

Asphalt Pavement Analyzer

A designer's "crystal ball" that can help tell the future of mix designs

A COMPANY'S GUARANTEE that its product will function as intended has always been the cornerstone of good relationships between the producer and consumer. It has been only recently, however, that the owners of the transportation infrastructure have begun to move that relationship a notch or two higher. In many cases today, they not only *expect* a performance guarantee from hot-mix asphalt (HMA) producers and paving contractors—they also *require* it.

Over the last few years, more and more states have been writing warranties into their design-build contracts—requiring the road-construction contractor to assume responsibility for the pavement's durability and longevity. Most warranty contracts only cover the pavement for about five years, but a few have required a guarantee on the pavement's life for 20 years or more. The increase in popularity of these pavement warranties is causing some HMA contractors to place a stronger emphasis on design testing, quality control, and quality assurance.

Other contractors, however, have always placed an emphasis on assuring long-lasting pavement designs—with or without the pressures of warranty contracts. The Shelly Company (part of the Oldcastle Materials group), was already looking for innovative ways to minimize defects in their asphalt pavements when Ohio—the state in which they are headquartered—passed legislation to mandate warranty specifications in some projects. At that point, said Larry Shively, vice president of quality control for Oldcastle Materials, the company absolutely

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Oldcastle Materials

needed to get a tool to help them design longer-lasting pavements.

“Even before the warranty issue came up, we were looking at ways to minimize rutting in asphalt pavements,” said Shively. “Then, when warranties came about, it became a definite need to guarantee that we did not have rutting in our pavements.”

To help them make that guarantee, the Shelly Materials Quality Control Laboratory acquired an Asphalt Pavement Analyzer (APA) from Pavement Technology, Inc. (PTI). The APA is a multifunctional loaded-wheel tester that helps evaluate permanent deformation (rutting), fatigue cracking, and moisture susceptibility of both hot and cold mixes. In only a matter of hours, the APA can simulate literally years of wear on either

cylindrical test specimens or rectangular test specimens.

Shively said the APA has become the key piece of equipment in the laboratory's design-testing and quality-control programs. “We use the APA on almost every mix design we do,” said Shively. “And we do about 200 mix designs each and every year. Believe me, that is a bunch of designs. It seems like we are never caught up.”

Shively said the laboratory technicians dedicate about one week to each mix design. “It takes us a couple days to do a mix design. We proportion the mix and let it set. Then we compact the sample. And then it goes into the APA,” he said. “It usually takes two hours to do a pavement analyzer test.”

Once the asphalt sample is in the APA, the technicians can move on

to working with another mix design because the APA is fully automated. A computer generates a report that contains measurements of the resulting deformation in the mix.

“Basically, the APA is a torture test to see if the mix is prone to rutting,” said Shively. “If it does not rut within certain specifications, then we feel that the mix design is accurate, the materials we are using are suitable...and we can proceed with the production of that material. If it does rut, then, obviously, we know we need to modify the mix design.”

The accuracy of the APA makes the quality-control technicians much more confident when they are presenting their mix designs to their customers as durable and long lasting. That makes bidding on warranty-specified projects a little easier, of course. But it also helps them serve their private customers better. The key reason in acquiring the APA, Shively said, was simply to help the company turn out a quality product, week in and week out.

“I think it is important to note that we do not just use the APA on state mixes,” he said. “We use this on any mix design, including private mixes. We are using the APA to test pavements that go into large private parking lots, truck-stop parking lots, and FAA-regulated airports. We use it on a wide variety of applications.”

When asked whether he would recommend the APA to other contractors, Shively laughed.

“If they are our competitors, I hope they're not using it,” he said. “That really sums it up, doesn't it? I think the APA does give us an advantage.” ▼▲▼

FOR MORE INFORMATION

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