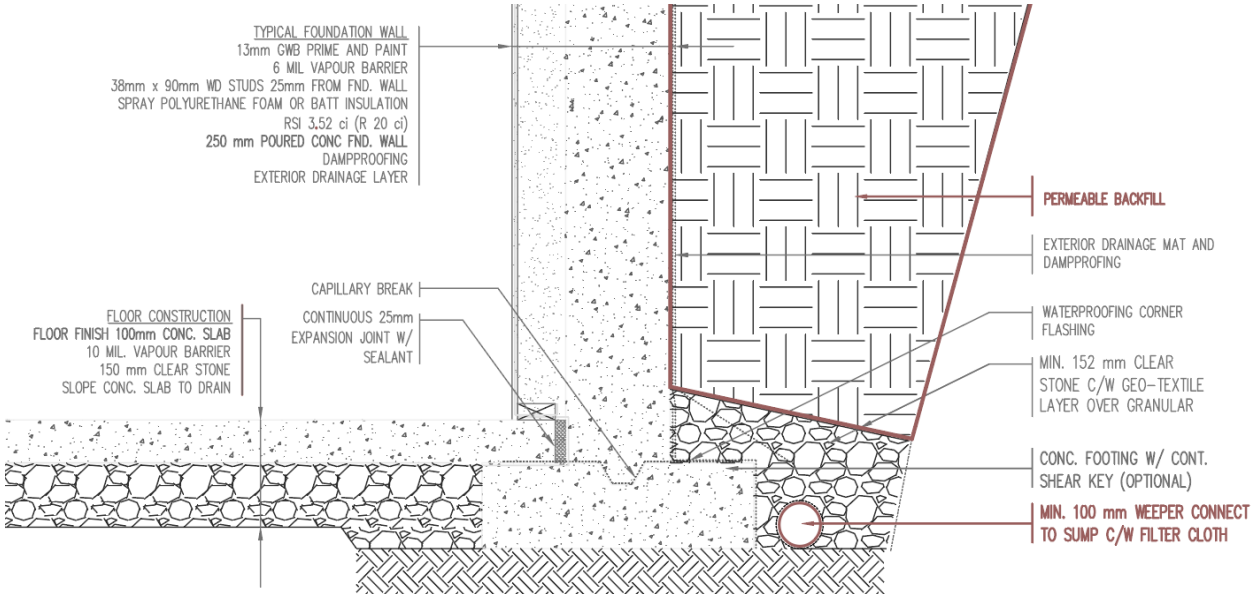
Why is it necessary?

- **Prevents Water Penetration:** Acts as a barrier against moisture entry at vulnerable intersections and joints.
- **Improves Durability:** Protects structural materials from water damage, rot, and corrosion.
- **Enhances Performance of Waterproofing Systems:** Complements continuous waterproofing membranes by providing additional protection at high-risk areas.
- **Ensures Structural Integrity:** Reduces the risk of leaks, mold growth, and structural deterioration.

Canadian Manufacturers/Suppliers:

- **Henry Company (Blueskin®):** Search, Products
- **Soprema:** Products & Systems | SOPREMA





Division 31-31 23 33 (Trenching) **Permeable Backfill**

What is it?

- **Permeable Backfill** is a type of **coarse, granular material placed around foundation drainage systems** to allow **water to freely pass through and drain away from the foundation walls**.
- Typically consists of **clean gravel, crushed stone, or coarse sand** with minimal fines (particles smaller than 0.075 mm).
- Used to enhance the effectiveness of drainage systems by providing a **free-draining layer** that directs water to perforated drain pipes (drain tiles).

Why is it necessary?

- **Improves Drainage Efficiency:** Provides a pathway for water to quickly drain to perforated pipes and away from the building.
- **Reduces Hydrostatic Pressure:** Prevents excessive water pressure from building up against foundation walls.
- **Prevents Soil Clogging**
- **Prevents Water Damage**
- **Enhances Durability of Foundation Walls**

Division 33-33 46 13 (Foundation Drainage) **Weeping Tile**

What is it?

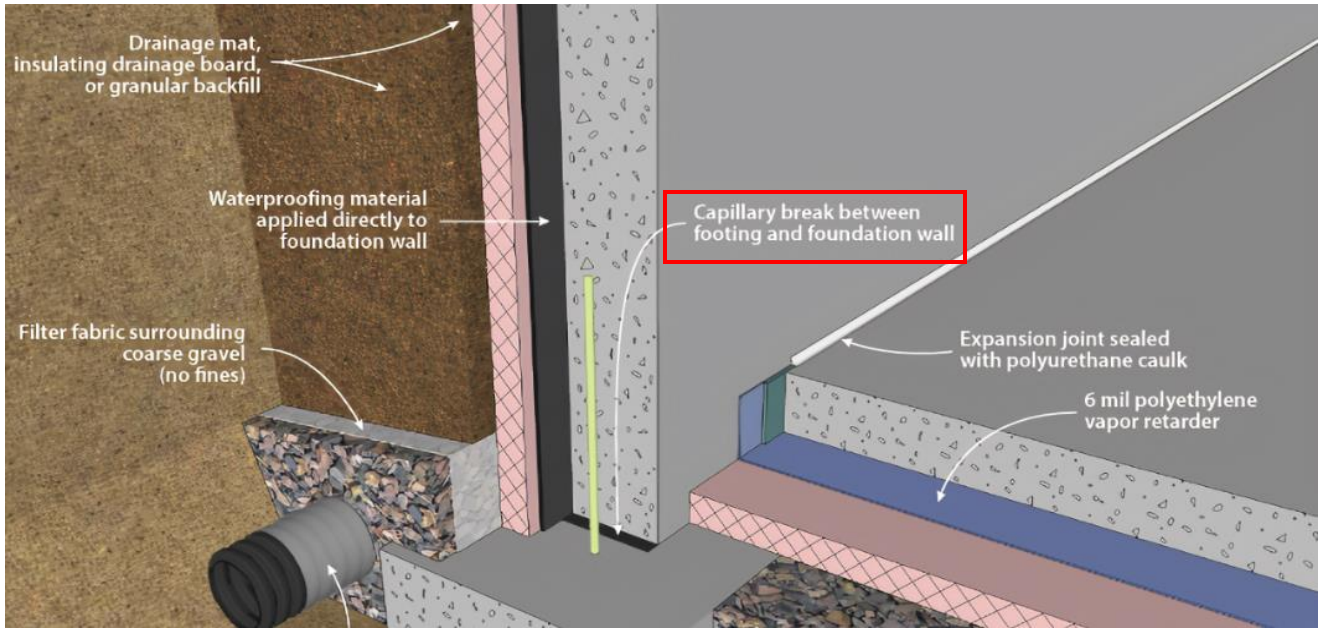
- **Weeping Tile** is a **perforated drainage pipe used to collect and redirect groundwater away from building foundations and other structures**.

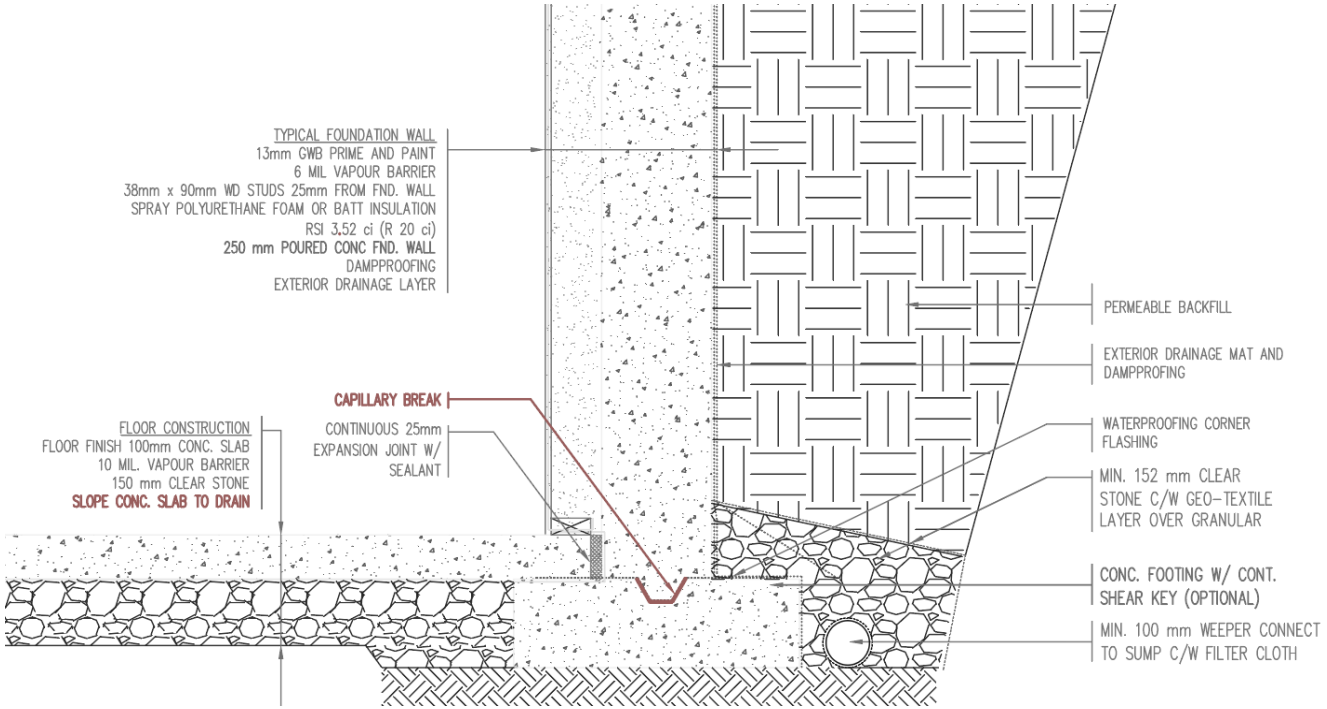
Why is it necessary?

- **Controls Groundwater:** Collects water from the soil and redirects it to a designated discharge point.
- **Prevents Hydrostatic Pressure:** Reduces pressure buildup against foundation walls, which can cause cracking and water infiltration.
- **Protects Structural Integrity:** Prevents moisture-related damage, including **mold growth, mildew, and foundation settlement**.
- **Enhances Durability of Waterproofing Systems**

Canadian Manufacturers/Suppliers:

- **Armtec:** Armtec - Big 'O'® HDPE Tubing
- **IPEX Inc.:** All Products | IPEX





Division07-07 26 00 (Vapour Retarders) **Capillary Break**

What is it?

- A **Capillary Break** is a **moisture control feature designed to interrupt the movement of water through capillary action** in building materials, particularly where concrete or masonry contacts soil or other wet surfaces.
- Provides a **barrier that prevents water from being drawn upward or laterally through porous materials**.
- Commonly achieved using **impermeable membranes, coatings, granular fill, or air gaps**.

Why is it necessary?

- **Prevents Capillary Action:** Blocks the upward or lateral movement of water through porous materials.
- **Protects Against Moisture Damage**
- **Improves Durability**
- **Enhances Thermal Performance**
- **Increases Energy Efficiency:** Reduces moisture-related heat transfer, improving insulation performance.

Canadian Manufacturers/Suppliers:

- **Rona:** Search Results | RONA
- **Soprema:** Search results for: 'Capillary Break ' | SOPREMA

Division 31-31 23 16 (Excavating) **Slope Concrete Slab To Drain**

What is it?

