

RESISTANCE TO NEGATIVE HYDROSTATIC PRESSURE OF ARDEX WPM256/WPM300 HYDREPOXY MEMBRANE SYSTEM

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INTRODUCTION & SCOPE

The hydrostatic pressure resistance of diluted Ardex WPM256 and Ardex WPM300 HydrEpoxy waterproofing membrane system has been tested when applied to the negative side of a concrete substrate (i.e. the face opposite the applied hydrostatic pressure).

TEST METHOD

The test method adopted is based on ASTM 1306-95 and this was modified to accommodate a semi-rigid membrane.

The test involved applying the membrane system to the face of a standard concrete block (Japanese Standard Test Block - ETS). A bond coat of Ardex WPM256 HydrEpoxy (diluted 50% with water) was applied to the concrete substrate. The membrane system consisting two coats of Ardex WPM300 HydrEpoxy at a total film thickness of 300 micrometers, was applied over the bond coat in accordance with the manufacturer's recommendations. The edges of the block were sealed with a 100% solids epoxy system and allowed to cure for 7 days. A constant water pressure was then applied to the opposite face to that of the applied membrane, thus applying pressure to the negative side of the membrane.

A pressure of 5 psi (34.5 kPa) was applied at first and held for 15 minutes. The pressure was then increased in increments of 5 psi and held for 15 minutes each time to the maximum achievable with the test apparatus of 60 psi (400 kPa).

RESULTS

The prepared samples were subjected to reverse hydrostatic pressure as described above. Three samples were tested progressively at a pressure of 60 psi (maximum possible pressure obtainable from compressed air cylinder) without failure.

The first sample was subjected to the 60 psi hydrostatic pressure for 24 hours without failure. After removal from the apparatus, the first sample block was split into 2 pieces to check ingress of water – the inside of the block was fully saturated with water.

The second sample was subjected to the 60 psi hydrostatic pressure for 5 days without failure.

The third sample was subjected to 60 psi hydrostatic pressure for 7 days without failure. After seven days of being subjected to the hydrostatic pressure, a small hole was drilled through the membrane of the third block (whilst still under water pressure) – this produced an almost instant leak.

A block was also tested without a membrane applied and this started to leak at 15 psi. It was assessed that this pressure was achieved as a result of the time taken for the moisture to permeate the concrete block and not that the block alone would resist the pressure for an extended period.



CONCLUSION

The hydrostatic pressure resistance of the Ardex WPM256 HydrEpoxy (thinned 50%) and Ardex WPM300 HydrEpoxy membrane combination applied as per the Ardex Australia Pty Ltd recommended methods is 60 psi or 400 kPa.

(400 kPa is roughly equivalent to a 40 metre head of water.)

IMPORTANT

This Technical Bulletin provides guideline information only and is not intended to be interpreted as a general specification for the application / installation of the products described. Since each project potentially differs in exposure / condition specific recommendations may vary from the information contained herein. For recommendations about specific applications / Installations contact your nearest Ardex Australia Office.

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REASON FOR REVISION

Review and update

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