

OFFICE MEMORANDUM

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MICHIGAN
STATE HIGHWAY DEPARTMENT

JOHN C. MACKIE, COMMISSIONER

November 13, 1962

To: E. A. Finney, Director
Research Laboratory Division

From: A. J. Permoda

Subject: "Compriband" Preformed Urethane Joint Sealer.
Research Project R-62 NM-62. Report No. R-401.

The following summary prepared by D. F. Simmons of the Materials Research Section covers a field installation on I 96 of the subject material, a polyurethane flexible foam impregnated with asphalt, which according to manufacturer must be precompressed at least 4 to 1 to be an effective joint sealer. The field evaluation is in accordance with a previous recommendation of the Committee for Investigation of New Materials at its meeting on February 6, 1962.

Installation Details

On September 17, 1962, Mr. Eugene Pohlman of Secoa, Inc., Skokie, Illinois, arrived to make a test installation of four joints of the above material. These were the usual 1/2- by 2-in. contraction joints in new 24-ft concrete pavement. Mr. Pohlman, with L. Parr and D. F. Simmons of the Research Laboratory Division, went to the installation area to observe and photograph the operation. The 1/2-in. styrofoam had been routed and cleaned from the selected joints in the eastbound lanes of I 96 between M 99 and Waverly Road.

Mr. Pohlman brought a machine (Fig. 1) to compress the material approximately 6 to 1, but it would not compress the material enough for insertion into the 1/2-in. joint space without deforming the sealer. This deformation forced the material out of shape and made it unfit for use.

It then became necessary to compress the material between 2-by-4's using large C-clamps for pressure (Fig. 2). Four pieces of Compriband 1-1/2 in. deep by 3 in. wide and 6 ft long were used in each 24-ft joint.

Because of the compression difficulty only two of the planned four joints were sealed with Compriband: one at Station 595+11 without primer, and one at 594+12 using AE-3 asphalt emulsion primer before installation.

Fig. 3 shows how Compriband is installed to extend from the pavement surface down the slab edge which is normally covered by the end plate in joints sealed with hot poured material.

E. A. Finney

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Conclusions and Recommendations

An inspection of the two test joints on October 31, 1962, after 1-1/2 months of service showed several gaps between the compressed foam and the joint face (Fig. 4). This may be due to the problems during insertion of the foam on September 17, or more probably, to inability of the sealer to expand and fill a widening joint when the temperature falls. When inspected, the air temperature was 38 F and the material was extremely stiff and solid. The indicated loss of recovery at a moderately cool temperature may be due to quality of the foam or of the asphalt saturant, or both. Laboratory tests indicate that loss of recovery is even greater at lower temperatures.

The Laboratory has some material on hand for further installations, both 3- by 1-1/2 in. for new joints, and 4- by 1-1/2 in. for resealing old joints. In view of the condition of the two joints observed on October 31, 1962, it is doubtful that further installations of this material would be justified until these joints have been more completely evaluated. Inspection and observation of the installed sealer will continue until a definite indication is obtained.

OFFICE OF TESTING AND RESEARCH

A. J. Permoda, Supervisor
Materials Research Section
Research Laboratory Division

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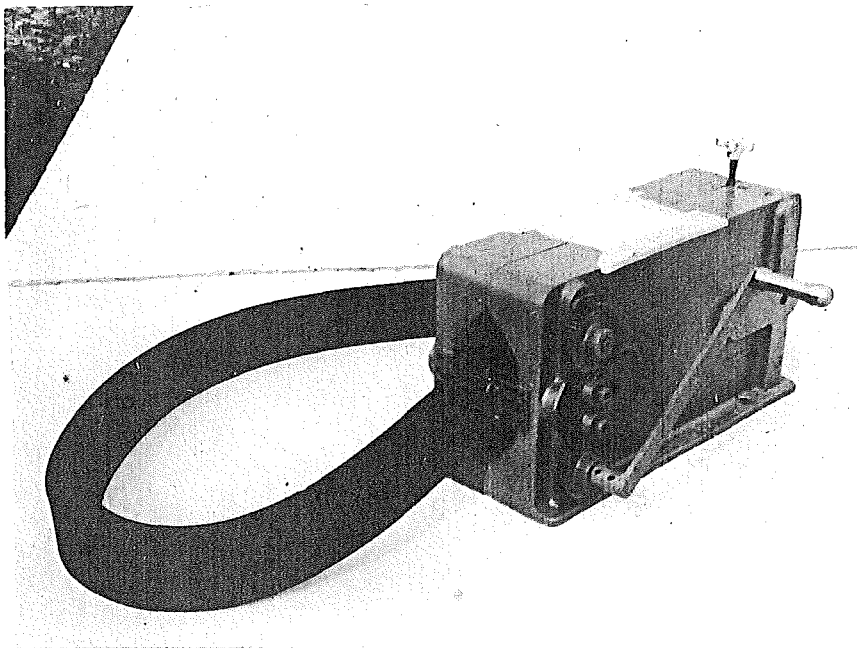


Figure 1. Front end of compression machine showing 1-1 2-by 3-in. Compriband on edge.

