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Cold Formed Steel Sections: Analysis, Design and Applications

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Abstract : In steel construction, there are two families of structural members. One is hot rolled steel and another is cold formed steel. Cold formed steel section includes steel sheet, strip, plate or flat bar. Cold formed steel section is manufactured in roll forming machine by press brake or bending operation. Cold formed steel (CFS), also known as Light Gauge Steel (LGS). As cold formed steel is a sustainable material, it is widely used in green building. Cold formed steel can be recycled and reused with no degradation in structural properties. Cold formed steel structures can earn credits for green building ratings such as LEED and similar programs. Cold formed steel construction satisfies international demand for better, more efficient and affordable buildings. Cold formed steel sections are used in building, car body, railway coach, various types of equipment, storage rack, grain bin, highway product, transmission tower, transmission pole, drainage facility, bridge construction etc. Various shapes of cold formed steel sections are available, such as C section, Z section, I section, T section, angle section, hat section, box section, square hollow section (SHS), rectangular hollow section (RHS), circular hollow section (CHS) etc. In building construction cold formed steel is used as eave strut, purlin, girt, stud, header, floor joist, brace, diaphragm and covering for roof, wall and floor. Cold formed steel has high strength to weight ratio and high stiffness. Cold formed steel is non shrinking and non creeping at ambient temperature, it is termite proof and rot proof. CFS is durable, dimensionally stable and non combustible material. CFS is economical in transportation and handling. At present days cold formed steel becomes a competitive building material. In this paper all these applications related present research work are described and how the CFS can be used as blast resistant structural system that is examined.

Keywords : cold form steel sections, applications, present research review, blast resistant design
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