- **Slope Concrete Slab to Drain** is a **site preparation and drainage control technique designed to direct groundwater or surface water to a specific collection point (sump)**.
- Involves grading the **excavation area or foundation trench** to promote positive drainage towards a **sump pit, drainage pipe, or other water collection systems**.
- Essential for controlling water infiltration and ensuring that drainage systems function efficiently.

Why is it necessary?

- **Promotes Efficient Drainage:** Ensures water is directed away from foundations, preventing moisture intrusion and structural damage.
- **Reduces Hydrostatic Pressure**
- **Improves Durability of Waterproofing Systems:** Enhances the performance of waterproofing membranes and drainage systems by preventing standing water.
- **Prevents Water Damage**
- **Improves Energy Efficiency:** Reduces moisture-related heat loss and improves insulation effectiveness.

Division 31-31 23 33 (Trenching) **Clear Stone**

What is it?

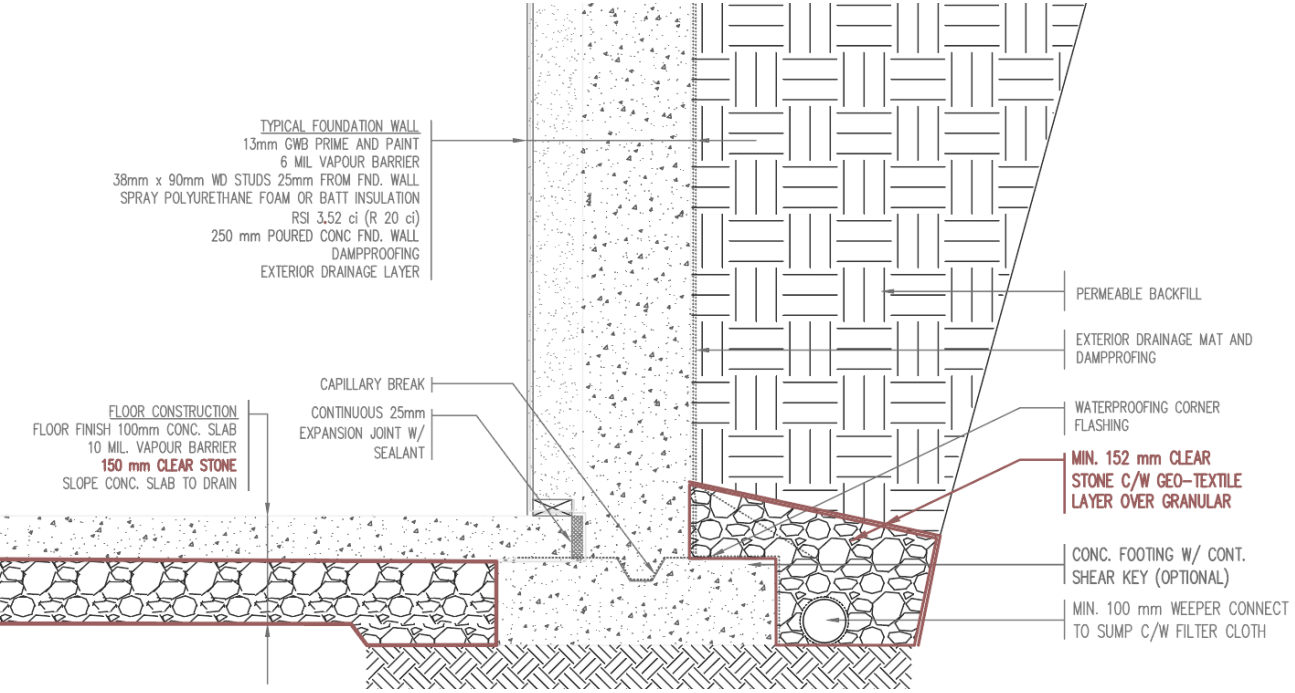
- **Clear Stone** refers to **crushed stone or gravel that has been washed and screened to remove fine particles**, leaving a uniformly graded, coarse aggregate.
- Commonly used as a **drainage layer, structural fill, or capillary break in construction projects**.
- Provides **excellent drainage properties due to its high permeability**, allowing water to pass through freely.

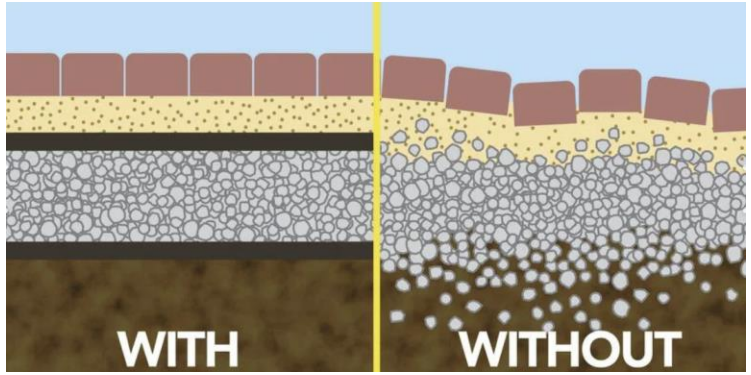
Why is it necessary?

- **Improves Drainage Efficiency:** Allows water to quickly drain away from foundations, retaining walls, and slabs.
- **Provides Capillary Break:** Prevents moisture from wicking into concrete slabs and walls.
- **Reduces Moisture-Related Damage:** Minimizes the risk of mold, mildew, and structural deterioration.
- **Enhances Structural Stability:** Provides a stable, permeable base for concrete slabs, roads, and pavements.

Canadian Manufacturers/Suppliers:

- **Lafarge Canada:** Clear Crush | Lafarge Canada
- **Hanson Aggregates:** Crushed Stone Aggregates - Heidelberg Materials





Division 31-31 32 19 (Geotextiles) **Geo-Textile Layer**

What is it?

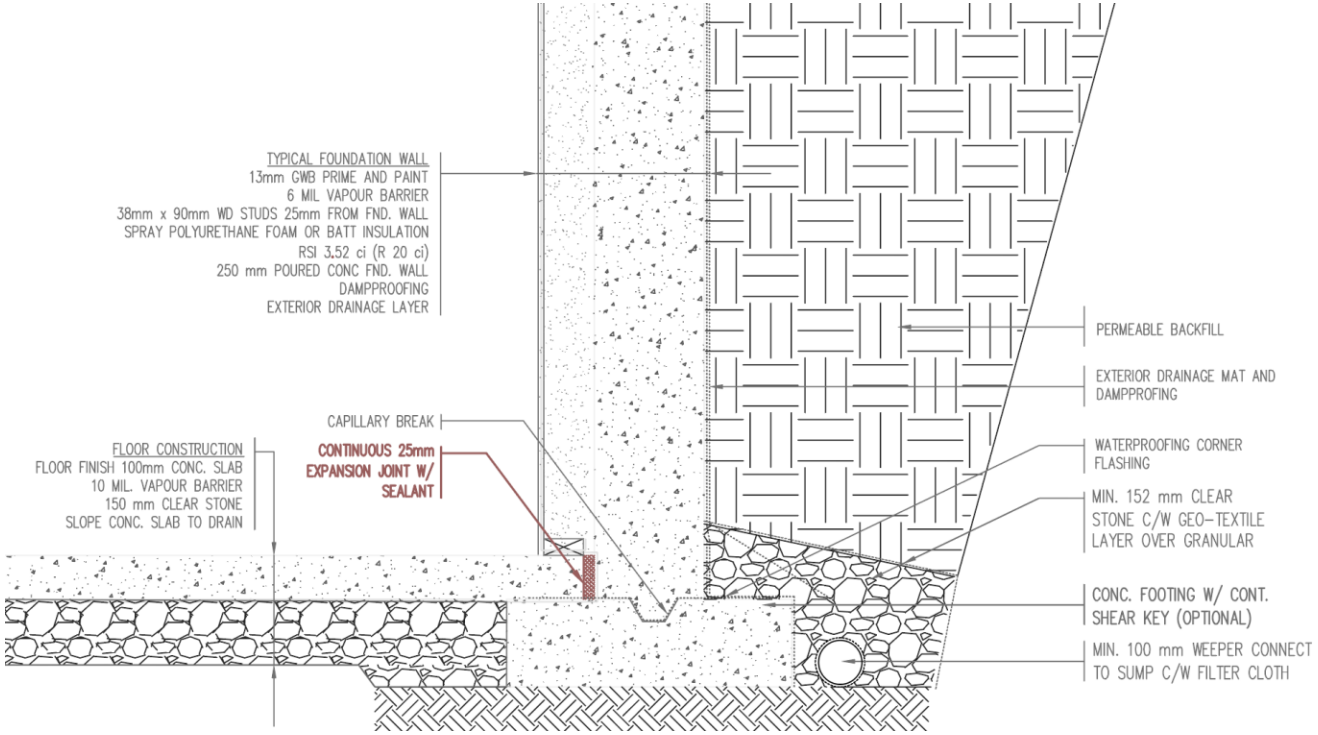
- A **Geo-Textile Layer** is a **permeable fabric used to separate, filter, reinforce, protect, or drain soils in construction applications**.
- Commonly used as a **filter fabric in drainage systems to prevent soil particles from clogging perforated drain pipes or drainage layers**.

Why is it necessary?

- **Prevents Soil Clogging:** Filters out fine particles while allowing water to pass through.
- **Improves Drainage Efficiency:** Enhances the performance of drainage systems by preventing blockages.
- **Reinforces Structural Integrity:** Provides separation between soil layers and permeable materials.
- **Controls Erosion**
- **Protects Waterproofing Systems**

Canadian Manufacturers/Suppliers:

- **Terrafix Geosynthetics:** Geotextiles - Terrafix Geosynthetics Inc.
- **Armtec:** Armtec - Geosynthetics



Division 07-07 91 13 (Joint Sealants) **Expansion Joint with Sealant**

What is it?

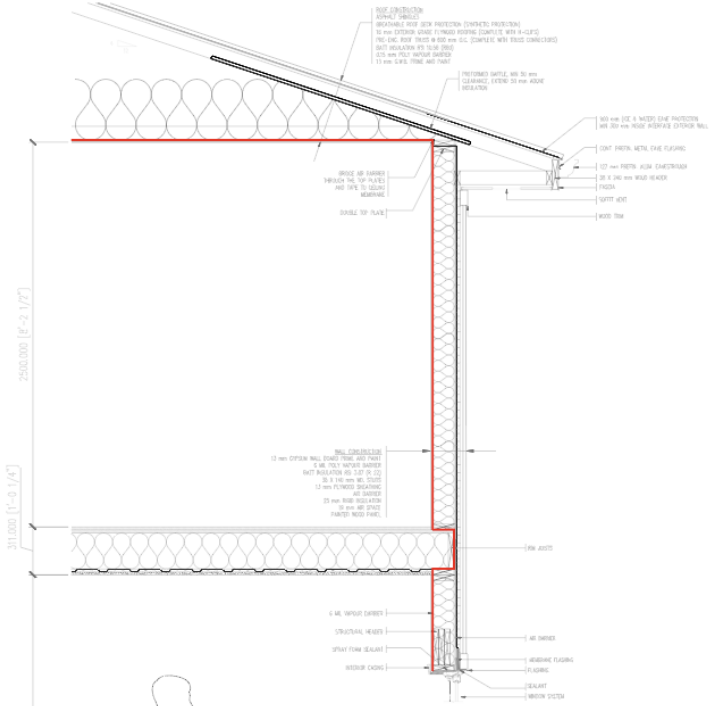
- **Expansion Joints** are **purposeful gaps or separations between building materials** designed to allow for **thermal expansion, contraction, seismic movement, or structural settling** without causing damage.
- A **Sealant** is a **flexible, waterproof material applied to the joint** to provide **moisture protection, air sealing, and durability**.
- Commonly used in **concrete structures, masonry walls, building envelopes, and floor slabs**.