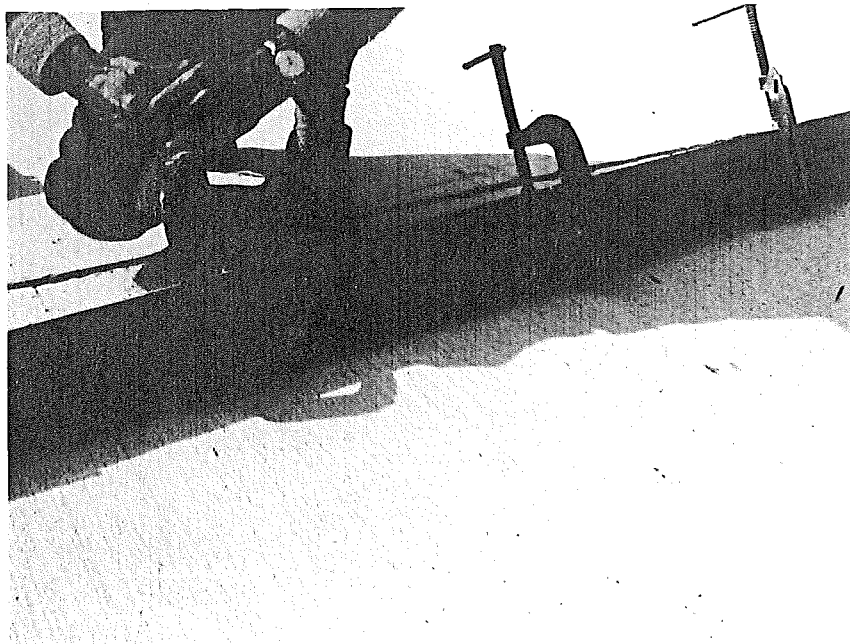


Figure 2. Emergency method used to compress 3-in. Compriband to less than 1/2 in.



Figure 3. Top and edge of joint with Compriband in place (Station 595+11).

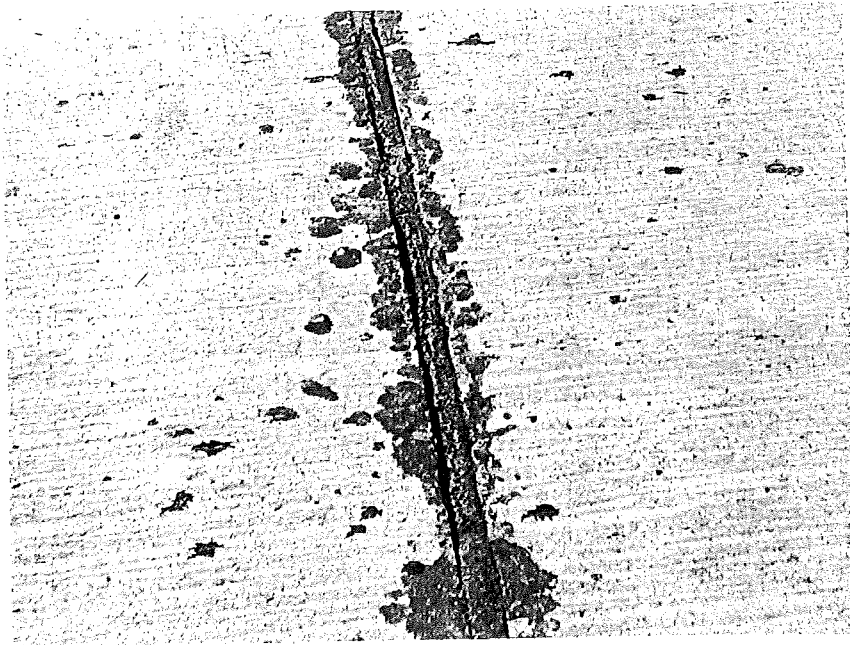


Figure 4. Primed joint after 1-1/2 months in service showing gaps between sealer and joint face.