

Abstract No 19

Study of sprayed maintenance hole liner resistance to external water pressure.

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Research is underway to develop rational design procedures for liners sprayed into leaking maintenance holes. This presentation reports on the results of a study examining the ability of sprayed liner systems available in Ontario, to resist external groundwater pressures. First, flat samples (square 'panels') of concrete were prepared for testing with circular zones of external water pressure of three different diameters. Next, a segment of reinforced concrete maintenance hole was prepared for similar testing (but this time with the curved maintenance hole geometry, rather than the flat concrete panels). After coating with the different liner products, external water pressure was applied to the outside of each liner over the specified 'debonded' patch diameters. In each case, pressures were increased up to strength limit of the liner, or the limit of the testing equipment (whichever came first). The presentation outlines the manner in which the specimens failed and how the measurements indicate 'patch' size (i.e. the diameter of the debonded region in the vicinity of the leak) and sample curvature influence resistance to groundwater. Finally, preliminary guidance is provided regarding calculation procedures that could be used to select liner thickness, or to calculate the groundwater pressures that can be resisted by a specific product with a specific thickness.

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