OFFICE MEMORANDUM
MICHIGAN STATE HIGHWAY DEPARTMENT
Charles M. Ziegler, Commissioner

March 7, 1957

TO: W. W. McLaughlin
Testing and Research Engineer

SUBJECT: Rigidity Tests of the American Steel & Wire Co. Contraction Joint Assembly. Report No. 276 which supplements Report No. 200, 237, and 259. Research Project 39 F-1(3).

This letter report is concerned with vertical and lateral load deflection tests of the American Steel & Wire Co. dowel bar joint assembly.

This dowel bar assembly was tested in two ways. First as it was received, ("Type J") without the two No. 3 gauge wires showing in Figure I running lengthwise of the basket; and second with these two wires in place ("Type J modified"). The addition of the two wires was made at the suggestion of the Research Laboratory and they were placed 4 inches apart on the top of the dowels and were alternately welded to the dowel bars on the "fixed" side of the assembly. This modification was made with the consent of representatives of the American Steel & Wire Co. We were informed that Illinois requires the additional wires welded to the dowels as in "Type J modified assembly."

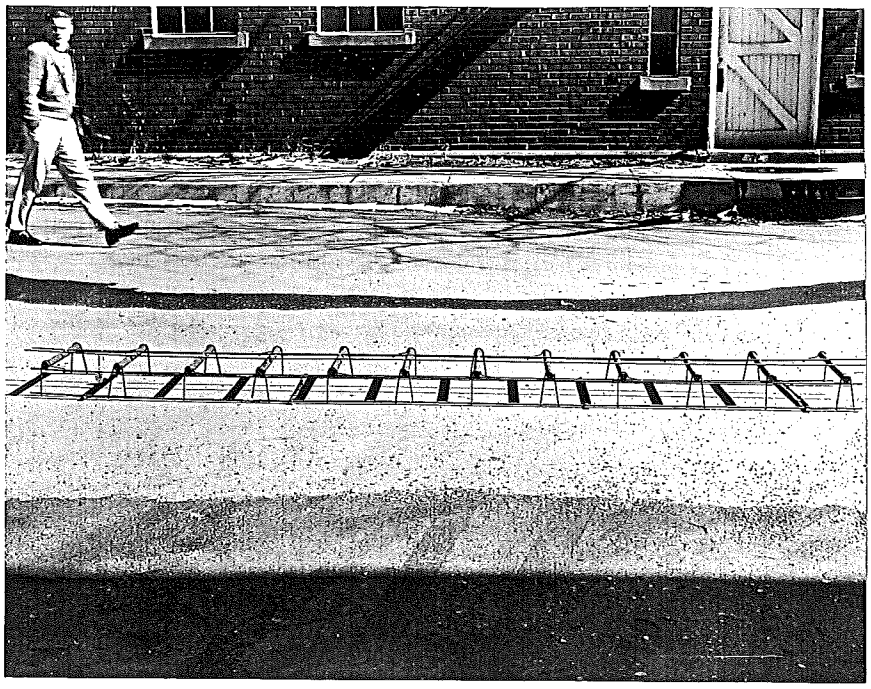
The accompanying graph shows the results of the vertical and lateral load deflection tests along with the results of the accepted standard ("Type C") dowel bar assembly. Although the "Type J" assembly was slightly more rigid than the "Type C" assembly, the modifying of the "Type J" assembly by adding the two No. 3 gauge wires increased the stiffness of the assembly by 50 percent vertically, and 11 percent laterally.

Mr. C. Lundberg and Mr. S. Cryderman of the Construction Division inspected this assembly and concur with the Research Laboratory in the recommendation that the "Type J modified" assembly be approved for pavement contraction joint construction with the following correction. The assembly must be made to extend 5 inches beyond the end dowels for positioning the assembly between the forms. The sample submitted was deficient in this respect. The American Steel & Wire Co. has not furnished an expansion joint assembly for approval and the contraction joint assembly could not serve for expansion joints.

