

Section 76. The efficient state and condition of the whole of the ship's equipment will be designated by the Figure 1; and where the same is found insufficient in quantity, or defective in quality, by a dash, thus — following the character assigned to the ship.

DEFECTIVE EQUIPMENT.

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In the case of a steam-vessel already classed, of which the engines or boilers are reported to be so far inefficient or defective as to imperil the vessel's safety, an indication to that effect will be made in the Register Book by a red ring being stamped, or posted over the figure 1 for equipment, and in the case of vessels about to be built, for which drawings are submitted for the approval of the Committee, and where the engines or boilers are of novel description, or where experience has not sufficiently shown the safety of the principle or mode of application involved, the figure 1 will not be assigned, and the words —“Boiler Experimental,” or “Machinery Experimental,” will be placed against the class of the vessel, in the Register Book; but, where in the opinion of the Committee the Machinery or Boilers are deemed so far inefficient or defective as to imperil the vessel's safety, the figure 1 will be withheld, and a red ring inserted in place thereof; and, in the case of masts or rigging of a ship which are reported to be so far defective as to imperil the vessel's safety, the indication in the Register Book will be made by a black ring, stamped or posted over the figure 1 for equipment; as described in the foot-note on the page of the Register Book and in the Key thereto; and it is to be understood that, although, for facilities in contracting, a class, to which the hull of a vessel may be found entitled, will be assigned, the class will not be inserted in the Register Book unless the engines and boilers have been surveyed in accordance with the requirements of the Rules. (See also Sections 78 and 81 for Steam Ships.)

1. The material is to have an ultimate strength of not less than 20 tons per square inch of section,* with an ultimate elongation of not less than 20 per cent. in a length of eight inches. It is to be capable of being bent to a curve of which the inner radius is not greater than one and a half times the thickness of the plates or bars, after having been heated uniformly to a low cherry-red and quenched in water of 82 degrees Fahrenheit.
2. Steel rivets are to be considered as part of the material, and, in addition to being subjected to a shearing test, they must be capable of withstanding the same tests as the plates are required to undergo.
3. Samples for testing are to be selected from each batch of plates submitted for approval, care being taken in the selection that, as far as possible, each cast or furnace charge from which the material has been produced is represented. In addition to these tests, the temper test is to be applied to samples taken from *every* plate intended to be used in the furnaces and combustion chambers of the boilers.
4. All the holes in steel boilers should be drilled; but, if they be punched, the plates are to be afterwards annealed.
5. All plates that are dished or flanged, or in any way heated in the fire for working, except those that are subjected to a compressive stress only, are to be annealed after the operations are completed.
6. No steel stays are to be welded.
7. Unless otherwise specified, the Rules for the construction of iron boilers will apply equally to boilers made of steel.