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## SECTION 9.27, “CLADDING” Clarification of Some New Requirements

The following explanations are provided with the intent to increase consistency in the application and interpretation of some of the new provisions in Division B, Section 9.27, Cladding, of the 2006 B.C. Building Code.

### **A note at the end of Clause 9.27.2.2.(1)(a) points to “Article 9.27.5.3.” which requires 19 mm (3/4”) thick wood furring. What’s this about?**

Article 9.27.5.3. states that “wood furring” used to attach cladding must be at least 19 mm thick. The note after Clause 9.27.2.2.(1)(a) simply points to this Article as a reminder that if you are not using sheathing or the sheathing doesn’t meet the minimum thickness requirements for attaching the cladding then the wood furring used as the structural attachment may have to be 19 mm (3/4”) thick. If wood furring (strapping) is used only as a *spacer* for the capillary break, it only needs to be 10 mm thick.

### **Does the wood strapping need to be treated?**

There is no Code requirement setting out the moisture resistance of the material employed to provide a capillary break. This question relates to wood strapping such as lumber, plywood and OSB. There is no requirement for wood siding to be treated, painted, or stained, thus there is no requirement for the weather-protected strapping to be treated either. If treated wood is used then all the fasteners for the strapping and the siding should be compatible with the type of preservative selected.

### **Does strapping have to be vertical?**

The capillary break cavity must drain, so if strapping is used, every effort should be made to keep the strapping nominally vertical so that water is not in contact with the sheathing membrane for any longer than it takes for gravity to draw it downward.

### **Can the 10 mm cavity vent into the attic?**

No, sentence 9.27.2.2.(3) specifically prohibits connecting the capillary break air space with “construction” projecting over it. Projecting construction would include roof and floor assemblies. There is some debate whether or not venting the capillary break into a vented attic is a problem, but the Code does not permit it.

### **Do end dams on head flashing have to be a minimum 25 mm?**

Even though the wording of Clause 9.27.3.8.(4)(c) implies end dams should be not less than 25 mm high or higher in some locations, the intent of Clause (4)(c) was to give builders two choices: 1) make the end dam 25 mm high, or 2) calculate the appropriate height in millimetres based on the local driving rain wind pressure. This may result in a higher or lower end dam height; e.g., driving rain wind pressure in the Fraser Valley and Greater Vancouver does not exceed 160 Pa so end dams can be 16 mm high; driving rain wind pressure in Sandspit is 500 Pa, so based on the calculation, the end dam height would be 50 mm high, but builders have the option to make them only 25 mm high.

### **Sub-sill drainage – why and how?**

The space between the bottom of a window and the top of the sub-sill (rough opening) needs to be treated similar to the space between the cladding and the sheathing. The window is part of the first plane of protection (cladding) and the sub-sill needs to be protected by a second plane of protection (sheathing membrane) that prevents potential window leaks from migrating any further into the building. However, most wall sheathing membranes are not designed for use on horizontal or near horizontal surfaces so a more appropriate material must be used on the sub-sill. Peel-and-stick, sheet metal and molded plastic pans are all suitable materials.

Where flange mounted windows are installed outboard of the capillary break, drainage is not a problem. However, some provision must be made for drainage through or under the flange where it is installed directly to the sheathing membrane, and it must drain to the exterior. This can be awkward where there is no capillary break to drain into. (See the HPO Guide)

### **What are self-flashing window sills?**

In addition to the requirements for sub-sill drainage mentioned above, Sentence 9.27.3.8.(5) requires flashing below windows which do not have “self-flashing sills.” Many commonly used residential (usually vinyl) windows are not self-flashing, i.e. the bottom frame member is the same extrusion as the top and sides and does not project far enough to deflect water away from the cladding below. The sills of traditional wood windows were typically self-flashing and some builders are installing window trim that mimics the traditional window sill. Such add-on sills may be considered self-flashing if they approximate the specifications in Clauses 9.27.3.8.(4)(b) & (e). Using this method, the add-on sill must be installed over the flange of a vinyl (or aluminum) window so that water running down the window will run onto the sill and drip clear of the cladding below. Water should not be able to get behind the sill.

### **Trim on top of strapping or not?**

Casings around windows and doors and other trim work, such as “belly bands”, can be considered part of the cladding and therefore be installed outboard of the capillary break.

