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Study of Beam with Plain Web, Trapezoidal Corrugated Web, and Triangular Corrugated Web

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Abstract – Corrugated beam is a developed beam with thin wall corrugated web. The profile of the web maintains the stability of beam. Mostly there are diverse types of corrugated web shape which we will discuss in this paper. This paper contains study on expert's research paper on behaviour of steel beam with plain web, trapezoidal corrugated web, triangular corrugated web. The aim of this review paper was study of engineering properties such as stress, strain, lateral torsion, flexure of plain web, trapezoidal corrugated, triangular corrugated web. The load sustaining capability and manners of failure of beams were studied from previous research. And also comparison between the series of web is carried out to determine which is suitable and sustainable for construction.

Keywords: corrugated beam, advantages, disadvantages, load carrying capability, failure mode

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1. INTRODUCTION

Corrugated steel beam were freshly used to change the stiffened steel beam of plate/box girders the flexural strength of a steel girder with a corrugated beam plate was providing by the flanges with almost no influence from the beam and with no interface. In many instances, it is necessary to support heavy vertical loads over long spans resulting large bending moments and shear forces. The -section beams are commonly used in structural steel works.

1.1 I-Section

An I-beam, also known as H-beam. I-beams are widely used in the construction industry and are available in a variety of standard sizes.

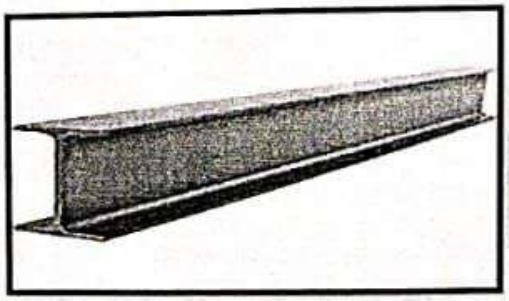

Fig. No 1:-I-section

I-beams may be used both on their own, or acting compositely with another material, typically concrete. A beam under bending sees high stresses along the axial fibres that are farthest from the neutral axis. To prevent failure, most of the material in the beam must be located in these regions. Comparatively little material is needed in the area close to the neutral axis. This observation is the basis of the I-beam cross-section; the neutral axis runs along the center of the web which can be relatively thin and most of the material can be concentrated in the flanges.

1.2 Trapezoidal Corrugated Web

Today the corrugation process is carried out using the process of roll forming. This modern process is highly automated to achieve high productivity and low costs associated with labour. The corrugations are described in terms of pitch (the distance between two crests) and depth (the height from the top of a crest to the bottom of a trough). It is important for the pitch and depth to be quite uniform, in order for the web to be easily stackable for transport, and to overlap neatly when joining two sheets.