TECHNICAL BULLETIN

Understanding the Iron Woods Drained and Back-Ventilated Rain Screen System

Drained and back-ventilated rain screens:

The main point to note about the drained and back-ventilated approach is that claddings are allowed to leak, and no deliberate attempt is made to minimize the effects of wind by means of pressure equalization. Instead, the cavity behind the cladding is drained and positive back-ventilation is used to promote the rapid evaporation of any rainwater deposited on the inner leaf. The same process is used to evacuate the water vapor which permeates through the inner leaf and its insulating layer."

The Iron Woods Vanish Rain Screen System employs…

1) A series of planks (collectively called 'Cladding') fixed using a proprietary clip system (Vanish Clips) to vertical support channels or rails and or Sheathing as the outer exposed leaf or barrier. Joints in the outer leaf are open but de-signed to obstruct water penetration by kinetic energy and wind force. It must be understood that the joinery is designed to minimize, not prevent water penetration. Water leakage resulting from variable wind-induced air pressure differentials will occur. Thus, at times, relatively large amounts of water can and will penetrate the outer leaf through its open joinery. Water is permitted to run down the interior face of the outer leaf cladding, but is controlled by the cladding design. Minor wetting of the inner leaf sur-face can occur and is permitted.

2) The system allows penetrating water to drain through gravity action to the bottom of both the outer and inner leaf.

3) A cavity (or minimum allowable width of air space) between the outer and inner leafs is necessary to facilitate positive back-ventilation. This promotes rapid evaporation of any rain water deposited in the surfaces of the inner leaf or on the interior surfaces of the outer leaf.

However, research has demonstrated that this cavity should be a minimum of 10mm in order to promote proper ventilation action. The cavity depth should be considered to be in addition to the depth of exterior applied insulation materials so as not to restrict the ventilation flow.

4) D/BV walls require an air/water barrier at the rear of the cavity, generally on the outer face of the inner leaf. This is because the inner leaf, by design, is allowed to be wet at times. The continuous air barrier serves to control airflow through the wall, reduces static air pressure differences across the cladding and by doing so allows the rain screen cladding and second line of defense (the inner leaf) to perform more effectively. The inner leaf surface, in addition to having a water barrier applied, must be completely flashed to eliminate water penetration into the building and direct run-off of any water infiltration to the outer leaf.

6) The inner leaf is generally the structural building enclosure wall and thus can be constructed in variety of ways. It should be designed to envelop the buildings interior environment and be continuous in nature.

Water resistant insulation can be applied to the exterior side of the moisture barrier and is optional subject to the building's thermal design requirements. Use of insulation in this manner helps to maximize usable building space and rules out condensation and cold bridging to the inner face of the inner leaf.

Since D/BV rain screen systems are not pressure equalized, the exterior leaf or cladding must be designed to withstand 100% of the building's wind load.

The main point: D/BV claddings are not designed to be watertight, and no deliberate attempt

is made to minimize the structural or water penetrating effects of wind by pressure-equalization. Instead, the cavity behind the outer leaf is drained and positive back-ventilation is used to promote rapid evaporation of any rainwater deposited on the inner leaf surface. Additionally, conventional air and water test criteria cannot be applied to the outer leaf (due to its open joinery design), but should more properly be applied to the completed construction of the inner leaf. Continuous vertical drainage channels are employed and suitable bottom to top venting is provided for.

Refer to Figures 1 and 2 for representations of the Iron Woods D/BV rain screen panel system. Key elements for Figures 1 and 2

1) The 'Outer leaf' cladding system (or the 'Rain screen')
2) The Clip or cladding attachment system
3) Vertical drainage channel
4) Ventilation cavity
5) Moisture barrier (commercial building wrap)
6) The 'Inner leaf' or face of building structural wall
7) Flashing
8) The building structural wall

Notes:

1) The illustrations in this document are conceptual in nature and are not intended to represent any manufacturers system. Any representation to the contrary is purely coincidental.

2) The information contained herein should not be used as a basis for reduction of the load-resisting characteristics of the outer leaf.

3) This document is meant to serve as a conceptual explanation and not a design guideline for Rain screen systems.