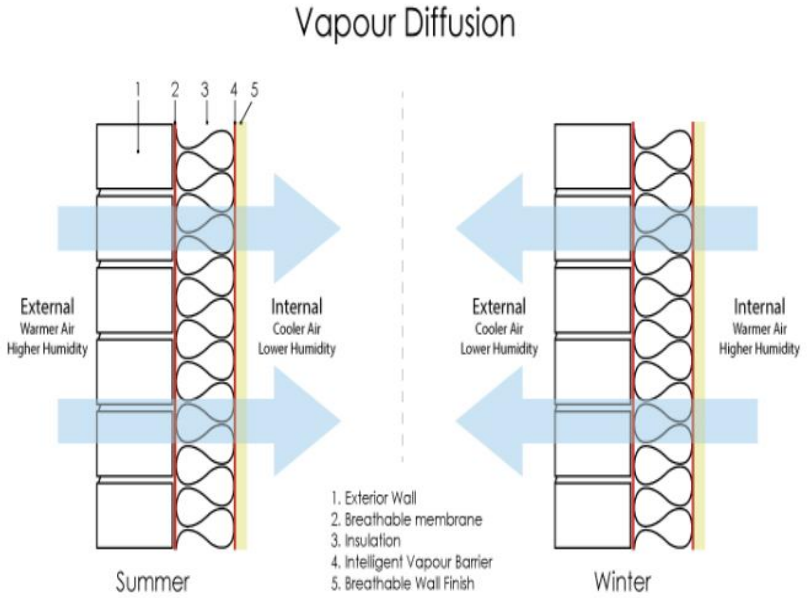
Why is it necessary?

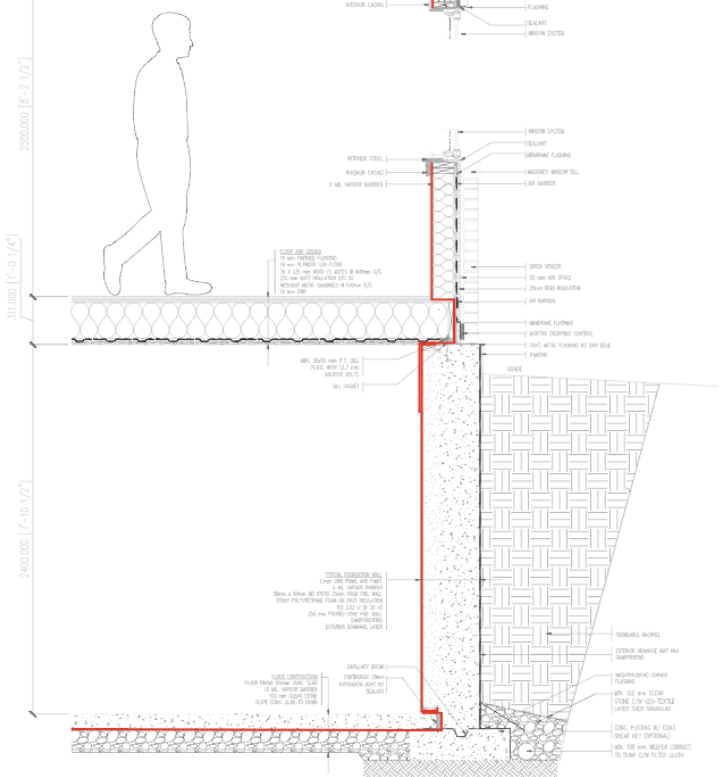
- **Prevents Cracking and Structural Damage**
- **Ensures Weather Resistance:** Proper sealing prevents water infiltration and moisture-related damage.
- **Improves Energy Efficiency:** Provides air sealing to enhance insulation performance.
- **Increases Durability:** Enhances the longevity of building components by minimizing stress-related damage.

Canadian Manufacturers/Suppliers:

- **Sika Canada:** Building Expansion Joints, Joint Covers, Sealants - Sika Emseal
- **Prosoco:** Masonry Control & Expansion Joints – PROSOCO







Division 07-07 26 00 (Vapour Retarders) **Vapour Barrier**

What is it?

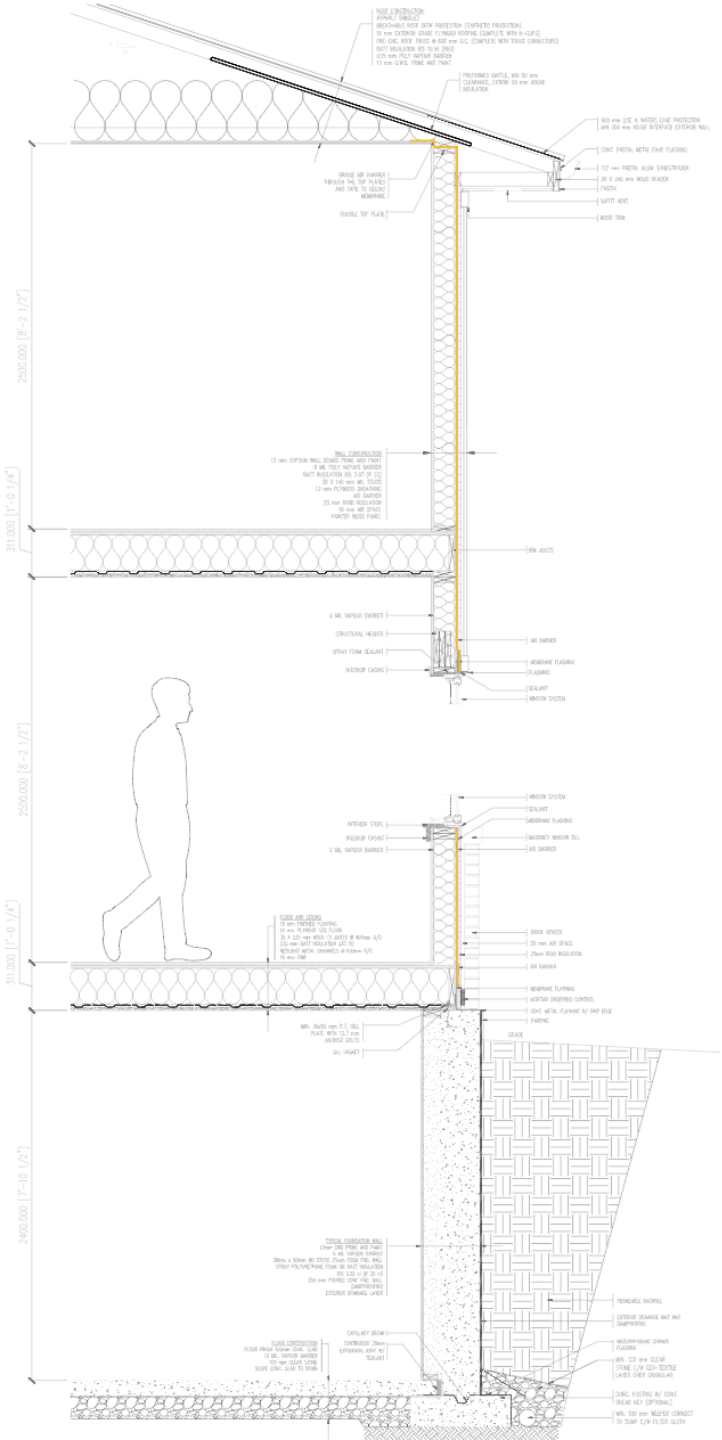
- A **Vapour Barrier** is a **material used in damp proofing,** typically a plastic or foil sheet that **resists diffusion of moisture through** wall, floor ceiling or roof assemblies of building.
- Essential for **controlling moisture within building envelopes**, particularly in climates with **cold winters or high humidity**.
- Commonly made from **polyethylene sheets, foil-faced insulation, asphalt-coated papers, or specialized membranes**.
- Typical thickness for polyethylene vapor barriers: **6 mil (0.15 mm)** or greater.

Why is it necessary?

- **Prevents Moisture Damage:** Reduces the risk of **condensation within walls**, which can cause **rot, mold, mildew, and structural damage**.
- **Improves Thermal Performance:** Prevents moisture from reducing the effectiveness of insulation.
- **Enhances Durability:** Protects building components from moisture-related degradation.

Canadian Manufacturers/Suppliers:

- **Soprema:** Roof and Building Envelope Expert | SOPREMA
- **Henry (Blueskin):** Home, Search



Division 07-07 27 00 (Air Barriers) **Air Barrier**

What is it?

•An **Air Barrier** is a **system of materials designed to control the movement of air through building assemblies**.

•Provides a **continuous barrier that prevents uncontrolled airflow**, improving energy efficiency, indoor air quality, and durability of building components.

Why is it necessary?

•**Improves Energy Efficiency:** Reduces heat loss and heat gain by eliminating uncontrolled air leakage.

•**Enhances Indoor Air Quality:** Prevents contaminants, allergens, and pollutants from entering through air leaks.

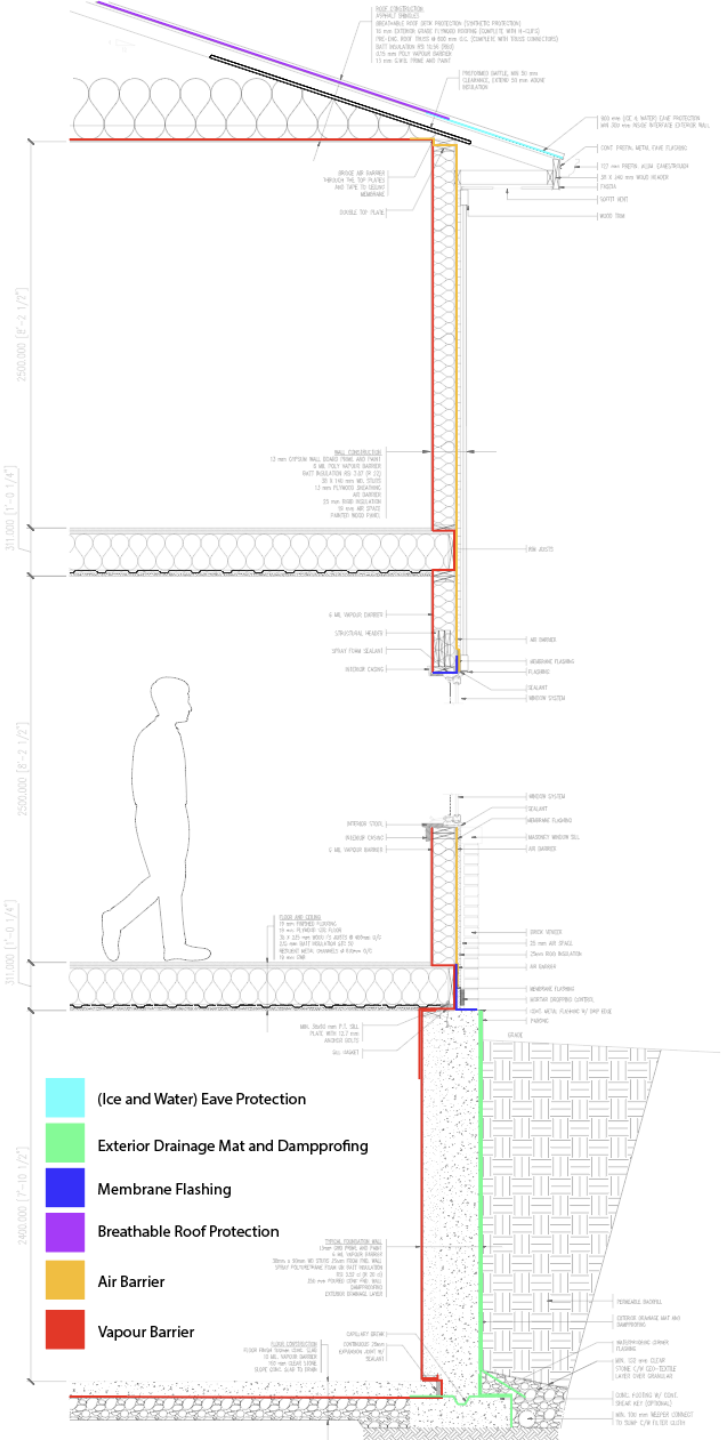
•**Moisture Control:** Reduces the risk of condensation and mold growth by preventing warm, moist air from entering the building envelope.

