1.3 IS ROLLED SECTIONS

The various types of rolled structural steel sections manufactured and used as structural members are as follows:

1. Rolled Steel I-sections (Beam sections).
2. Rolled Steel Channel Sections.
3. Rolled Steel Tee Sections.
4. Rolled Steel Angles Sections.
5. Rolled Steel Bars.
6. Rolled Steel Tubes.
7. Rolled Steel Flats.
8. Rolled Steel Sheets and Strips.
9. Rolled Steel Plates.

ROLLED STEEL BEAM SECTIONS

1.The rolled steel beams are classified into following four series as per BIS : (IS : 808-1989)

10. Indian Standard Joist/junior Beams ISJB
11. Indian Standard Light Beams ISLB
12. Indian Standard Medium Weight Beams ISMB
13. Indian Standard Wide Flange Beams ISWB

2. The rolled steel columns/heavy weight beams are classified into the following two series as per BIS (IS : 808-1989)
    1. Indian Standard Column Sections ISSC
    2. Indian Standard Heavy Weight Beams ISHB
3. The shape profile of this section looks similar to alphabet “I” or “H”.. This section is used for all the types of load combinations, except pure rotation. This section is highly efficient to resist (in order) flexure, and compression.

4. Most common usages of this section are beams/girder, columns in Buildings and Bridges.

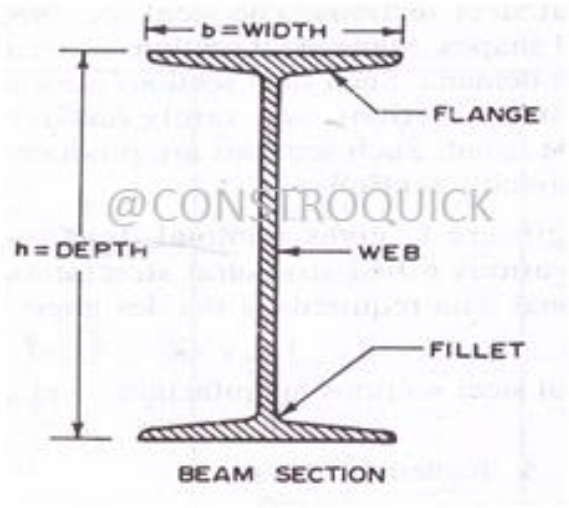

Fig. Rolled Steel I-sections (Beam sections).

ROLLED STEEL CHANNEL SECTIONS

- The rolled steel Channel sections are classified into four categories as per ISI, namely,
- Indian Standard Joist/Junior Channels ISJC
- Indian Standard Light Channels ISLC
- Indian Standard Medium Weight Channels ISMC
- Indian Standard Medium Weight Parallel Flange Channels ISMCP

As per IS : 808-1989, following channel sections have also been additionally adopted as Indian Standard Channel Secions

- Indian Standard Light Channels with parallel flanges ISLC(P)
- Medium weight channels MC

- Medium weight channels with parallel flanges MCP
- Indian Standard Gate Channels ISPG
- The shape profile of this section looks similar to alphabet “C”; hence we call them C shape.
- Channel is the common notation used in AISC Steel Construction manual for this type of section
- This section is mostly used for uniformly distributed load applications with small moment/bending.
- This section is highly efficient to be used as a secondary structural member where the loading is transferred onto other primary structural members.
- Most common usages of C Shape/Channels as secondary structural member are transverse joists supporting floor, purlins for roof trusses, studs in the wall framing, supporting members for ceiling assemblies, etc.

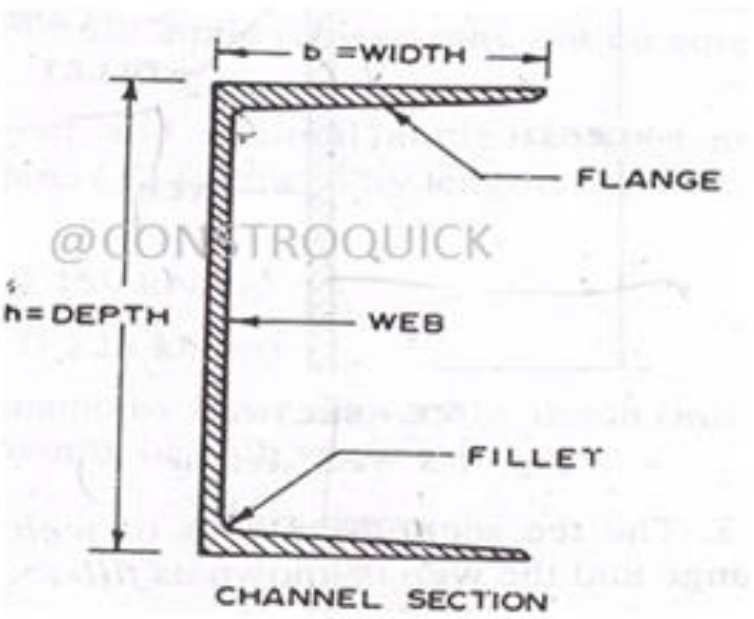

Fig. Rolled Steel Channel Sections

ROLLED STEEL TEE SECTIONS

The rolled steel tee sections are classified into the following five series as per ISI:

1. Indian Standard Normal Tee Bars ISNT
2. Indian Standard Wide flange Tee Bars ISHT
3. Indian Standard Long Legged Tee Bars ISST
4. Indian Standard Light Tee Bars ISLT
5. Indian Standard Junior Tee Bars ISJT

As per IS: 808-1984, following T-sections have also been additionally adopted as Indian Standard T-sections.

