

## Vapour Control Layer

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The purpose of a vapour control layer, installed on the interior of the PWF wall, is to limit the outward movement of indoor moisture (i.e. vapour diffusion) in the winter months. Polyethylene vapour retarders are frequently used for this purpose. However, should moisture ingress or interstitial condensation occur throughout the life of the PWF wall assembly, it is necessary to allow for adequate drying. Polyethylene vapour retarders prevent inward drying of this moisture, and have the potential to trap moisture within the wall assembly. For this reason “smart” vapour control membranes are preferred. Smart vapour control membranes exhibit low vapour permeance when the surrounding relative humidity is low, and higher vapour permeance when the surrounding relative humidity is higher. This enables them to limit outward vapour diffusion from typical indoor climates in the winter months but allow inward drying in the event that water is present in the PWF wall assembly (enabling any trapped moisture to dry out over time).

## Interior (Secondary) Air Barrier

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The purpose of an air barrier, installed on the interior side of the PWF wall, is to eliminate air leakage from the indoor space into the wall assembly, in order to prevent air leakage condensation in the insulated PWF wall cavities (stud spaces).

This interior air barrier system is most often achieved by lapping and sealing sheets and the perimeter of a suitable vapour control layer material (polyethylene vapour retarder or an air impermeable “smart” vapour control membrane), or by sealing the joints and perimeter of the interior drywall (air drywall approach). This interior air barrier is referred to as the “secondary” air barrier because it is provided in addition to the “primary” air barrier – exterior plywood sheathing with sealed joints. In this arrangement, the “primary” air barrier prevents outdoor air and soil gas from moving through the PWF wall assembly while the “secondary” air barrier prevents indoor air leakage into the stud wall cavities.

## Wiring

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Where electrical outlets are placed on exterior walls, the wiring should run vertically within a single stud space and pass through a hole drilled in the top plates between the floor joists. Wiring should then run along the wall through the suspended ceiling space or by drilling through the joists.

## Heating and Ventilation

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Heating and ventilation ducts should be installed so that studs, top plates, blocking and framing anchors are not cut, notched or removed. One solution is to frame in wall or ceiling chases next to the foundation wall for routing ductwork.