•**Ensures Thermal Performance:** Helps insulation perform as intended by reducing air movement.

•**Increases Durability:** Prevents moisture-related deterioration of structural components.

Canadian Manufacturers/Suppliers:

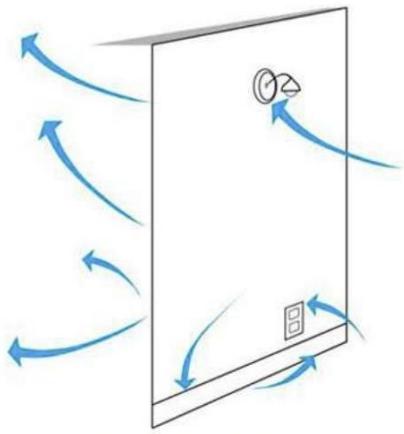
- **DuPont Tyvek:** DuPont™ Tyvek®, Forward Together™
- **Soprema:** Roof and Building Envelope Expert | SOPREMA
- **Henry (Blueskin):** Home



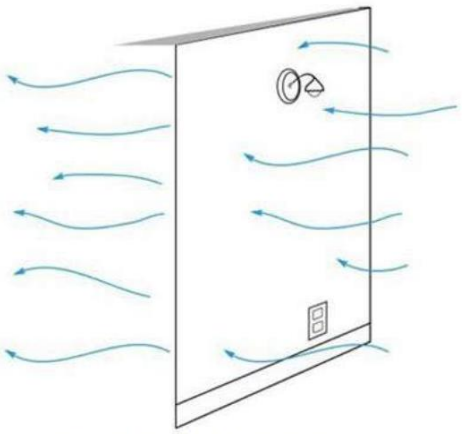
Air barriers, vapour barriers, and damp proofing are essential elements in a wall assembly that work together to protect the building envelope from air and moisture intrusion. The air barrier controls unintended airflow through the walls, improving energy efficiency and indoor comfort. The vapour barrier limits the diffusion of water vapour into the wall assembly, helping to prevent condensation and moisture-related damage. Damp proofing, typically applied to below-grade walls, prevents moisture from the surrounding soil from entering the building. Together, these components enhance the building's durability, thermal performance, and resistance to mold and decay.

Differences Between Air Barrier and Vapour Barrier

Feature	Air Barrier	Vapour Barrier
Primary Function	Control airflow inside enclosure and outside enclosure of the building (depending on the climate). Also stop air leakage and resist air pressure change.	Slows vapor diffusion, protect the wall sturcture
Purpose	Improves energy efficiency & prevents drafts	Prevents moisture buildup in wall assemblies
Placement	On exterior, behind the insulation	Depending on the structure and climates.
Material Examples	House wrap (Tyvek), spray foam, taped sheathing, membranes	Polyethylene sheeting (6 mil), foil-faced insulation
Permeability	Can be permeable or impermeable	Typically low-permeability or impermeable
Why It's Needed	Durable and energy-efficient	Prevents condensation, mold, and material decay



Air barriers stop air leakage through individual holes



Vapour barriers stop diffusion of moisture through solid material

Division 07-07 62 00 (Sheet Metal Flashing) **Flashing**

What is it?

•**Flashing** is a **waterproofing material installed at critical points within the building envelope to prevent water penetration and direct water away from vulnerable areas**.

•Designed to **protect junctions, joints, and transitions where different materials meet**, such as windows, doors, roof-wall intersections, and foundation walls.

Why is it necessary?

•**Prevents Water Penetration:** Provides a barrier that redirects water away from vulnerable areas.

•**Enhances Durability of Building Materials:** Protects against moisture-related damage such as **rot, corrosion, and mold growth**.

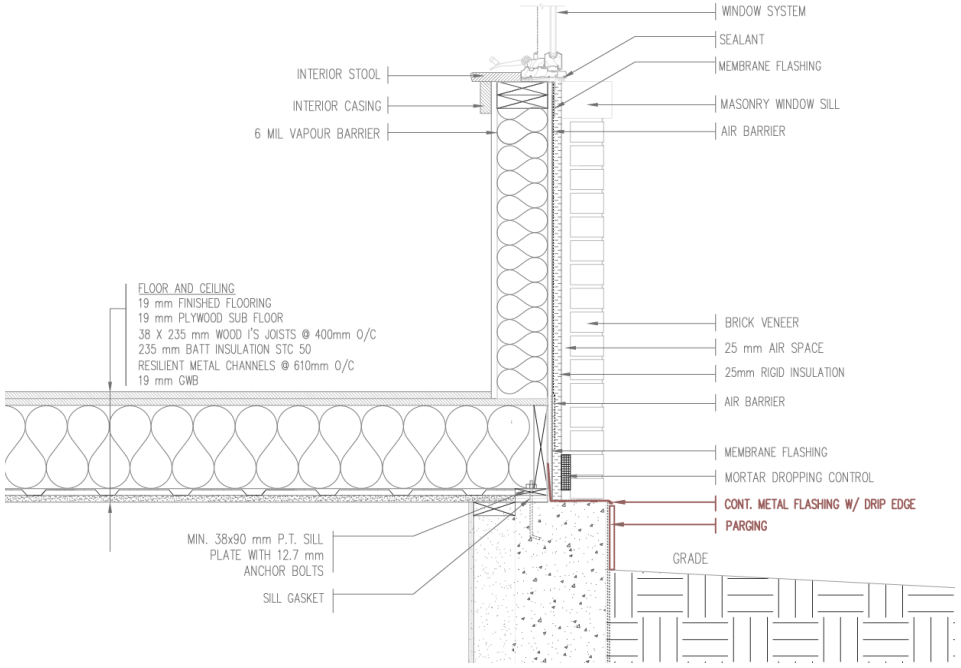
•**Improves Thermal Performance:** Prevents moisture accumulation that can compromise insulation effectiveness.

•**Ensures Structural Integrity:** Reduces the risk of leaks and damage to structural components.

Canadian Manufacturers/Suppliers:

•**Ronat:**Search Results | RONA

•**Peak:** You searched for flashing - Peak Products (Canada)



Division 09-09 24 33 (Cement Parging) **Parging**

What is it?

•**Parging** is a **thin coat of mortar applied to the exterior surface of concrete or masonry walls**, primarily to **provide a smooth, uniform appearance and to protect the underlying surface from moisture and weathering**.

•Commonly used on **foundation walls, retaining walls, chimneys, and other exposed masonry surfaces**.

Why is it necessary?

•**Provides Moisture Protection**

•**Improves Aesthetics**

•**Prevents Surface Deterioration:** Shields underlying materials from freeze-thaw damage, spalling, and erosion.

•**Enhances Durability**

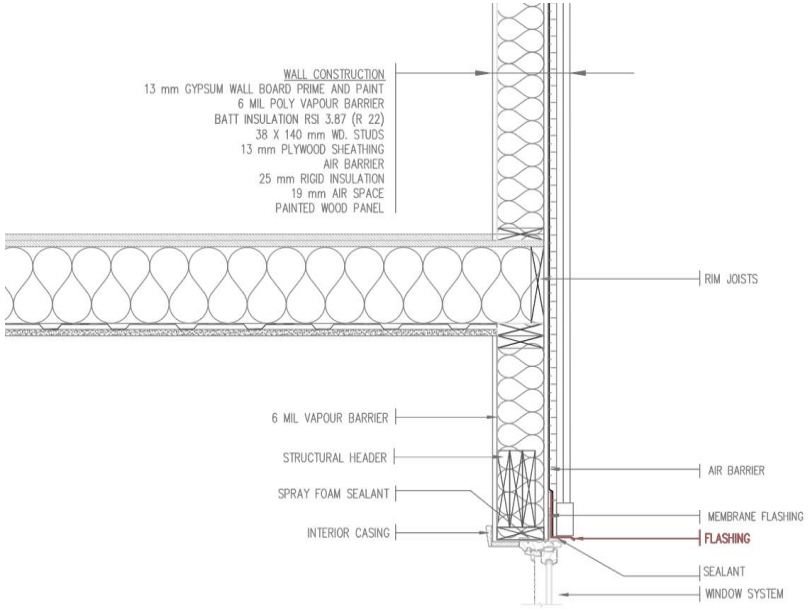
•**Improves Adhesion for Other Coatings:** Provides a suitable substrate for paint, sealers, or waterproofing membranes.

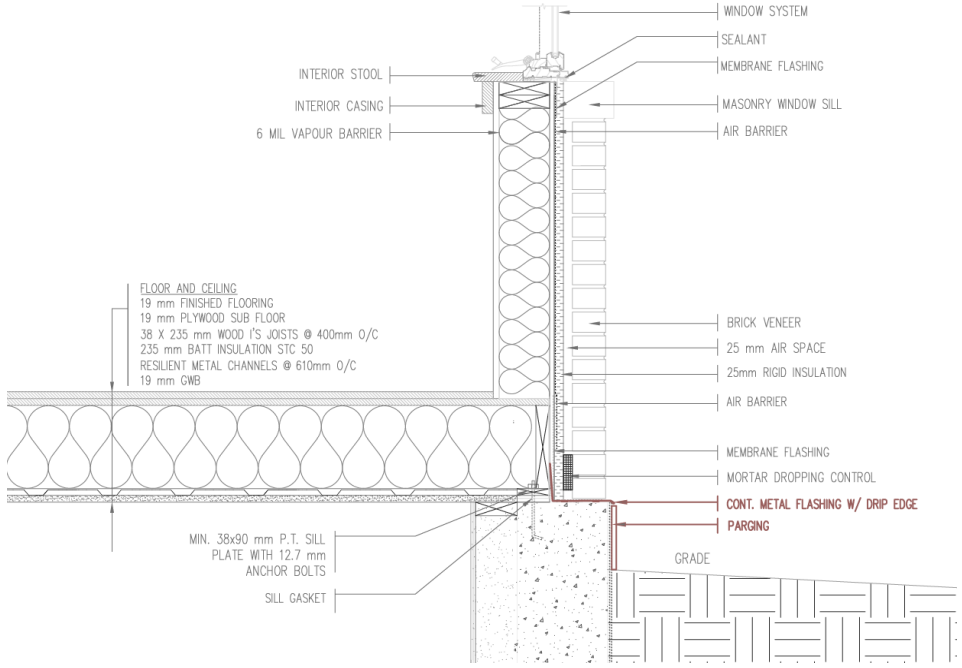
Canadian Manufacturers/Suppliers:

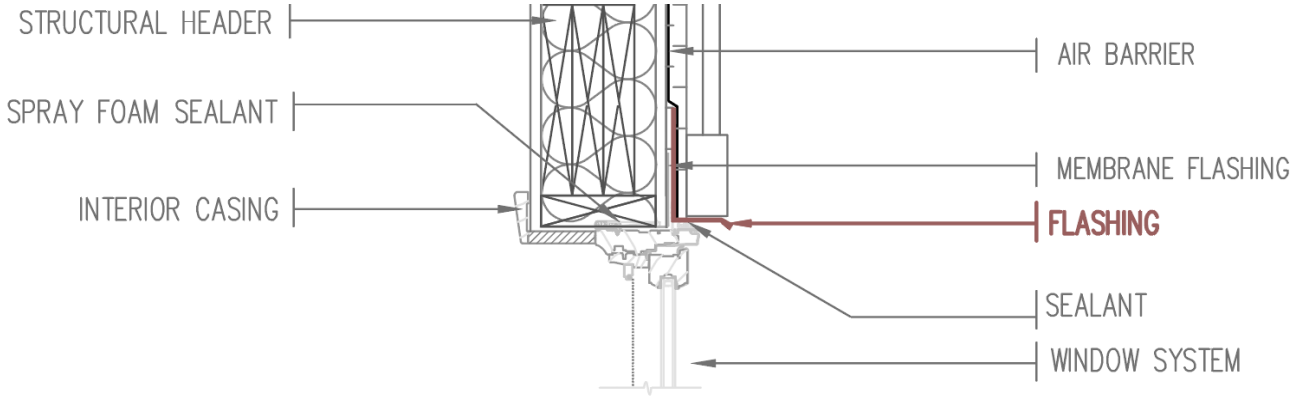
•**Sakrete (Oldcastle):** Sakrete Concrete Mix | Concrete Mix | Sakrete Canada

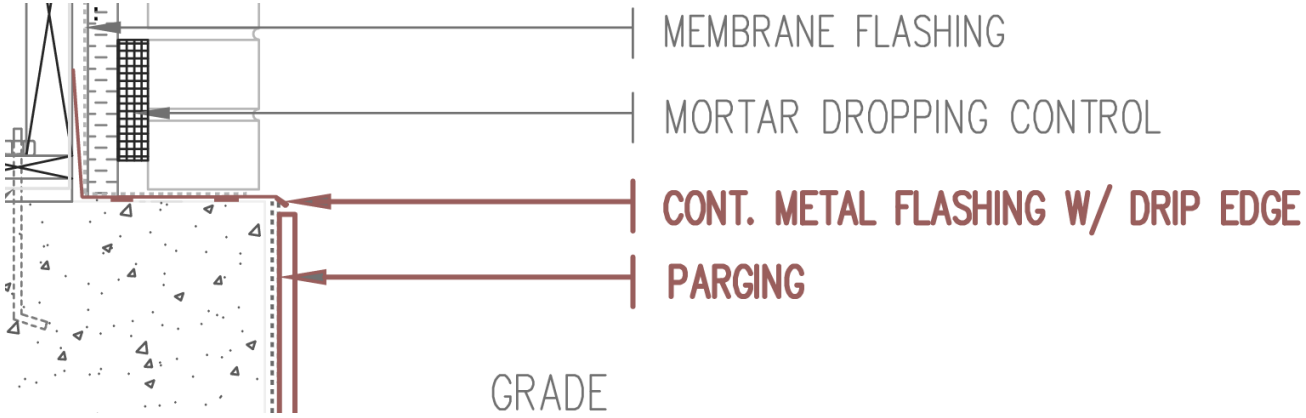
•**King Construction Products** Sakrete Parging Mixbag- 25kg – King Construction Supplies

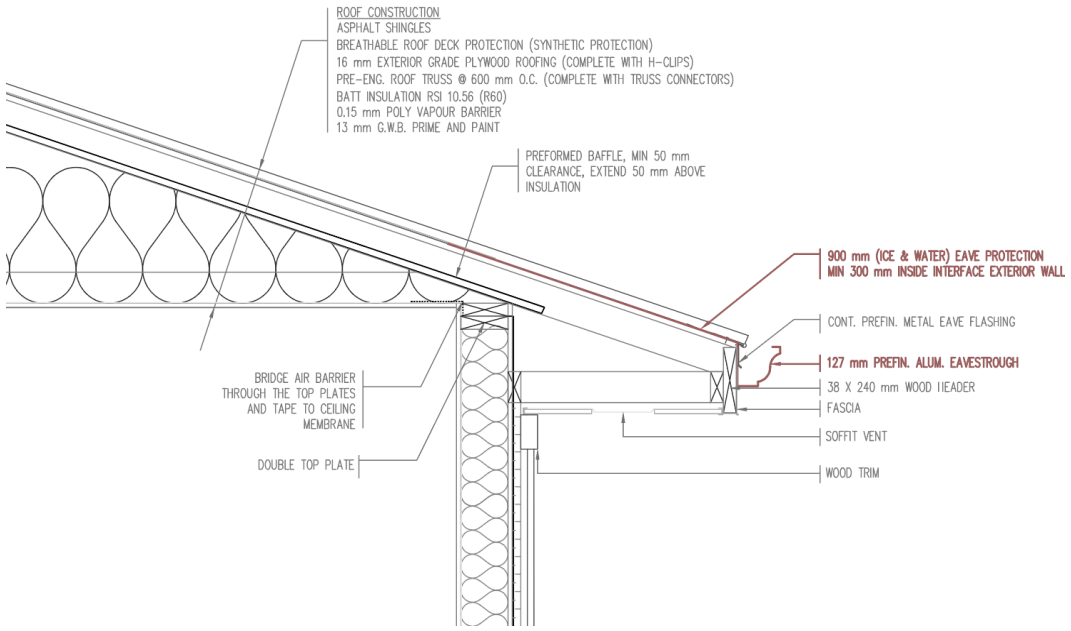
Flashing Details











Division 07-07 53 00 (Elastomeric Membrane Roofing) **Eave Protection**

What is it?

- **Eave Protection** is a **self-adhering waterproof membrane installed along the eaves of a roof** to provide **protection against water infiltration caused by ice dams, wind-driven rain, and other weather conditions**.
- Also known as **Ice & Water Shield** or **Eave Protection Membrane**.
- Acts as a **secondary layer of protection beneath shingles or other roofing materials.**

Why is it necessary?

- **Prevents Ice Dam Damage:** Protects against water backup caused by melting snow refreezing along the eaves.
- **Prevents Water Infiltration:** Acts as a barrier against rain and melting snow that could penetrate the primary roof covering.
- **Improves Roof Durability:** Extends the lifespan of the roof by preventing moisture-related damage.
- **Protection Against Wind-Driven Rain:** Provides extra protection in areas exposed to high winds and heavy rain.

Canadian Manufacturers/Suppliers:

- **BP Canada:** Eave Protection Solutions for Winter Weather
- **Soprema:** All Roofs Products - Roofs - Building components | SOPREMA
- **Henry Company (Blueskin®):** Products

Division 07-07 71 23 (Gutters and Downpouts) **Eavestrough (Gutter System)**

What is it?

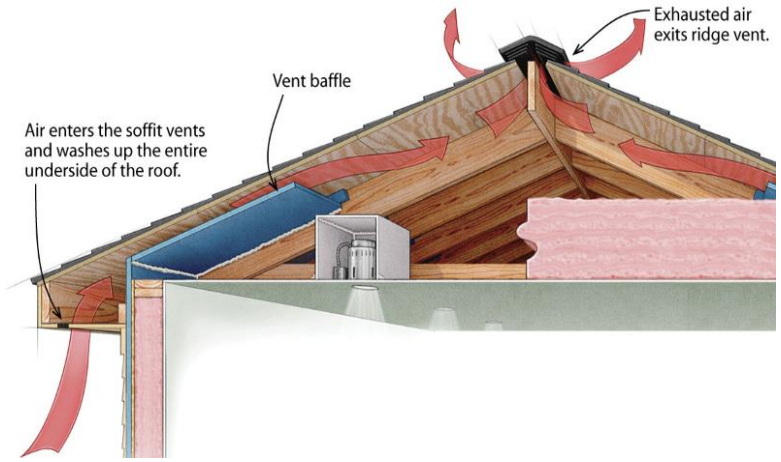
- An **Eavestrough**, commonly known as a **gutter**, is a **U-shaped channel installed along the edges of roofs** to collect and divert rainwater away from the building's foundation.
- Typically made from **aluminum, galvanized steel, vinyl, or copper**.
- Available in **seamless or sectional designs**, and commonly used in **residential, commercial, and industrial buildings**.

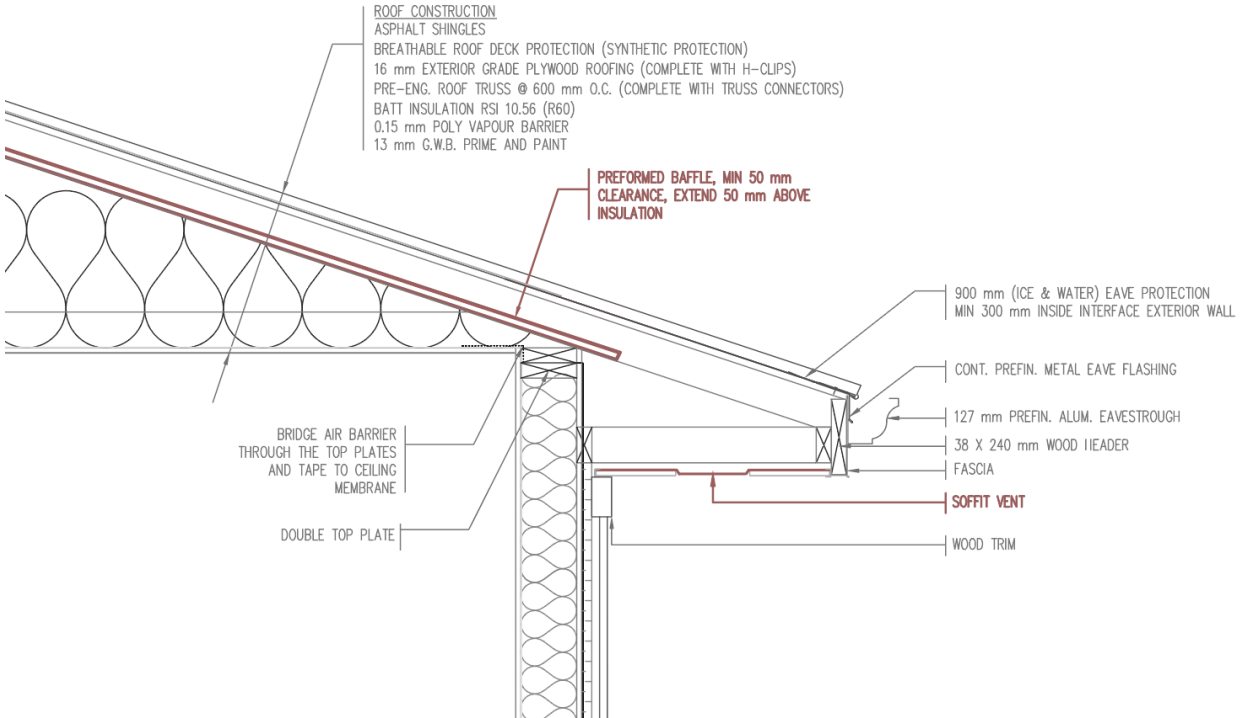
Why is it necessary?

