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Project Manager
Rodrigo Antunes, Ph.D., P.E.
State Materials Office

Principal Investigator
Abu Sufian, Ph. D.
Hyung Lee, Ph.D., P.E.
Applied Research Associates, Inc.

Florida Department of Transportation Research

Methods for Sealing Vertical Cracks on Concrete Structures

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Current Situation

Cracks in concrete structures can occur for many reasons. The nature and extent of these cracks also vary across structure type, exposure, and condition.

This makes sealing concrete cracks a challenge in the long term.

Understanding the effectiveness of different sealant types and application methods could help FDOT more reliably seal concrete cracks.



Topical waterproofing of concrete surface is mostly suitable for vertical fine cracks with a width of <math><0.005\text{ in.}/<0.127\text{ mm}</math>.

Research Objectives

The objective of this study was to document best practices for sealing cracks in concrete structures, especially substructures, which cannot be routinely inspected.

Project Activities

Following an extensive literature review, the Applied Research Associates research team prepared three surveys targeting stakeholders of sealant products: suppliers, contractors, and state highway agencies in the U.S. and Canada.

The team compiled the data from the literature review and the surveys and developed a database of commonly used crack sealant products. The team also developed a matrix that relates each product and its application method to the type of crack and associated structures.

The team then provided FDOT with recommendations on how to update its standard specifications for concrete structures.

Project Conclusions and Benefits

FDOT can use the recommendations from the study to update its guidelines on concrete structures (Standard Specifications 400) and better stipulate best practices for sealing vertical cracks in concrete structures.

For more information, please see fdot.gov/research.