It should be well understood by the design and construction professionals that since the various 'rain screen principle' elements (outer leaf, insulation, air/vapor barrier and inner leaf) can likely be supplied by different sources/subcontractors specifications and contracting methods need to be closely coordinated and controlled to assure satisfactory performance of the integral system. Contractually, the overall warranty and performance of a rain screen wall must ultimately be born by the design and construction professional.

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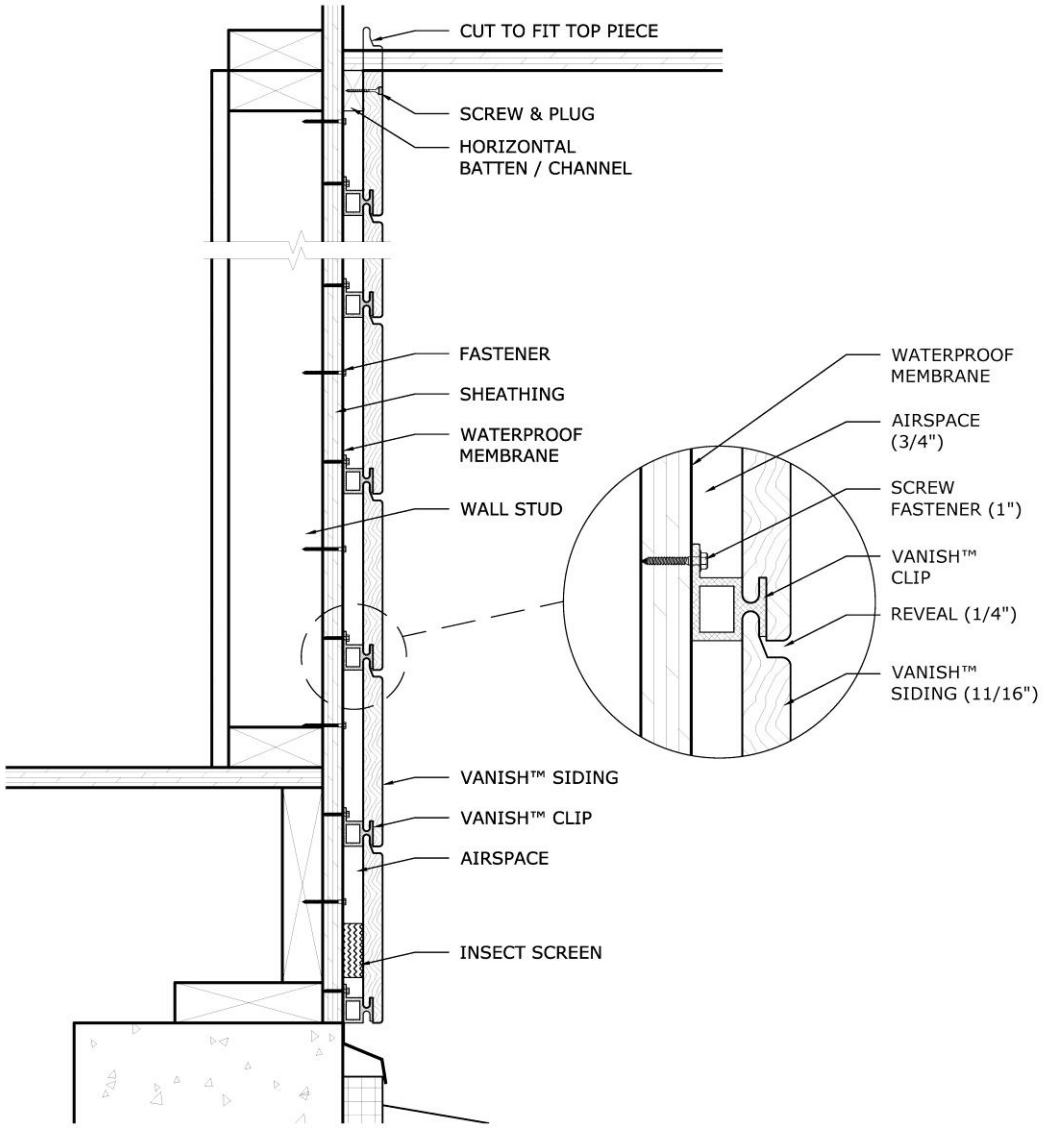

