

7. Should the repairs suggested by the Surveyor be considered unnecessary or unreasonable, appeal may be made to the Committee, who will direct a Special Survey to be held, but should the opinion of the Surveyor be confirmed by the Committee, then the expense of such Special Survey is to be paid by the party appealing.

8. All reports of Survey are to be made in writing by the Surveyors, according to the forms prescribed; and such reports, together with all records relating to the Classification of Yachts, are to be carefully preserved and to be open to the inspection of the Owners, but no other person or persons are to have access to such documents except with the written consent of the Owners and under the direction of the Chairman or Deputy-Chairman. Copies of the original Reports (if the Yachts be already Classed, but not otherwise), so far as relates to the dimensions, scantlings, fastenings, and materials, in cases where the correctness of the reports in these particulars is certified by the builders, are granted, on application.

9. While the Committees of the Society use their best endeavours to ensure that the functions of the Society are properly executed, it is to be understood that neither the Society nor any Member of any of its Committees is under any circumstances whatever to be held responsible for any inaccuracy in any report or certificate issued by the Society or its Surveyors, or in any entry in the Register Book or other publication of the Society, or for any error of judgment, default or negligence of any of its Committees or any Member thereof, or the Surveyors, or other Officers or Agents of the Society.

10. Fees are chargeable for all surveys held by the Society's Surveyors at ports in the United Kingdom in accordance with established scales.

For all surveys held at ports abroad a fee will be chargeable according to the nature and extent of the services rendered.

Travelling expenses incurred by the Surveyors in connection with the above services are also chargeable.

11. Certificates of Class, signed by the Chairman, the Deputy-Chairman, or the Chairman of the Sub-Committee of Classification, and countersigned by the Secretary, will be granted on application.

12. The class of a Yacht is liable to be withheld, or, if already granted, may be withdrawn or expunged from the Yacht Register in the case of non-payment of any fees or expenses chargeable on account of such Yacht.

NOTE.—The General Rules and Regulations for the Classification and Survey of Yachts are at present under revision.

REGULATIONS RELATING TO SURVEYS.

1. **Date of Build**—In every case the date of build of a yacht is to be reckoned from the last date of the survey for first entry of classification, when such survey is completed within six months of the date of launching; but when the first entry survey is not completed within that period, then the date of build will be reckoned from six months after the date of launching.

2. **Wood Yachts.**—Wood Yachts are, throughout the period for which they are classed, to be examined in dry dock or on a slipway annually, if practicable, but in no case is a longer period than two years to elapse between such surveys. When half the period of classification has elapsed, they must undergo the Special Survey, known as the "Half-time" Survey, particulars of which are given on page 5. At the end of their period of classification they will be eligible to obtain further periods of classification on the R class, by submitting to the requirements of the Special Surveys for Continuation or Restoration, *see* pages 5 to 7.

3. **Composite Yachts.**—Composite Yachts are, throughout the period for which they are classed, to be examined in dry dock or on a slipway annually, if practicable, but in no case is a longer period than two years to elapse between such surveys. They are also to be subjected to a Special Survey every four years, particulars of which are given on page 8, and such Special Surveys will be noted in the Yacht Register, and designated S.S.08, &c. At the end of their period of classification they will be eligible to obtain further periods of classification on the R class by submitting to the requirements of the Special Survey for Continuation, *see* pages 8 and 9.

4. **Notice of Surveys.**—In order to prevent the disappointment arising from yachts losing their class from want of survey, it may be pointed out that the duty of giving notice of Periodical Surveys required by the Rules, or when repairs are necessary in consequence of damage or from other causes rests with the Owners, Masters, or Agents.

5. **Surveys not complied with.**—When the Rules as regards surveys have not been complied with so that the yacht is not entitled to retain her class in the Yacht Register, the class will be expunged with a red line, under which the date of such withdrawal of class will be recorded.

6. **Defects.**—When it is found from reported defects that the yacht is not entitled to retain her class in the Yacht Register, the class will be expunged with a black line, under which the date of such withdrawal of class will be recorded.

