

BRE Wind Engineering: Client Report.

WEATHERTIGHTNESS TESTS ON THE W.B. WATSON ROOFING SYSTEM.

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I. INTRODUCTION.

The report summarises part of the Driven Rain Penetration Tests carried out by the BRE Wind Engineering Section on 8th February 1996.

2. OBJECTIVE.

The purpose of the tests was to investigate the performance of a 3m x 2.5m roof sample of the W. B. Watson Patent System under four combinations of wind and rain. In particular, the tests were conducted to ascertain the performance of the capping system in preventing the ingress of water into the roof space whilst allowing the system to be vented to overcome condensation.

3. TEST SPECIMEN.

The performance of the W. B. Watson Patent System under combined wind and rain was investigated using a purpose-built monopitch test roof, the pitch of which could be varied. The test roof measures 3m x 2.5m in the plane of the roof and provides an opening of approximately 2.50m x 2.84m. The test specimen was installed onto the opening entirely by the Client and no verge or eave details were added. A 3m x 2.5m shallow perspex pressure box was attached to the underside of the roof test frame. The purpose of the box was to observe the possible event of water ingress through system and to provide a roof space within which the pressure could be controlled.

4. TEST PROCEDURE.

There is currently no British Standard test method for driving rain testing. The test method used at BRE is based on established simulations used extensively in the past to test glazing and other roofing materials.

The tests were carried out with the test roof mounted at the exit of BRE's No 3 Boundary Layer Wind tunnel so that the wind flow was directed perpendicularly to the eaves. Three horizontal spray bars were mounted at the exit of the tunnel, so that water could be sprayed into, and mix evenly with, the air stream. One spray bar was mounted horizontally, above the roof, so that water could be sprayed down onto the roof when the wind tunnel was not running. This was used during the Deluge Test only.

To simulate an additional length of roof; a sparge bar was mounted across the ridge of the roof. This was used to provide a quantity of runoff water that could be expected from a further 10m of roof above the ridge.