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SECTION DETAIL:

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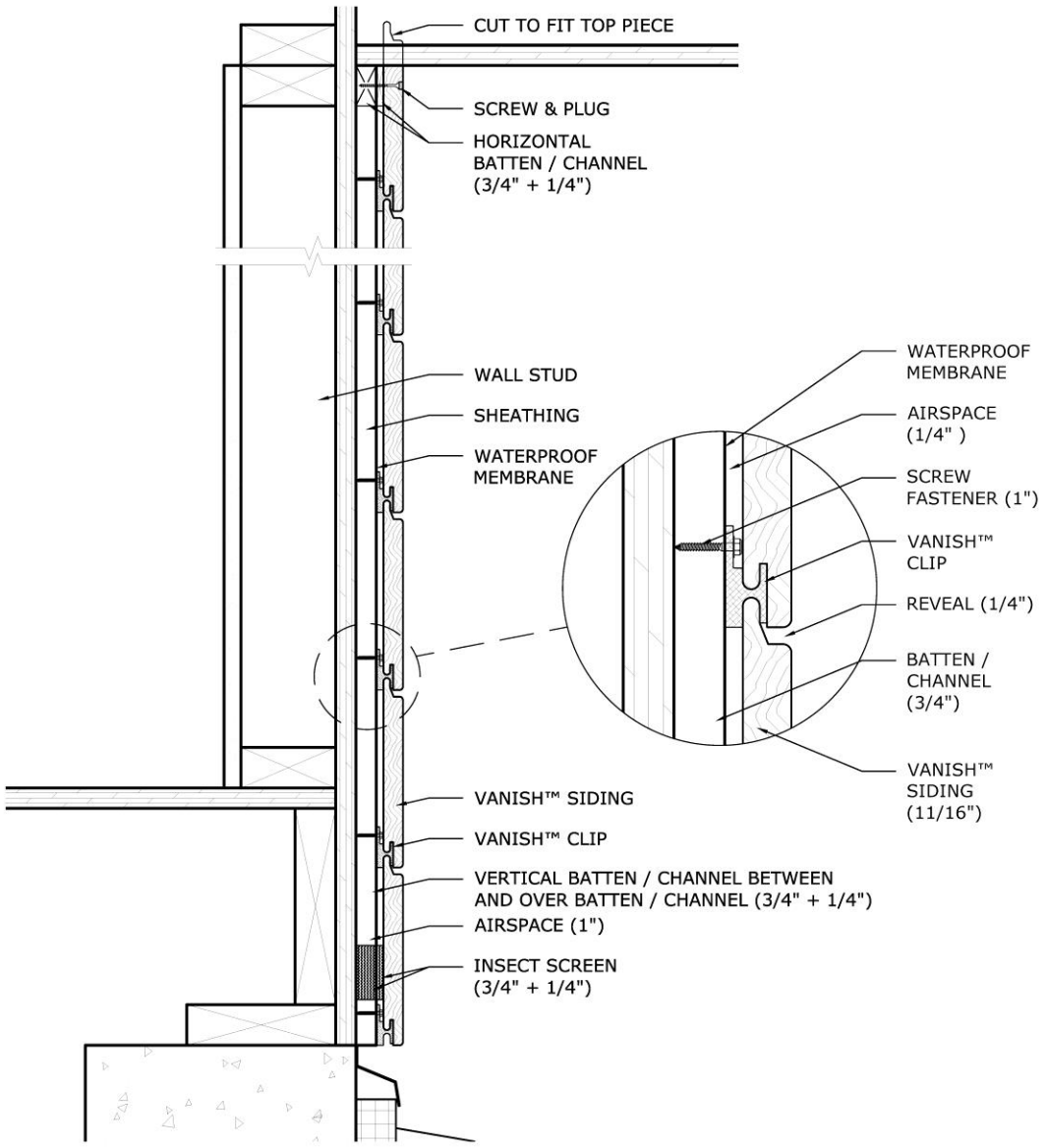

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