7. **Class withdrawn.**—When the class of a yacht is withdrawn from the Yacht Register by the Committee in consequence of a request from the Owner, the fact will be indicated by the insertion of three dots (...) in column 11 of the Yacht Register.

8. **Class expired.**—At the termination of the several periods assigned to wood and composite yachts for retaining their class R, the word "Expired" will be inserted against them; and if not surveyed for a further period of classification, prior to the reprinting of the Register, they will appear without any class.

SURVEYS.

WOOD AND COMPOSITE YACHTS.

SPECIAL SURVEY WHILE BUILDING.

1. The Surveyors are to examine during the building of a yacht, the materials and workmanship from the laying of the keel to her completion; and to point out as early as possible anything that is objectionable, or that is not in accordance with the Rules, or as approved by the Committee for the particular yacht.

2. If upon completion of the yacht she be favourably reported to the Committee she will have the distinctive mark, thus †, assigned to her in the Yacht Register, showing that she has been built under Special Survey.

ANNUAL OR OCCASIONAL SURVEYS.

1. To enable a yacht to retain her class in the Yacht Register, she will require to be examined in dry dock or on a slipway by the Society's Surveyors annually if practicable, but in no case is a longer period than two years to elapse between such surveys.

2. At annual or occasional surveys and whenever a yacht is placed in dry dock or on a slipway the Society's Surveyors at the port are to avail themselves of the opportunity to examine the bottom of the yacht, and to examine the yacht throughout as far as practicable in order to satisfy themselves generally as to her condition.

3. In wood and composite yachts whenever the copper or yellow metal sheathing is stripped off, the condition of the planking, fastenings, and caulking is to be ascertained.

WOOD YACHTS.

HALF-TIME SURVEY.

1. The character of yachts classed **R** will be liable to be struck out of the Yacht Register unless they be submitted to the following intermediate survey, within periods not exceeding four years in the case of yachts classed from six to eight years, inclusive, either originally or on Continuation, or on Restoration, and within periods not exceeding half that assigned in yachts classed for longer terms.

2. The yacht to be placed in dry dock, or on ways, so that the keel and bottom may be examined (unless she has been thus surveyed by the Society's Surveyors within the previous twelve months), the interior to be cleared as far as practicable, and if ceiling be fitted in the hold, the limber and air courses are to be cleared where necessary.

3. The outside planking to be scraped bright and examined where considered necessary from any apparent defect.

4. The Surveyor is to satisfy himself as to the condition of the upper deck, covering board and coamings, the outside planking and the bolt fastenings whether of iron or yellow metal, and all other parts of the yacht as far as they can be seen.

5. The yellow metal bolts are to be tested to ascertain if any are broken, and the lead keel bolts are to be carefully examined and tested.

6. The condition of the caulking is to be ascertained.

7. The chain cables are to be ranged for inspection, and the anchors and general equipment are to be examined.

CONTINUATION OF THE R CLASS.

1. If on the termination of the period of original classification, or if at any subsequent period, not exceeding two-thirds of the number of years assigned originally, the Owner should wish to have his yacht remain or be replaced on the letter **R**, a request should be made in writing, and the Committee will direct a Special Survey as follows, to be held by a Surveyor to the Society.

2. The period assigned for Continuation will commence from the time the yacht may have gone off the letter **R**, without regard to the date when the Survey for this purpose may have been held. This period may be either one-third or two-thirds the number of years assigned originally, dependent on which of the following Surveys, designated Survey No. 1 and Survey No. 2, be complied with.

3. Yachts so continued shall be distinguished in the Yacht Register by the number of years for which the class is extended, being inserted under the number assigned on the original class, thereby

denoting that the yacht has been found on Survey in such good and efficient condition as to entitle her to be continued for the specified number of years.

4. Where such term for Continuation is assigned, the Half-time Survey (*see* page 5), is to be held.

Continuation Survey No. 1.—1. The yacht must be either placed in a dry dock or on blocks so that the keel and bottom may be examined. The interior to be cleared as far as practicable, and proper stages made outside. The outside to be scraped bright from the inner edge of the covering board down to two feet below the water line at the discretion of the Surveyor.

