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In the Preliminary Publication several General Reporters on various themes referred to the stiffening effect of cladding in buildings. In particular, the paper presented by Dr. Errera shows that light steel cladding has a profound effect in bracing beams and columns, but the stiffness of the diaphragm in shear had to be determined experimentally because no reliable theory had been developed.

Work carried out in recent years at Manchester supplements this work and has been aimed at predicting the effect of light steel cladding, not on member behaviour, but on the overall behaviour of the building, particularly industrial type portal frame buildings. Tests have been made in the field and in the laboratory and large reductions in the frame moments and deflexions were recorded due to the cladding. In this early work it was necessary to carry out separate shear tests on panels of sheeting and, using these results, good correlation with the theory allowing for the sheeting was obtained. More recently, other shear tests on diaphragms have been carried out and a theory has been developed which allows for the effect of deformation of the corrugations, slip at the sheet fasteners and twisting of the purlin-rafter connexions.

I draw attention to these points, as, with proper safeguards, the design of industrial buildings could be made more rational and economical by allowing for the effect of the light cladding in both member design and overall design. Certainly it must be taken into account if a reliable analysis is to be made of a frame in an actual building.

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