



## PVC Roofing Membranes

One of the less desirable aspects in the promotion of new products is the undue emphasis placed upon any property that might raise that new product above competition or make it equal in that property to a competitor. Unfortunately the acceptance as fact of such exaggeration can be anywhere between disastrous to annoying for the owner, specifier and user.

The Canadian Roofing Contractors' Association found it hard to believe the claims being made for the ability of polyvinyl chloride roofing membranes under Canadian environmental conditions to allow drying from below through the membrane. The Association, therefore, retained a consultant to investigate by mathematical analysis the practicability of some of the claims being made to members. The consultant was given what was believed to be a relatively normal situation and was requested to report for various Canadian centres.

Case #1 assumed the new membrane is laid over the old strictly according to manufacturers' specifications. First there would be no insulation added, then there would be thermal up-grading by adding increasing amounts of insulation on top of the membrane.

It was assumed the job could not be completed in one working day and, because of promotional statements that no water cut-offs was required, none was used. Before work resumed it rained and water got under the open edge. It spread out in a low area to an average depth of 1/8 inch. That is, with the uneven old membrane surface below and the gravel ballast above it was assumed there could be 1/4 inch in some places but only a film in others.

Case #2 assumed areas of wet insulation below the old membrane. The old membrane is systematically punctured to allow drying of the wet insulation as claimed, then the new PVC membrane is laid over the top both with and without insulation on top of the new membrane.

In each case the consultant made assumptions which, to us, appear to correspond to either fair or optimistic field drying conditions. The assumptions are:

- all the water is transmitted through the membrane to the atmosphere with none absorbed into the building structure
- the climatic conditions at each centre are the recorded ten year averages
- no water, snow or ice on the membrane surface inhibit the flow of vapour to the atmosphere
- no dirt collects on the membrane surface to obstruct vapour transmission
- the water is at a uniform depth and is transmitted directly through the membrane
- the water vapour transmission is 4.0 g/m<sup>2</sup> in 24 h or the maximum allowable for PVC roofing membranes in the proposed CGSB Standard 37- GP-54M
- thermal insulation is polystyrene meeting CGSB Standard 41-GP-14A (with amendment No. 1) Type 4
- the inside temperature is constant at 21°C