Stiffener Design for
Beam-to-Column Connections

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Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Master of Science
in
Civil Engineering

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September 1999
Blacksburg, Virginia

Keywords: Moment Connections, Stiffener Design, Column Stiffeners

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(ABSTRACT)

Stiffeners are used as a means of providing additional support to columns at beam connection locations. They are added when the strength of the column is exceeded but full moment strength of the beam section is desired. In determining the design of column stiffeners, there are no specifications for determining the distribution of load between the column web and stiffeners. The *AISC Load and Resistance Factor Design Specifications* provides guidelines for determining the stiffener area but no specifications are given. The actual loads taken by the stiffener and web are therefore not truly known.

In this study, experiments were done to determine the load supported by the stiffeners and web when tensile forces are applied to the specimen. The initial stiffener design for the test specimens was based on LRFD guidelines. The actual load distribution between the column web and stiffeners is determined from strain data obtained during testing. This distribution is compared with the assumed loads obtained from the initial LRFD calculations. Finite element analysis is also utilized to confirm the consistency of the results obtained from the experiments. Using this information, a new method is developed which better predicts the distribution of load between the column web and the stiffener.

ACKNOWLEDGMENTS

I owe a great deal of thanks to my family and friends who have always offered their support and belief in me. I could not have made all the accomplishments throughout my life without them. Dr. Thomas M. Murray has also provided guidance and has challenged me during my graduate studies. For this, and for his patience, I extend my greatest thanks. I also extend my thanks to Dr. W. Samuel Easterling and Dr. Siegfried M. Holzer for their help, knowledge, and participation as members of my committee. To Dennis Huffman and Brett Farmer, I also offer my appreciation for their help the Structures Laboratory and for the hours of enjoyment.

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