

LATERAL LOAD CAPACITY OF STEEL TRUSS COUPLING BEAM

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ABSTRACT: The utilizing of steel truss coupling beam is one of an alternative for coupling beam in coupled shearwall. This paper presents an experimental study of steel truss coupling beam with span to depth ratios of 1.78 that tested under lateral cyclic loading at the laboratory. The objective of this research is to study the behaviour of steel truss coupling beam in coupled shearwall. The specimen are designed considering several factors such as span to depth ratio, strength of material, the dimension of double steel angle profile as horizontal members and steel angle profile as diagonal members. It has been shown from the test that the strength capacity of steel truss coupling beam specimens can not reach ultimate load because of inelastic buckling. Experimental results show that steel truss coupling beam can have fairly well behaviour under cyclic loading. By enlarging the dimension of horizontal members and diagonal members without increasing the thickness of profile, the strength capacity of all coupling beam specimen will have different behaviour. The result shows that the specimen with larger dimension of profile exhibits slightly raising of strength capacity than specimen with smaller dimension. The envelope curve decrease gradually which represent the specimens have well performance in terms of dissipation energy. More over, increasing appropriate dimension of diagonal and horizontal members for steel truss coupling beam with shearwalls can determine and classify the structural performance level of structure.

Keywords: Coupling beam, Steel truss, Angle steel profile, Strength capacity