

UNIVERSITY OF CHILE
FACULTY OF PHYSICAL SCIENCES AND MATHEMATICS
MATERIALS RESEARCH AND TESTING INSTITUTE (IDIEM)

TEST CERTIFICATE No. 209.637

Report on the behaviour of a construction element in artificial rainfall conditions

This element was sent to the Physical Construction Section of the Materials Research and Testing Institute (IDIEM) of the University of Chile by MONOLITE CHILE S.A., domiciled at Ojos del Salado No. 0811, telephone: 6035561, Quilicura, Santiago.

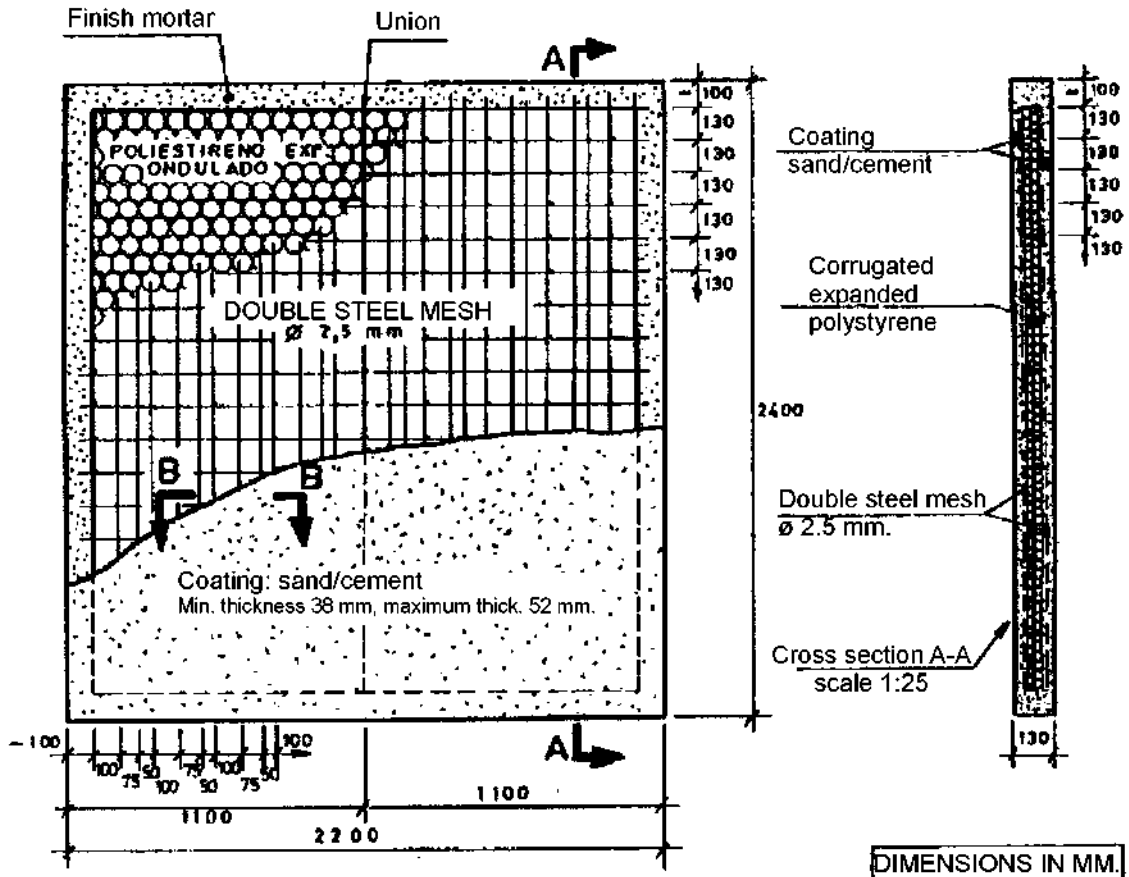
1. Characteristics of the element

This report relates to a wall constituted as follows: a three-dimensional framework made of steel wire, into which is incorporated corrugated polystyrene sheets, expanded to a thickness of 40mm. This structure or element core is coated on each side with mortar made of cement and sand. The total thickness of the wall is 130mm.

