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Double web angle connection behaviour and rigidity in existence of gusset plate

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Typically, beam to column connections in braced frames are assumed and designed as a simple connection. One of the most common beam to column connections in these frames is double web angle connection. In research and design procedures of structures that have been done so far, this type of connection is generally considered as a simple hinged connection. In beam to column joints there are bracing(s) and therefore gusset plate(s) at bottom and/or top of the beam, the gusset plate restrains the beam from rotation at its connection to the column. Therefore, double web angle connection is not allowed to have relative rotation between the beam and column and it does not have the adequate rotation capacity to accommodate desired free rotation assumed in structural analysis. There have been just a few researches on the effect of stiffness of gusset plate on mentioned connection up to now. The most studies in this regard, are related to the investigation of braced frame and gusset plate and in this paper, the behavior of double web angle connection is investigated using the FEM method considering stiffness of gusset plate and using the moment-rotation curve of connection; and it is showed that the assumption of hinge connection in beam to column connections in mentioned locations is not correct. Therefore, another assumption should be taken in modelling of structures. Furthermore, the response of structure frames is investigated considering stiffness of connection.

Biography

Massood Mofid has received his PhD in 1989 from Rice University, Houston Texas. He is a Professor of Earthquake and Structural Engineering in the Department of Civil Engineering at Sharif University of Technology, Tehran, Iran.

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