

# BULLETIN

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## Enerfoil sheathing and wall assemblies

The appropriate application of impermeably faced sheathing (such as IKO Enerfoil) on Part 9 woodframed dwellings, (residential), in conjunction with fiberglass batt insulation is dictated by the National Building Code, (NBC), in section 9.25.1.2. Attention must be given to Table 9.25.1.2 due to the structure of Enerfoil as not only being an insulating material but also as a vapor retarder with low air permeance. The guidelines detailed below may be useful when dealing with such situations.

Enerfoil has a sufficiently low water vapor and low air permeance that it can function as a vapor retarder and an air barrier within a structure. The building code stipulates that when such products are used with no gaps or breaks in their continuity, they are to be treated as vapor retarders. Typically this means joints are filled or taped and abutted over studs to inhibit airflow and form a sealed surface.

In effect, Enerfoil has the ability to create a double vapor barrier within a wall assembly which also uses a conventional polyethylene vapour barrier. Table 9.25.1.2, "RATIO OF OUTBOARD TO INBOARD THERMAL RESISTANCE" deals with this scenario such that following the guidelines as dictated by the table will reduce the potential for water vapor to condense within the wall assembly.

The table is keyed to climatic zones according to the number of degree days of heating required for locations in Canada. There are less than 5000 degree days of heating for the majority of populated regions in our country, Zone 1.

Given that Zone 1 wall insulation requires R17, outboard sheathing insulation R-Value, (thickness), is then determined by the ratio of R outboard of the sheathing's innermost surface compared to the wall's inboard R from the sheathing's innermost surface.

Example: 2" x 6" wood stud wall with R15 fiberglass batt insulation in Zone 1, (less than 5000 degree heating days), Table Ratio is .20. What is the insulation sheathing thickness? Answer is:  $X/15 = 0.20$ , so  $X = 15 \times 0.20 = 3.0$ . The insulation R-Value must be 3 or more. This equates to a thickness of ½" for Enerfoil. Please note that an in-depth calculation of R-Value may contain numerous other factors such as air space, inner wall sheathing, stud spacing, etc. Such factors may affect the overall sheathing calculation and should be done by the appropriate authority.

It is the responsibility of the design authority to ensure that these rules are met. Having some familiarity with them will enable field representatives to better serve their customers when discussing exterior wall insulating sheathing and its potential use in stud wall construction.