1. Indian Standard deep legged Tee bars ISDT
2. Indian Standard Slit medium weight Tee bars ISMT
3. Indian Standard Slit Tee bars from I-sections ISHT

2. The shape profile of this section looks similar to alphabet “T”; hence we call them T shape.
3. Structural Tee is a common notation used in AISC Steel Construction Manual for this type of section. This section is usually split from standard I-shapes by removing the bottom flange.
4. This section can be used for all load applications similar to I-shape section. This shape offers significant flexural capacity on the flange side compared to non-flange side.
5. Most common usages of this section are connection member between I-shapes or other shapes, secondary beam members (lintels), Chord member in trusses and primary member of built-up member, End Diaphragm members in bridge girder system etc

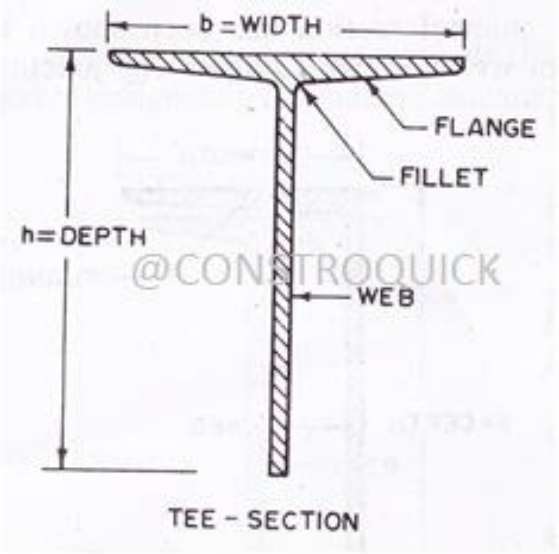

Fig. Rolled Steel Tee Sections.

ROLLED STEEL ANGLE SECTIONS

The rolled steel angle sections are classified in to the following three series.

1. Indian Standard Equal Angles ISA
2. Indian Standard Unequal Angles ISA
3. Indian Standard Bulb Angles ISBA

The rolled steel equal and unequal angle sections are designated by abbreviated reference symbols ∟ followed by length of legs in mm and thickness of leg, e.g.,

- ∟130 x 130 x 8 mm (∟130 130 @ 0.159 kN/m)
- ∟200 x 100 x 10 mm (∟ 200 100 @ 0.228 kN/m)
- This section is highly used for point load applications to resist shear, tension and compression.
- This section is a perfect fit to be used as a connection member, primary component of a built-up member etc.

Most common usages of this section are connection between I-shapes and/or other shapes, bracing in truss members, Chords, Battens and/or Laces of built-up member, Diaphragm members in bridge girder system, Web stiffening elements for I-shape sections, etc

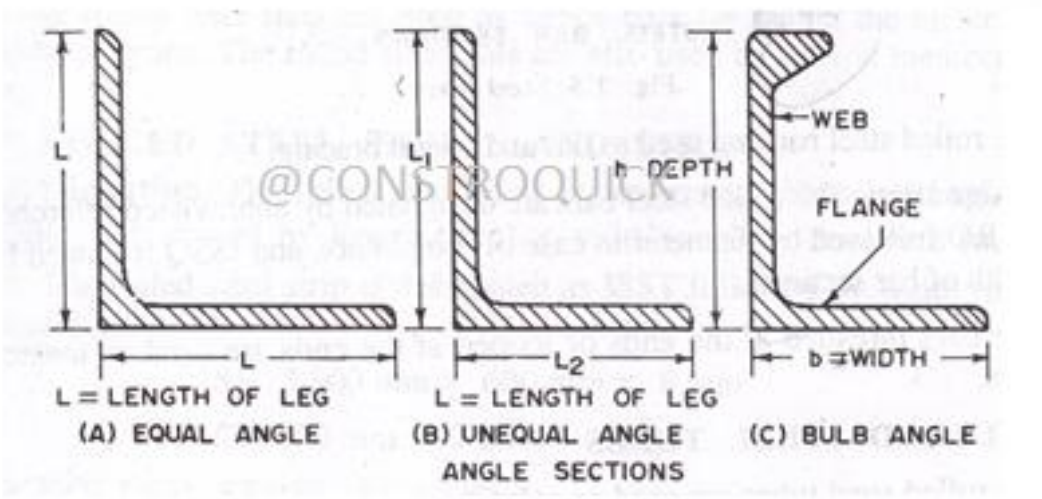

Fig. Rolled Steel Angles Sections.