Discussion

Lessons from Crane Runways

Paper presented by JOHN E. MUELLER (January, 1965, Issue)

Discussion by **VAN RENSSELAER P. SAXE**

THE ARTICLE BY Mr. Mueller was most interesting to one who has spent time on this subject. Since the time I first started as a private engineer, our office has been called in to repair then and now existing crane ways, so I know the conditions outlined in Mr. Muller's article are not exaggerated.

In an effort to correct some of these known conditions many years ago on our new work we decided that most satisfactory results would be secured if the general design for the support of crane girders be changed by making a welded connection of the crane girder directly to the flange of the supporting column.

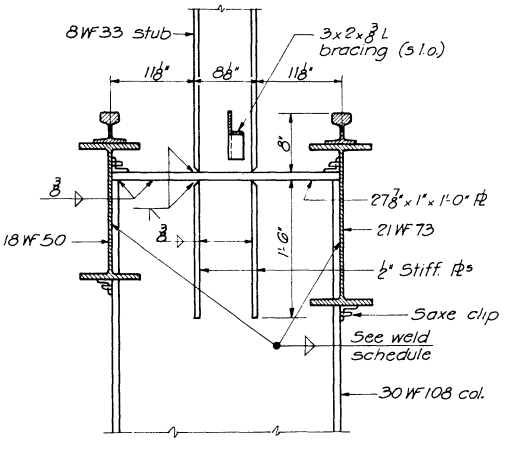

Fig. 1. Elevation at interior column

We have, through this period of years, never had any trouble with any welded connection to the columns and we find we get a much stiffer runway for crane operation, in spite of heavy cranes up to 100 ft-0 in. in length and loads up to 100 tons.

Figures 1 and 2 show the general method we used for support of all crane work. I have often wondered if any other engineers have used welded connections similar to ours, which we have found to be very economical and satisfactory both in use and original design cost of the steel structure.

Van Rensselaer P. Saxe is a Consulting Engineer, Baltimore, Md.

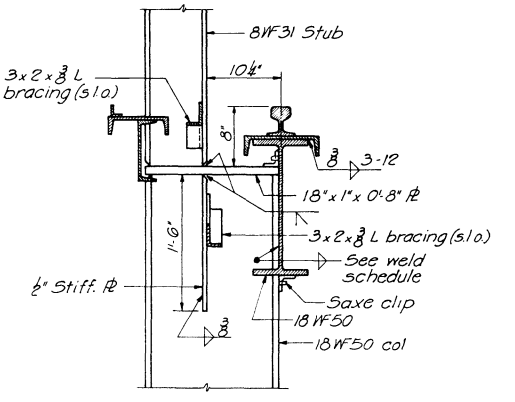

Fig. 2. Elevation at exterior column

Discussion by **THURSTON KLAYTON**

THE WRITER IS of the opinion that the message offered by Mr. Mueller can be summarized with the statement, "a continuous joint will not function properly if it is not designed properly". Certainly, the practicing structural engineer will not dispute this statement.

In particular, I would like to offer some direct comments:

(a) Properly designed diaphragm plates serve a useful purpose in aligning the webs of the crane girder. These plates used concurrently with properly designed knees have the effect of bringing the crane girder reaction through the center line of the supporting column. The eccentric load on the column as shown in Fig. 6 of Mr. Mueller's article conceivably could result in an uneconomical design.

(b) The duplication of longitudinal column bracing in a crane runway is a condition occurring in most industrial buildings and is one which has not caused any difficulty. There are many building codes which require bracing at regular, prescribed intervals. The action of the bracing can be simulated to the action of a line of fasteners in the direction of load. If examined elastically, the outer fasteners would be found overloaded, a condition which does not occur due to the plastic nature of steel.

Thurston Klayton is a Consulting Engineer, Bethlehem, Pa.