



MORRISON HERSHFIELD

May 9, 2013

Ray Snitynsky, M.Sc., P.Ag.  
TBC (Canada) Inc.  
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Dear Mr. Snitynsky:

**Re: Vapour Barrier Paint**

Morrison Hershfield has been asked to provide comments and recommendations with respect to the use of vapour barrier paints in lieu of polyethylene sheets, to satisfy Article 9.25.4. **Vapour Barriers** of the National Building Code in assemblies that use Quik-Therm as an exterior insulation.

Quik-Therm is effectively impermeable and is generally not mounted outboard of a drained and vented space. In that case, when used in "Part Nine" buildings (constructed under the prescriptive requirements of the Building Code), it is subject to the requirements of Article 9.25.5.2. **Position of Low Permeance Materials**, and Table 9.25.5.2 that defines the "Minimum Ratio of Total Thermal Resistance Outboard of Material's Inner Surface to Total Thermal Resistance Inboard of Material's Inner Surface" for different climates defined by degree-days. As noted in the Appendix, Table 9.25.5.2 was developed assuming typical indoor humidity conditions and the presence of an air barrier and a  $60 \text{ ng}/(\text{Pa}\cdot\text{s}\cdot\text{m}^2)$  vapour barrier in the enclosure assembly.

Article 9.25.4.2 recognized that many different materials can provide the required vapour diffusion resistance - including polyethylene sheets, and coatings applied to gypsum wall board (drywall) that are tested in accordance with CAN/CGSB-1.501-M, "Method for Permeance of Coated Wallboard." Polyethylene sheet has a very low Permeance (about  $3 \text{ ng}/(\text{Pa}\cdot\text{s}\cdot\text{m}^2)$ ). Most vapour barrier paints test in the range of  $45\text{-}60 \text{ ng}/(\text{Pa}\cdot\text{s}\cdot\text{m}^2)$ .

There is a reason not to use polyethylene. Because Quik-Therm also has a very low permeance, if moisture enters the assembly, for example by rain leaking into the wall or window or perhaps a pipe leak, the double vapour barrier allows very little drying capability. A vapour barrier with a permeance closer to the allowable limit provides more forgiveness of minor leaks. This is the reason we recommend the use of vapour barrier paints such as Cloverdale Rodda Vapour Block 507901 or other paint system that has been tested to confirm compliance.

Regardless of the material used to provide the vapour diffusion, any building enclosure assembly requires an air barrier system, which consists of structurally supported airtight materials with sealed joints and sealed connections to adjacent assemblies. When using Vapour Paints, the most typical method is to use the Airtight Drywall Approach where the gypsum board is sealed to adjacent components by gaskets, sealant, tape or other methods to

complete the air barrier system. An air barrier system can also be accomplished by sealing the outside substrate or air impermeable insulation such as Quik-Therm by sealing all joints in the chosen layer and sealing this layer to the airtight element in adjacent assemblies. If the Quik-Therm is used as part of the air barrier system, it must be installed in a manner that can resist outward wind loads.

We would also note that under Article 9.27.3.4, Quik-Therm can act as the second plane of protection against precipitation ingress as long as joints are tongue and groove, or sealed and provisions are made for moisture that passes through the cladding to drain to outside.

We trust the above is helpful and clear.

Yours truly,  
Morrison Hershfield Limited



Mark Lawton, P. Eng.  
Sr. Building Science Specialist, Principal

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