However, as there is no imperative to install windows and doors outboard of the capillary break, it should not seriously compromise the water management performance of the wall if the casings are installed directly to the sheathing membrane with the head flashing above the trim. Using the same rational, horizontal trim such as “belly bands” could also be installed directly to the sheathing as long as they are properly flashed. The flashing must of course extend all the way back under the sheathing membrane.

### **Do dryer ducts and hose bibbs need flashing?**

These types of penetrations are not considered as “openings” as referred to in Sentence 9.27.3.8.(3) so flashing is not required. It is important that these penetrations be very well sealed at the second plane of protection (sheathing membrane) and also sealed at the cladding. Flashings can be used if preferred. The HPO Guide provides useful suggestions for sealing duct and pipe penetrations.

### **What about meter boxes?**

Meter boxes can be installed either on the sheathing membrane or outboard of the capillary break, similar to trim. The penetration of the conduit through the second plane of protection needs to be very well sealed, regardless of how the box is mounted. Where the conduit penetration is behind the box it may be difficult to do a good job of sealing the penetration. In this condition, in addition to sealing the penetration, it may be appropriate to install a head flashing with end dams over the box to reduce the likelihood that moisture will get between the box and the sheathing membrane.

### **Does the drainage cavity need venting at the top? Is a bug screen required?**

Venting the capillary break cavity at the top and installing bug screens both top and bottom is not required by the Code but is considered good practice.

### **Explain “exposed to precipitation” and “protected from precipitation”.**

The provisions of Sentences 9.27.2.1.(1) and 9.27.2.2.(4) and (5) apply when exterior walls are “exposed to precipitation.” There are obvious cases where walls are protected by attached carports or porch roofs, but the HPO Guide describes more generic conditions which may be considered as “protected from precipitation” (Sec. 2, pg. 6). For example, a typical eight foot high wall protected by an overhang of not less than 600 mm (2 ft) will provide reasonable protection in normal exposure conditions. This does not mean if the wall is 16 feet high, the overhang can be four feet. The overhang at a gable end would not meet these criteria because most of the overhang is more than eight feet above the bottom of the wall. The average subdivision will usually present a normal exposure condition but hillsides must be considered very carefully: exposure to rivers, lakes, oceanfront or large open fields is not considered normal exposure. Different faces of a building can also have different exposure conditions so that a capillary break is clearly required on one exposure but may not required on another.

### What about proprietary materials for the capillary break?

A number of “rain screen” products have been introduced in recent years intended to provide the 10 mm capillary break. The capillary break provisions in the Code were written in descriptive language specifically to allow for various acceptable solutions, see Appendix note A-9.27.2.2. Products, materials or systems must allow drainage, create a 10 mm gap between the two planes of protection and be not less than 80% open in cross section. In addition, like all building materials, they must “possess the necessary characteristics to perform their intended functions when installed in ... a building” (Div. A, Article 1.2.2.1.).

Appendix note A-9.27.2.2., under Capillary Breaks, refers to “a variety of non-moisture-susceptible open mesh materials.” In this case, it is the manufacturer’s responsibility to offer a product that is suitable. Builders will want to consider whether the material could hold moisture in contact with the cladding or sheathing membrane for extended periods. It’s up to the builder to apply some judgment regarding a product’s or material’s suitability for their specific application, including compatibility with the cladding. The building official can not be expected to assess anything beyond conformance with the measurable properties specified in the Code (10 mm, 80% open, allows drainage).

### What about shingles and vertical siding?

The Code does not permit shingles or vertical siding without a capillary break. However, shingles and vertical siding need something other than vertical strapping to provide the 10 mm drainage cavity. One solution is horizontal strapping on top of the vertical strapping, but many of the proprietary rain screen products will also provide a suitable drainage cavity as well as support for the cladding materials. There is at least one sheathing membrane/air barrier that incorporates a capillary break. A cladding material that provided its own Code conforming capillary break would also be acceptable.

### What about gable ends?

If a vented, un-heated attic is behind the gable end, a capillary break may not be needed. In this case, two dissimilar environments aren’t being separated so one could conclude that the lack of a capillary break “will not adversely affect occupant health or safety” (9.27.2.1.(1)) and therefore isn’t required. However, maintaining alignment with the cladding below the gable end needs to be considered.

Additional information can be found in the “[Building Envelope Guide for Houses](#)” (HPO Guide), published by the Homeowner Protection Office. The Guide was developed in cooperation with the Building and Safety Policy Branch and other industry stakeholders and includes examples of best practice and how to achieve Code compliance.