- **Prevents Water Damage:** Directs water away from foundations, walls, and structural components.
- **Protects Foundations:** Prevents water pooling around the base of the building, reducing the risk of basement leaks and structural deterioration.
- **Improves Durability of Exterior Finishes:** Protects siding, brick, and masonry from water splashing and staining.
- **Enhances Aesthetic Appeal:** Provides a finished appearance along the roofline.

Canadian Manufacturers/Suppliers:

- **Kaycan:** Vinyl & Aluminum Rain Gutters | Kaycan
- **Gentek Building Products:** Eavestrough - Gentek Canada





Division 07-07 72 26 (Ridge, Soffit, and siding vents) **Performed Baffle:**

What is it?

- A **performed baffle** (or **preformed attic baffle**) is a **molded plastic or foam insert** that's installed in the **attic or roof space** between rafters — right above the **insulation** and below the **roof sheathing**.

Why is it necessary?

- **Maintains Airflow:** Keeps a clear air path from **soffit vents to the attic ridge vent**
- **Prevents Insulation Blocking:** Stops insulation from blocking soffit vent openings
- **Supports Energy Efficiency:** Ensures effective attic ventilation, reducing heat buildup/moisture
- **Moisture Control:** Helps prevent **mold, rot, and ice damming** in cold climates.

Canadian Manufacturers/Suppliers:

- **Durovent (by ADO):** Duravent
- **GAF:** Residential Roofing Materials

Division 07-07 72 26 (Ridge, Soffit, and siding vents) **Soffit:**

What is it?

- A **soffit** is the **horizontal underside** of a roof overhang — the surface you see when you look up at the eaves of a house. It's essentially the "ceiling" of the overhang that connects the outer edge of the roof to the wall.

Why is it necessary?

- **Protects Rafters:** Shields exposed rafters and attic from **moisture, pests, and weather**
- **Aesthetic Finish:** Gives the underside of the roof eaves a **clean and finished appearance**

Canadian Manufacturers/Suppliers:

- **Kaycan:** Exterior Home Improvement Products - Kaycan Vinyl Siding
- **Gentek Building Products:** Gentek Building Products - Canada

Division 07-07 72 26 (Ridge, Soffit, and siding vents) **Soffit Vent:**

What is it?

- A **soffit vent** is a vent **installed in the soffit (underside of the roof overhang)** that allows **fresh air to enter the attic**.
- Soffit vents can come in various forms:
  - **Continuous vent** (runs the full length of the soffit)
  - **Individual vent panels** (spaced evenly under the soffit)
  - **Perforated soffit panels** (integrated into the material itself)

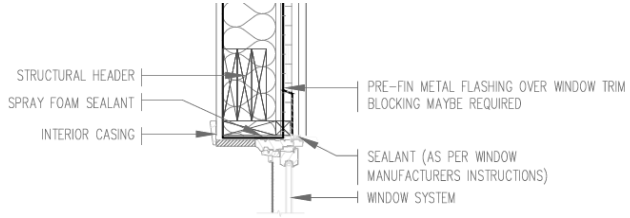
Why is it necessary?

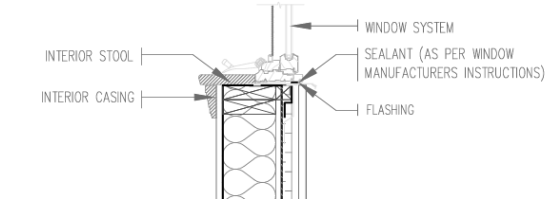
- **Attic Ventilation:** Allows cool, fresh air to enter the attic to **replace hot or moist air**
- **Moisture Control:** Helps prevent **condensation, mold, and rot** in attic insulation and framing
- **Temperature Regulation:** Reduces attic heat buildup, lowering **cooling costs in summer**
- **Extends Roof Life:** Prevents **ice dams in winter** by keeping the roof deck cool

Division 08-Openings:

Here is a list of **famous window and door manufacturers in Canada**:

1. **Jeldwen:** Reliable and Energy Efficient Doors and Windows | JELD-WEN Windows & Doors
2. **PGT :** Home- PGT Impact Resistant Hurricane Windows and Doors





Window Component

Component	Function
Frame	Structural support for the window; encloses the sash and glazing
Sash	Holds the glass; can be operable or fixed
Glazing	Provides light, views, and insulation; can be multi-glazed
Spacer	Separates panes in insulated glazing units; reduces heat transfer
Muntins / Grilles	Divides glass into smaller panes; mainly decorative
Weatherstripping	Seals gaps to prevent air and water infiltration
Hardware	Enables window operation and security
Flashing & Sill Pan	Prevents water intrusion around window opening
Air/Vapour Barrier Integration	Ensures continuity of air and vapour barriers at openings

Door Component

Component	Function
Door Leaf	Main moving part of the door; swings or slides to allow entry
Frame	Supports and holds the door leaf; attaches to the wall
Threshold	Bottom part of the door frame; helps seal and transition flooring
Hinges	Allows the door to pivot or swing open/closed
Lockset / Handle	Enables manual operation and secures the door
Strike Plate	Metal plate mounted on the frame where the latch engages
Weatherstripping	Seals gaps around the door to prevent air/water leakage
Vision Panel (Optional)	A glass insert in the door for visibility and light
Closer	Automatically closes the door after it's opened
Door Sweep	Seals the bottom edge of the door to block drafts and dust
Flush Bolt	Secures the inactive leaf of a double door in place
Astragal	Vertical member overlapping between two door leaves for sealing

Division 06-09: Cladding and Finishing

Division 06-06 42 00 (Wood Paneling) **Painted Wood Panel**

What is it?

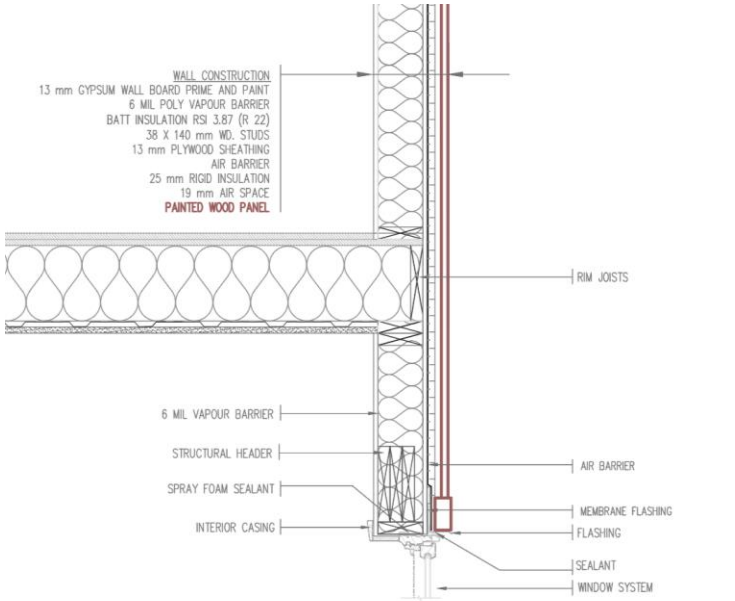
- A **painted wood panel** is a **finished wood product** used for **cladding, interior wall finishes, or decorative elements** that is **coated with paint** for protection and aesthetics. These panels can be made from:
  - **Solid wood** (e.g., pine, cedar)
  - **Plywood**
  - **Medium-Density Fiberboard (MDF)**
  - **Engineered wood (like hardboard)**

Why is it necessary?

- **Aesthetic Appeal**
- **Surface Protection**
- **Durability and Maintenance:** The paint adds a layer of **resistance to cracking, warping, and insect damage**.

Canadian Manufacturers/Suppliers:

- **FraserWood Industries:** Innovative Solid-Sawn Timber Products Backed by Expert Service
- **Goodfellow Inc.:** Siding - Goodfellow Inc.



Division 04-04 21 00 (Clay Unit Mansonry) **Brick Wall**

What is it?

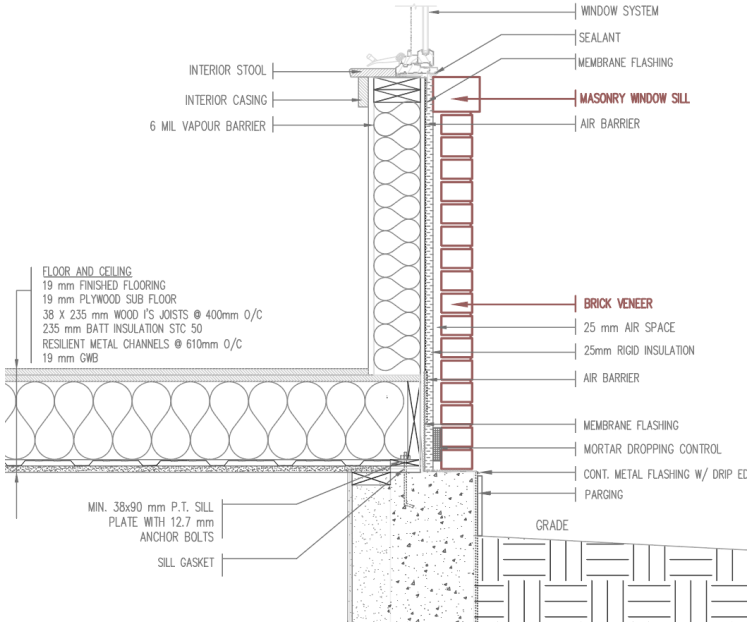
- A brick wall is a vertical structural or non-structural element built using clay bricks bonded together with mortar. It is one of the oldest and most traditional forms of masonry construction, known for its strength, fire resistance, and timeless appearance.

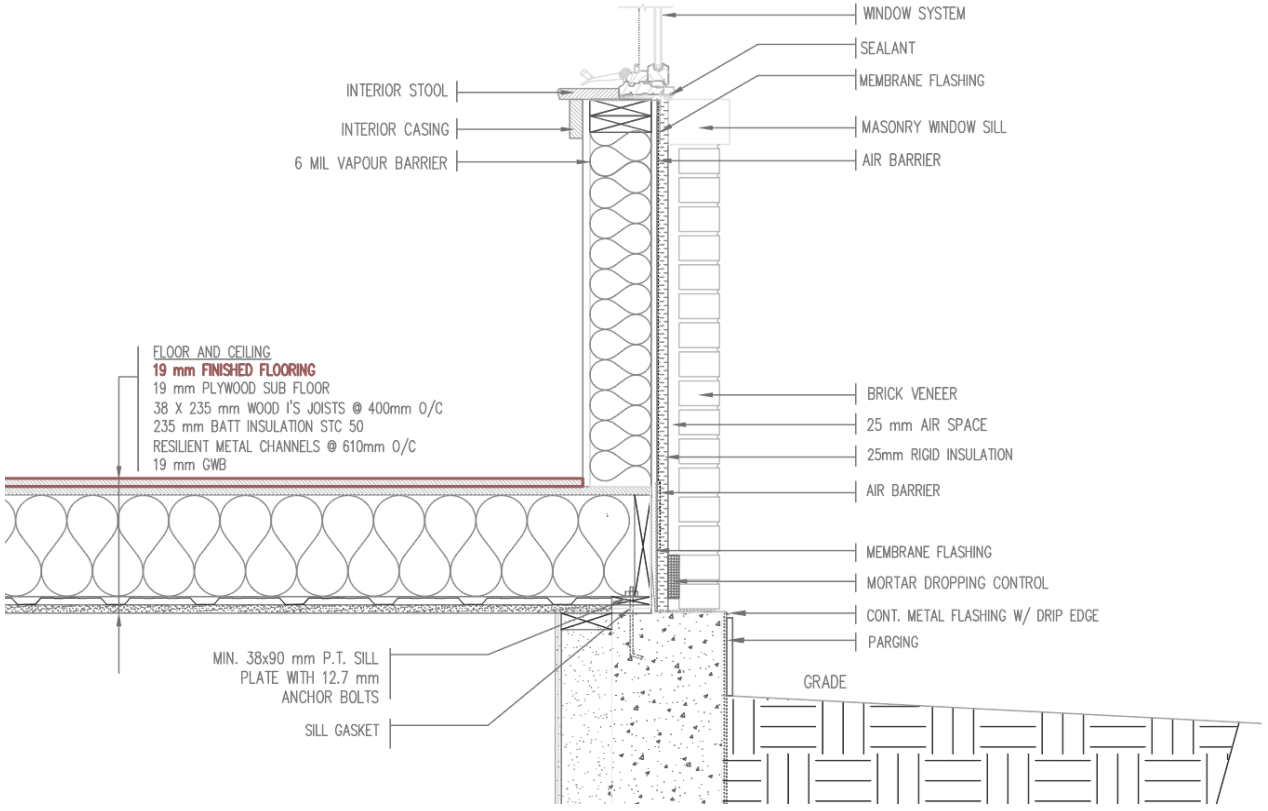
Why is it necessary?

