Dynamic Test:

This consists of loading being applied using a demand signal comprising of a sinusoidal waveform in a range of frequencies and pressures to simulate gusting winds.

4.0 TEST SPECIMEN.

The M3 system with caps at 600mm centres was fixed to 22mm X 125mm timber boarding with nominal 5mm gaps between boards. This formed the base of the test chamber and was exposed to normal atmospheric pressure.

5.0 TEST RESULTS.

Static test:
Due to the high porosity of the M3 roll cap it was impossible to apply any significant loads on the panels. BRERWULF was taken to its maximum capacity, registering almost –10 KN/m2, which only generated a load of – 0.80 KN/m^2 on the panels. At the maximum load a small deflection occurred in the middle of the panels which lowered when the load was removed.

Dynamic test:
As a result of the static test showing a maximum load of – 0.80 KN/m^2 it was impossible to carry out a dynamic test due to the very fast response time of the system.

6.0 DISCUSSION

From tests previously carried out on standing seam systems failure occurred at relatively low dynamic loads (*circa --1.5KN/m^2).* This is due to the low porosity of these systems. The dynamic tests showed that the trays could not fully react to short fluctuating loads because of their flexibility.

The movement of the panels during gusting may be a cause of metal fatigue in the long term. The high porosity of the M3 system as a result of the perforations in the cap cause an almost instantaneous balance of atmospheric pressure above and below the panels thus greatly reducing wind load and minimising deflection and vibration of the panels. Gusting wind therefore is less likely to cause metal fatigue.