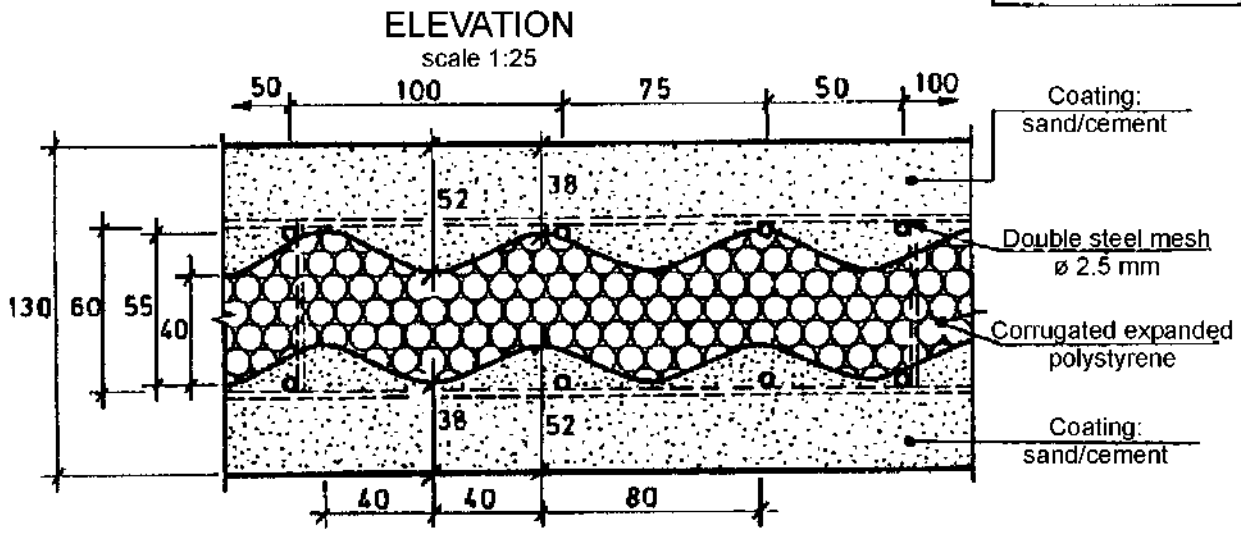
For the purposes of the test, we prepared an element 2.4m high x 2.2m wide x 0.13m thick.

Please see the diagram for the details of the construction and dimensions.

TEST CERTIFICATE No. 209.637



DIMENSIONS IN MM.



Cross section B and details of the elements

TEST CERTIFICATE No. 209.637

3. The test method

The test consisted of subjecting the wall to rainfall to find out how it behaved in wet conditions. The specimen was placed vertically in the rainfall chamber. The chamber is a parallelepiped with a rectangular base, 2.2m high x 1.6m wide x 0.9m deep.

The room is maintained at an air over-pressure of 6mm of water through ventilators. The rainfall produces a hydraulic system pushing the water towards a perforated pipe located in the upper part of the chamber. The water strikes the wall almost perpendicularly and drains in a continuous and even fashion, covering all of the test specimen's exposed surface. The rate of flow is 35 litres per hour. The element is exposed to artificial rainfall for a period of 24 hours. During this time, we observe whether the wall remains dry or changes.

4. Results

- 4.1 Upon completion of the test, no traces of damp appeared on the side not exposed to the rainfall.
- 4.2 The side exposed to the rainfall became wet throughout. The expanded polystyrene heat insulation did not get wet and prevented the water from infiltrating through to the other side.

UNIVERSITY OF CHILE
FACULTY OF PHYSICAL SCIENCES
AND MATHEMATICS
MATERIALS RESEARCH AND TESTING INSTITUTE (IDIEM)

TEST CERTIFICATE No. 209.637

5. Conclusions

The wall, sent to the Physical Construction Section of the Materials Research and Testing Institute (IDIEM) of the University of Chile by MONOLITE CHILE S.A., underwent the artificial rainfall test. This test certificate No. 209.637 refers to this wall. The results that the element displayed normal behaviour in rainfall conditions, in accordance with the test procedure described above. During the test, the sand-cement mortar of the wall coating that was exposed to the rain became completely wet, but the expanded polystyrene heat insulation did not get wet, nor did the unexposed side of the wall.



Mariel Rodríguez J.
Sección Física
de la Construcción.

Santiago, 29th July 1994