- **Durability**
- **Fire Resistance**
- **Thermal Mass**
- **Low Maintenance**

Canadian Manufacturers/Suppliers:

- **Canyon Stone Canada:** Natural Stone Veneers | Faux Stone Siding | Stone Veneer Panels
- **Arriscraft:** All Brick Products | Durable, Affordable and Beautiful





Division 09 **Finished Flooring:**

What is it?

- **Finished flooring** is the **topmost layer of the floor assembly**—the surface that people walk on. It's the **final material** installed over subfloor or structural floor systems (like concrete slabs or plywood/OSB sheathing), and it serves both **functional and aesthetic purposes.**

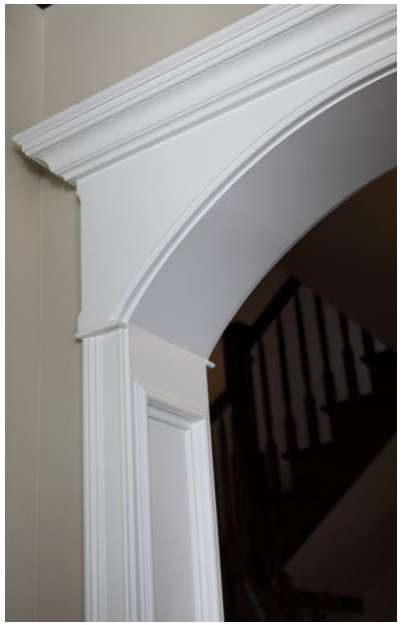
Why is it necessary?

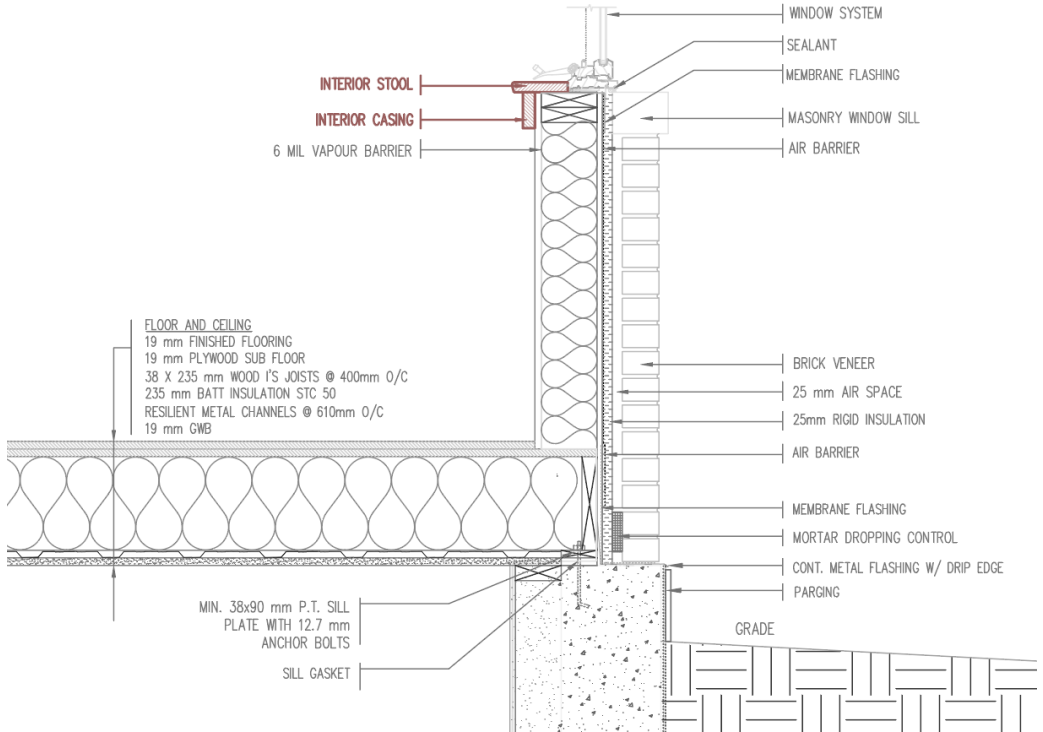
- **Usability & Comfort:** Provides a **clean, smooth, and durable walking surface**.
- **Aesthetic Appeal:** Available in a wide range of materials, colors, textures, and finishes to **enhance interior design**.
- **Protection:** Shields the subfloor from **wear, water, and damage**.

Canadian Manufacturers/Suppliers:

- **Mercier Wood Flooring:** Home | Mercier Wood flooring
- **ArmStrong.:** Armstrong Flooring Residential

Flooring Type	NMS Division	Description
Hardwood/Engineered Wood	09 64 29 – Wood Strip and Plank Flooring	Tongue-and-groove or click-lock systems
Laminate Flooring	09 64 66 – Laminate Flooring	Floating floors, HDF-based
Vinyl / LVT / VCT	09 65 00 – Resilient Flooring	Flexible, durable, waterproof options
Carpet	09 68 00 – Carpeting	Broadloom or tile carpet systems
Ceramic / Porcelain Tile	09 30 00 – Tiling	Mortar or adhesive-set tiles
Concrete Stain / Polish	03 35 00 – Concrete Finishing	When concrete is used as a finished surface
Cork / Rubber / Specialty	09 65 66 – Specialty Resilient Flooring	Includes eco-friendly or acoustic products





Division 06-06 20 00 (Finish Carpentry) **Interior Stool**

What is it?

•An **interior stool** (often called a **window stool**) is the **horizontal trim piece at the bottom of a window opening on the interior side**. It is part of the **window casing assembly**, and serves both **functional** and **decorative** purposes.

Why is it necessary?

•**Aesthetic Finishing**

•**Functionality:** Helps **support the window trim and frame assembly**.

•**Durability**

•Usually made from **solid wood, MDF, or engineered wood**, designed to withstand wear and occasional moisture.

Canadian Manufacturers/Suppliers:

- **Alexandria Moulding:** Top Wood Moulding Distributor North America | Alexandria Moulding
- **Home Depot:** Interior - Casing - The Home Depot
- **Metrie:** Metrie Moulding, Trim and Doors

Division 06-06 20 00 (Finish Carpentry) **Interior Casing:**

What is it?

• **Interior casing** is the **trim or molding** installed around windows and doors on the **interior side** of a wall. It covers the **joint between the wall surface (like drywall) and the window or door frame**, providing a **finished, decorative, and protective edge**.

Why is it necessary?

•**Aesthetic Finishing** and **Conceals Construction Gaps**

•**Support for Other Trim Elements**

•Works with other trim pieces like **window stools, aprons, baseboards**, and **crown molding** to form a unified trim system.

Canadian Manufacturers/Suppliers:

•**Alexandria Moulding:** Top Wood Moulding Distributor North America | Alexandria Moulding

•**Home Depot:** Interior - Casing - The Home Depot

•**Metrie:** Metrie Moulding, Trim and Doors

Division 07-07 61 00 (Sheet Metal Roofing) **Asphalt Shingles:**

What is it?

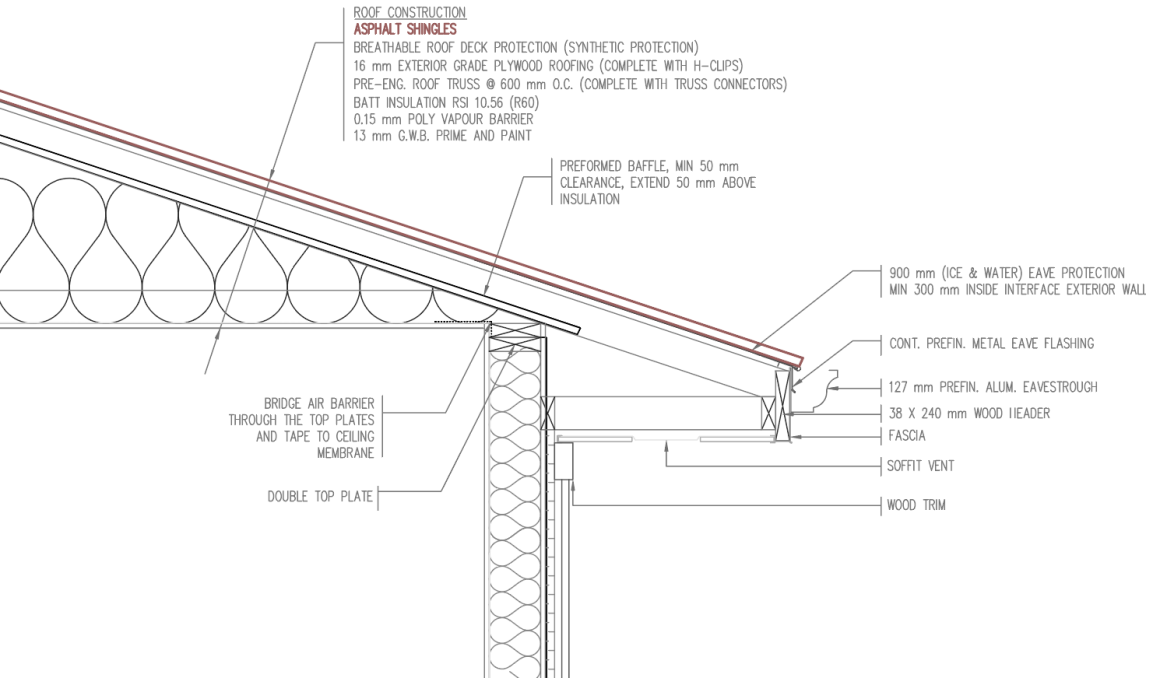
- Asphalt shingles are a popular roofing material made of a fiberglass or organic base mat coated with asphalt and topped with ceramic granules. They are the most widely used residential roofing system in North America due to their cost-effectiveness and ease of installation.

Why is it necessary?

