SEMI - RIGID CONNECTIONS
ANALYSIS AND DESIGN

by

NORZAN MOHD. YUSOF

A Thesis

presented to the Graduate Committee of

Lehigh University in candidacy for the Degree of

Master of Science

in

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ABSTRACT

Semi-rigid connections are used in continous frame construction, primarily for lateral load resistance in office or apartment buildings of moderate height. The concept of semi-rigid connections is to achieve economy in design without sacrificing the safety of the structure in question. At the same time the actual behaviour of the structure, particularly at the joint, can be accurately predicted. A theoretical analysis of the behavior of a top and seat angle connection is carried out by varying the angle size, beam size and column size. Altogether seven cases are analysed. Particular attention will be focussed on the partial restraint afforded by the top and seat angle type of connections. This paper will demonstrate a rigorous analysis of top and seat angle connections using STRUCTR, an application program. The results obtained are compared to an experimental results carried out in 1940's thus verifying the validity of this analysis. Results show that this method underestimate the maximum moment and maximum load obtained through experimental results but is in close agreement with the plastic mechanism method.