

15.—*Shearing Strain on Pins, &c.*

The shearing strain on all pins shall not exceed 7,500 lbs. per square inch, or on rivets more than 6,000 lbs. per square inch. The mean pressure on the semi-intrados of eyes (diameter of pin x thickness of bar) must not exceed 10,000 lbs. per square inch. The shearing strain of web plates must not exceed 4,000 lbs. per square inch.

16.—*Bending Strain on Pins.*

The strain on extreme fibres of pins caused by bending must not exceed 15,000 lbs. per square inch, and in determining this bending strain the centres of bearings shall be taken as the centres of applied forces.

17.—*Diameter, &c. of Pins.*

No pins shall have a less diameter than two-thirds of the width of the bar. All pins must be turned true to size and straight. No error of more than $\frac{1}{16}$ of an inch will be allowed.

18.—*Description of Iron to be Used in Tension.*

The iron used under tensile strain shall be double refined, tough, ductile, of uniform texture and capable of sustaining the following tests: Full sized pieces of flat, round, square, angle or T iron, not under four inches in sectional area, shall have an ultimate strength of 50,000 lbs. per square inch, and stretch 15 per cent. in their whole length, with a reduction of area at breaking point of 25 per cent. All iron in tension must have a limit of elasticity of not less than 25,000 lbs. per square inch, and must stand a smart blow of a blacksmith's hand hammer while under strain. Bars rolled to $1\frac{1}{2}$ " diameter, or 5" wide and up to $1\frac{1}{2}$ " thick, shall bend cold through 180° until their sides come in close contact without shewing signs of fracture. When nicked with a cold chisel and broken, the bar shall show a fibrous line of rupture.

19.—*Description of Iron in Compression.*

Iron in compression must be tough, fibrous, and uniform in texture, with a limit of elasticity of 25,000 lbs. per square inch.

20.—*Junction Blocks.*

Cast iron will only be permitted in short lengths in the minor details, such as connections between sections of top chords. Malleable cast-steel capable of standing a tensile strain of at least 50,000 lbs. to the square inch, may be substituted for cast-iron for the connections between end posts and top chords, and when cast-iron connections are used a price must be stated for such substitution in the tender.

21.—*Plate Girders.*

Plate girders must be proportioned on the supposition that the bending or chord strain must be resisted by the upper and lower flanges, together with one-sixth of the web, deducting all rivet holes in tension members. The shearing strain must be borne by the web. No web plate shall be of less thickness than one-quarter of an inch. The webs of all plate girders must be properly stiffened by angle or T iron at distances not exceeding twice the depth of the plate, the stiffeners must be made to fit to the top and bottom angle irons exactly. When a joint occurs in the web, the web must be spliced with a plate on both sides of the joint.

22.—*Rivets.*

The rivets must be of the best quality of iron, and when driven must completely fill the holes. The heads must be hemispherical and of uniform size throughout for