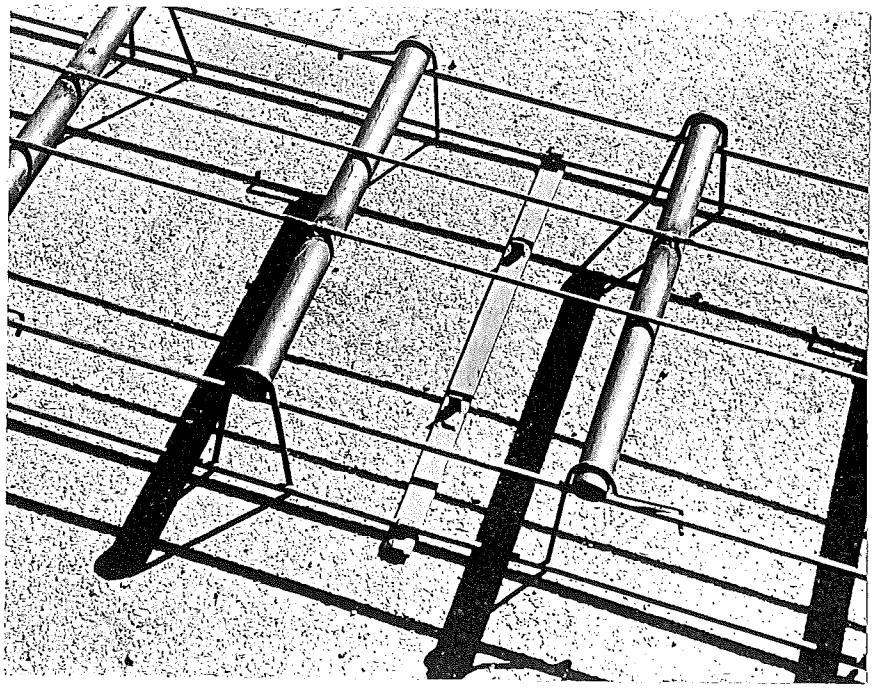
E. A. Finney
Research Engineer

EAF:HTO:md

cc: H. J. Rathfoot
H. Cash
P. E. Plambech
C. A. Weber



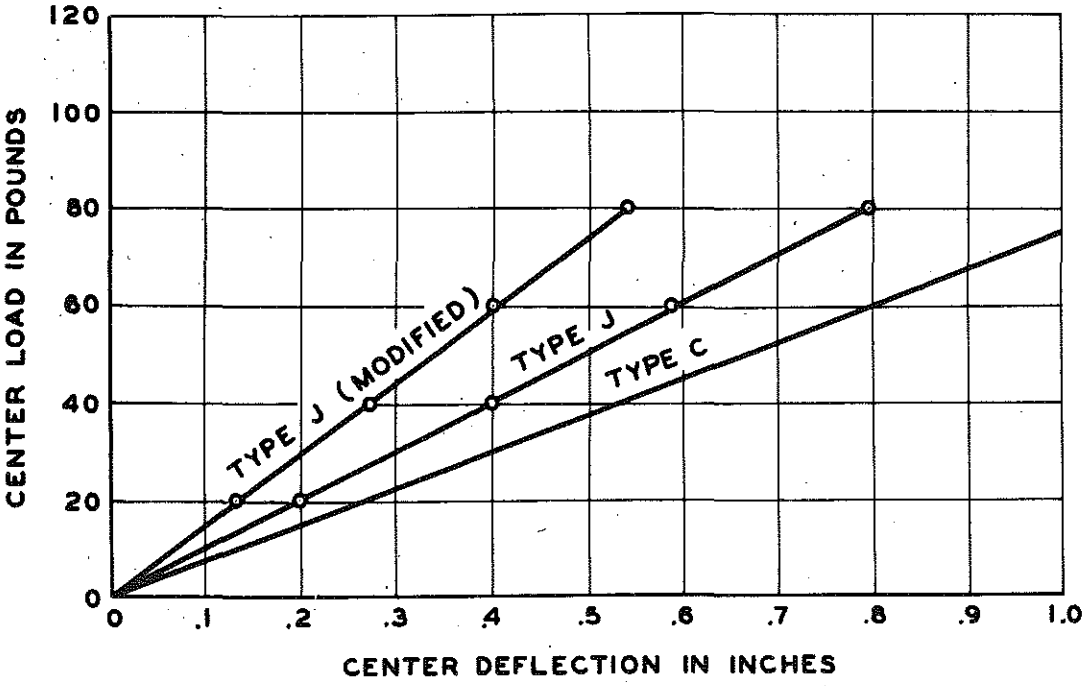
OVERALL VIEW



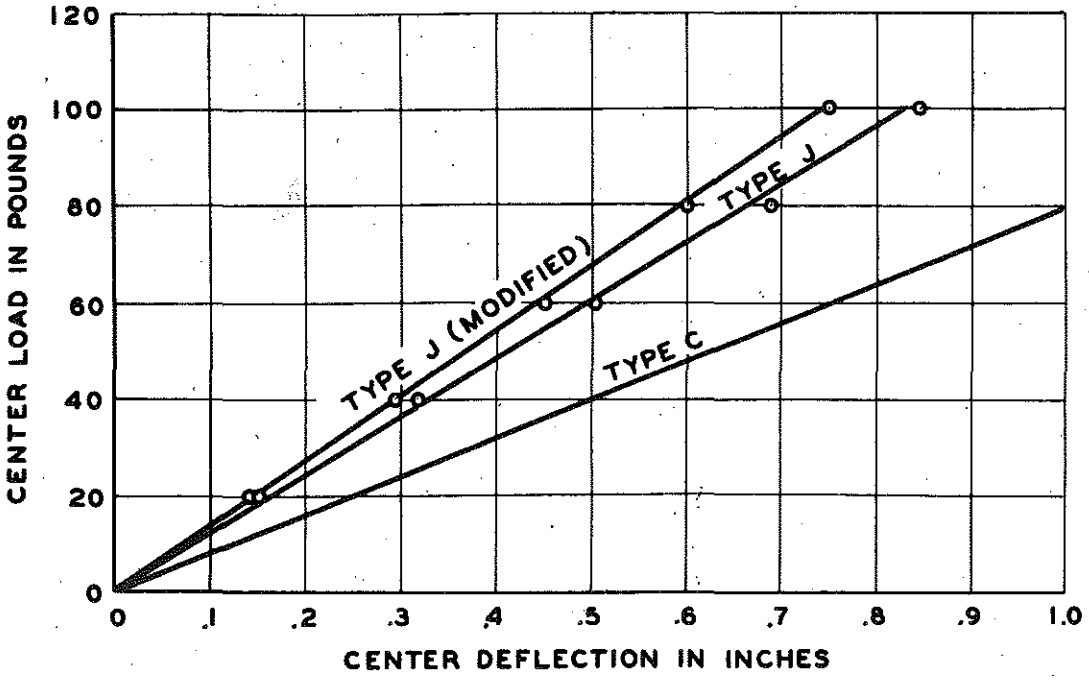
DETAILED VIEW

Figure 1 - American Steel & Wire Co. Contraction Joint Assembly

(Type J modified)



VERTICAL DEFLECTION



HORIZONTAL DEFLECTION