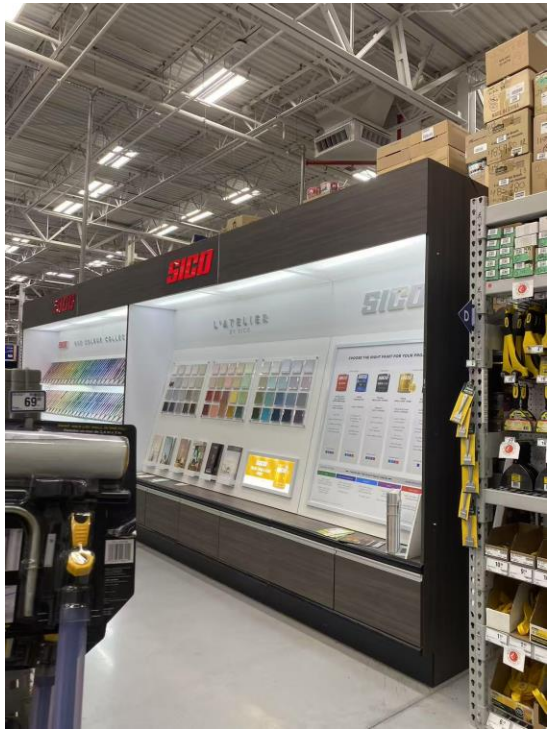
- **Affordability**
- **Weather Resistance**
- **Ease of Installation**
- **Variety of Styles and Colors**
- **Fire Resistance**
- **Sound Dampening:** Better noise absorption compared to metal roofing.

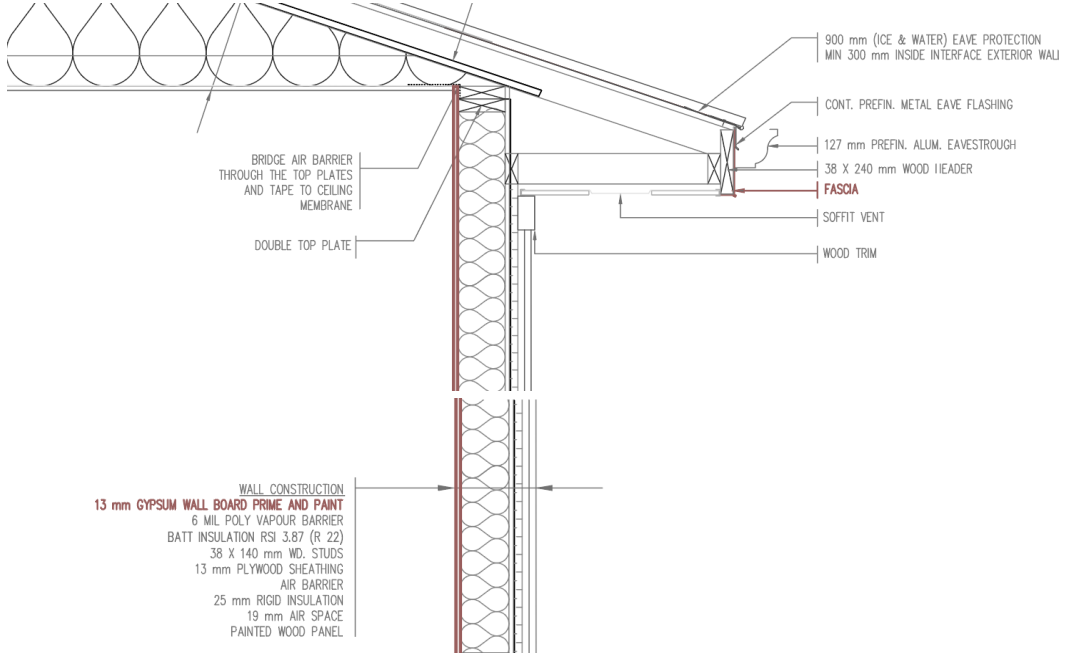
Canadian Manufacturers/Suppliers:

- **GAF Roofing:** Roof Shingles: Asphalt Roofing Shingles | GAF
- **CertainTeed Roofing:** Residential Roofing Products



Roofing Type	Lifespan	Advantages	Disadvantages
Asphalt Shingles	15–30 years	- Affordable - Easy to install - Variety of styles	- Less durable - Fades over time - Not eco-friendly
Metal Roofing	40–70 years	- Very durable - Fire-resistant - Recyclable - Energy efficient	- High upfront cost - Noisy in rain - Can dent
Clay/Concrete Tiles	50+ years	- Long-lasting - Fire-resistant - Insulates well	- Heavy - Expensive - Brittle
Slate Roofing	75–100+ years	- Extremely durable - Natural stone look - Low maintenance	- Very heavy - Very expensive - Difficult to install
Wood Shingles/Shakes	20–40 years	- Natural look - Good insulation	- Fire risk - Prone to rot/insects - High maintenance
Synthetic (Composite)	30–50 years	- Lightweight - Durable - Mimics premium materials	- Can look artificial - Variable performance by brand
Green Roof	30–50 years	- Excellent insulation - Eco-friendly - Aesthetic & functional	- High cost - Heavy - Needs ongoing care and waterproofing





Division 07-07 62 00 (Sheet Metal Flashing) **Fascia:**

What is it?

- The **fascia** is the **vertical finishing board** attached to the edge of the roof, just below the roofline. It caps the ends of rafters or trusses and supports the **bottom row of roofing materials** and the **gutter system**.

Why is it necessary?

- **Protects the Roof Structure:** Shields the exposed edges of the roof from **moisture, pests, and weather damage**.
- **Provides a Clean Finish:** Visually defines the roofline for a **neater architectural appearance**.
- **Supports Gutters:** Acts as the **mounting surface** for rain gutters and downspouts.
- **Prevents Water Infiltration:** Works with soffits and flashing to direct water away from the structure.

Canadian Manufacturers/Suppliers:

- **Kaycan:** Kaycan : Vinyl & Aluminum Building Products - Quality & Performance
- **Gentek Building Products:** Aluminum Soffit and Fascia Archives - Gentek Canada

Division 09-09 29 00 (Gypsum Board)/ 09 91 00 (Painting) **GWB Prime and Paint:**

What is it?

- **GWB** stands for **Gypsum Wall Board**, commonly known as **drywall**.
- A **panel made of gypsum plaster** pressed between two layers of thick paper.
- Usually comes in **4' × 8' or 4' × 12' panels**, with thicknesses ranging from **9.5 mm (3/8") to 15.9 mm (5/8")**.
- Lightweight, fire-resistant, and easy to install and finish

Why is it necessary?

- **Clean Interior Finish**
- **Fire Protection**
- Gypsum contains water molecules, which **slow down the spread of fire**.
- **Durability & Cleanability:** Proper priming and painting protect the surface from **moisture, stains, and daily wear**.

Canadian Manufacturers/Suppliers:

- **CGC Inc. :** Drywall Panels | CGC
- **SICO:** Paint and Stain Colours, Colour Palette & Painting Ideas | Sico Paints

Service Integration:

Division 21-Fire Suppression, Division 22-Plumbing, Division 23-Heating, Ventilation, and Air Conditioning (HVAC), Division 26-Electical. Division 27-Communications, Division 28-Electronic Safety and Security in NMS.

Division 21- **Fire Suppression**

What is it?

•This division covers all systems designed to detect, contain, and suppress fires. It includes sprinkler systems, fire extinguishers, standpipe systems, fire pumps, and related controls. It also specifies pipe materials, fittings, heads, and alarms that activate during fire events.

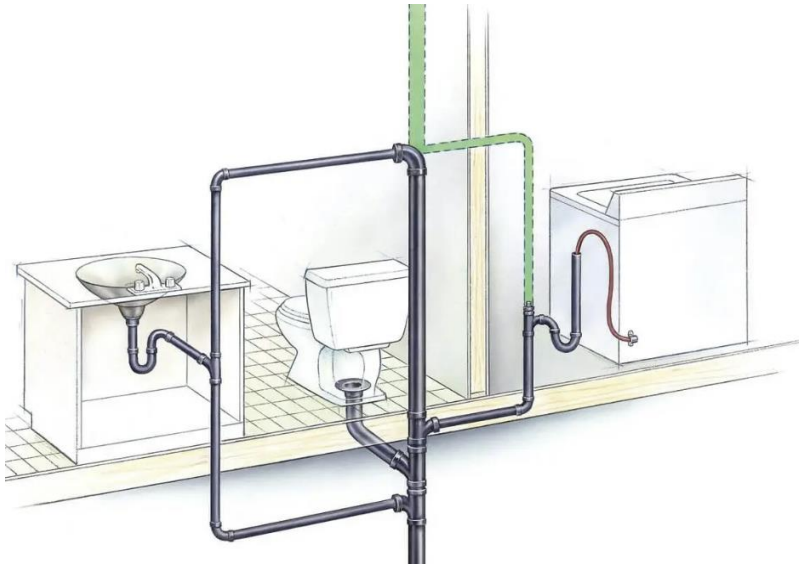
Why is it necessary?

- Fire suppression is **critical for life safety and property protection**. It reduces fire spread, provides time for evacuation, and helps first responders control emergencies. Most building codes

Canadian Manufacturers/Suppliers:

•**Tyco Fire Protection:** Sprinklers, Nozzles and Accessories for Fire Sprinkler Systems | Tyco Fire

•**Reliable Sprinkler:** Fire Sprinkler Systems | Reliable Sprinkler



Division 22- **Plumbing**

What is it?

•Plumbing involves systems for supplying clean water and removing wastewater. This includes piping, water heaters, sinks, toilets, showers, drains, and vent systems. It also covers specialty systems like medical gas in hospitals or stormwater piping.

Why is it necessary?

- Plumbing is essential for **health, hygiene, and comfort**. It ensures access to potable water and safe disposal of sewage, which is crucial in both residential and commercial buildings. It also plays a big role in water conservation and sustainable building design.

Canadian Manufacturers/Suppliers:

•**RONA:** Plumbing Supplies, Tools & Hardware – Pipes, Fittings, Valves & More | Find a RONA Plumbing Store Near You or Shop Online

•**IPEX**: PVC & CPVC Piping Systems | IPEX Inc.

Division 23 - **Heating, Ventilating , and Air Conditioning (HVAC)**

What is it?

- **HVAC** stands for **Heating, Ventilation, and Air Conditioning**. It's a **mechanical system** that controls the indoor environment of a building — including **temperature**, **air quality**, and **humidity levels**.
- It includes components like:
  - **Furnaces / Boilers** (heating)
  - **Air Conditioners / Heat Pumps** (cooling)
  - **Ventilation Ductwork** (airflow)
  - **Filters / Air Handlers** (air quality)
  - **Thermostats** (control systems)

Why is it necessary?

- **Humidity Control:** Prevents mold, improves comfort, and protects building materials
- **Energy Efficiency:** Modern HVAC systems reduce energy usage and environmental impact

Canadian Manufacturers/Suppliers:

- **Eaton:** Residential
- **Verdant:** MDU Smart HVAC Energy Management Systems | Verdant

Division 26- **Electrical**

What is it?

- This division deals with the distribution of electricity in the building, including panels, breakers, wiring, lighting systems, outlets, and controls. It also includes grounding, backup power, and specialty electrical systems.

Why is it necessary?

- Electricity powers **almost everything in a building**—from lighting and HVAC to computers and appliances.

Canadian Manufacturers/Suppliers:

- **Schneider Electric:** Residential and small business products | Schneider Electric Canada
- **Eaton:** Residential

Division 26- **Electronic Safety and Security**

What is it?

- This division includes systems that protect people and property, such as access control, surveillance cameras (CCTV), intrusion alarms, motion detectors, and integrated building security systems. Fire alarms may also be included here if they are digitally networked.

Why is it necessary?

- They help prevent unauthorized access, monitor sensitive areas, and respond quickly to threats—supporting occupant safety and regulatory compliance.

Canadian Manufacturers/Suppliers:

- **Eaton:** Residential
- **Bosch Security Systems:** Bosch | Products

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