Comparative Study of Hot rolled steel sections and Cold formed steel sections for Industrial Building

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Abstract- *Cold formed steel sections are extensively used in Industrial and many other non- industrial constructions in World wid. It is relatively a new concept in India. So, here in this research, an attempt is being to carry out the comparison between hot rolled and cold formed steel sections. The results shall be checked with the ultimate goal of reducing the tonnage. Structural analysis and design shall be carried out in STAAD.Pro.V8i SS6 by Bentley systems because of its strong analysis engine, easy graphic user interface and universal acceptability.*

Keywords- Hot rolled sections, cold formed sections, STAAD Pro V8i SS6, Linear Elastic Method

I. INTRODUCTION

The principal objective of this research is to carry out the analysis and design of industrial sheds with 15m span using Hot rolled steel sections and cold formed steel sections. The results shall be achieved with the ultimate goal of reducing the tonnage. Structure analysis and design shall be carried out in STAAD Pro. V8i SS6 Software.

Cold formed steel is used in building construction, for wall coverings, floor decking etc. Cold formed steel is a basic component in construction of lightweight prefabricated structures like stud frame panels, trusses and portal frames. Cold formed steel sections can be made easily available at any place whereas hot rolled sections difficult to produce.

In the present work an attempt has been made to find the minimum weight for various steel sections such as hot rolled and cold formed on industrial shed under linear elastic method. The structure is modelled using constant parameters such as bracing systems, height, span with various load combination.

II. IDENTIFY, RESEARCH AND COLLECT IDEA

As per details mentioned in literature reviews, there is a necessity to define the comparative study of cold formed steel sections against hot rolled steel sections in industrial shed structures because many years ago, even in recent times in industrial shed structures, hot rolled steel sections have been used. Although now a days, cold formed steel structures are used in few industries like transmission tower, roof truss, floor deck etc. So, it is necessary to use of cold formed steel in industrial shed structure. There is need of design for these type of structures so that the engineers can use easily in industry with less cost of work.

III. METHODOLOGY

Cold formed steel has numerous advantages over other conventional materials. It can be used as structural components because of its properties like light weight, high strength and stiffness, easy installation and construction, durable, economical in transportation and handling. The concept of cold formed light steel framing construction has been wide spread after understanding its structural characteristics with massive research works over the years.

Now a days, Cold formed steel sections are widely used in residential building, commercial building and industrial building.

So, the aim of the project is to carry out a comparative study of use of cold formed steel sections against hot rolled steel sections in industrial shed structures. The objective of comparing the results like displacements, moments and weight of the structure. Also the aim is to compare the design for worst load combination of cold formed steel sections and hot rolled steel sections for industrial building shed.

Main aim of the project is to increase the use of cold formed steel section in industrial shed structure in recent times because of their numerous advantages over hot rolled steel section. It can be prove that, it is best steel section for industrial structures.

III. ACKNOWLEDGMENT

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