If the yacht has been sheathed with metal, under the inspection of one of the Society's Surveyors, within a period of two years, and it shall appear to the Surveyor that stripping from two feet below the water line upwards, or scraping the outside planking may be dispensed with, the case will receive due consideration on application to the Committee.

2. All portable ballast in hold is to be removed, and if ceiling be fitted in the hold, all air courses and limbers are to be cleared.

3. The Surveyor must by a careful examination satisfy himself of the condition of the frames and planking all fore and aft; where the frames are covered by cabin lining, their condition in way of the same must be ascertained by boring or by the removal of such parts of the cabin lining as required by the Surveyor.

4. The yellow metal bolts are to be tested to ascertain if any are broken, and the lead keel bolts are to be carefully examined and tested.

5. Where the bolts are of iron, not less than six on each side in the shelf and stringers, together with some hanging knee and chain plate bolts are to be driven out for examination; the condition of the bolts in the wood keel, stem and sternpost is also to be ascertained, but if this is not practicable, additional bolts of sufficient size must be driven through the floors and keel, also through the stem, sternpost, and deadwood to the satisfaction of the Surveyor.

6. All bolts and listings removed for the examination of the yacht's condition to be from such parts as the Surveyor may direct.

7. The condition of the caulking to be ascertained.

8. The chain cables are to be ranged for inspection, and the anchors and general equipment are to be examined.

9. All parts of the yacht are to be examined by the Surveyor to enable him to form a correct opinion as to their condition, and any repairs found necessary to place the yacht in a sound and efficient state must be completed to his satisfaction.

10. The Surveyor shall transmit to the Committee a detailed Report on these points, accompanied by such observations as may occur to him from inspection of the yacht, or from information as to the repairs she may have received.

11. If, from the Report of such Special Survey, the yacht shall appear to be in a sound and efficient state, the Committee shall continue her on the letter **R**, for such further period as they may think fit, not exceeding, however, one-third of the number of years which had been assigned originally.

Continuation Survey No. 2.—In order to render a yacht eligible to be continued on the **R** class for a longer period than one-third and not exceeding two-thirds of the number of years originally assigned, the following requirements must be carried out in addition to those specified for Continuation Survey No. 1:—

1. All sheathing to be entirely stripped off the bottom and elsewhere, unless it shall appear to the Surveyor that this requirement is unnecessary, in which case he should satisfy himself as to the condition of the planking by removing such portions of the sheathing as he may consider sufficient for the purpose,

2. Sufficient close lining to be removed from the inside of the frames, and if ceiling be fitted in the hold, listings are to be cut out of the ceiling at such parts as are considered necessary by the Surveyor, so that the condition of the frames throughout, and the inner surface of the outside planking may be satisfactorily ascertained by boring or otherwise.

3. Special attention is to be paid to the condition of the frames and planking at the ends of the yacht, and the Surveyor must take efficient means by boring or sounding to satisfy himself as to the condition of the deck beam ends and the heads of the frames.

4. The state of the deadwood forward and aft is to be ascertained by boring.

5. If, from the Report of such Special Survey, the yacht shall appear to be in a sound and thoroughly efficient state, the Committee shall continue her on the letter **R** for such further period as they may think fit, not exceeding, however, two-thirds of the number of years which had been assigned originally.

RESTORATION OF THE **R** CLASS.

If at any age of a yacht the Owner be desirous to have her Restored to the **R** class, such Restoration will be granted for a period of one-half of the term originally assigned (but in no case will the number of years so granted be less than five), the time to be reckoned from the date of such repairs, provided that a Special Survey be held by a Surveyor to the Society, and the following requirements be carried out in addition to those specified for Continuation Survey No. 2:—

1. The stem, sternpost and rudder where exposed, also the shelves, clamps and stringers are to be scraped bright where considered necessary by the Surveyor.

2. Where close ceiling is fitted at any part of the hold, a sufficient amount must be removed to enable the Surveyor to determine the condition of the frames and inner surface of the planking.

3. All chain plate bolts are to be tested and if necessary drawn for examination.

4. If from the Report of such Special Survey, it shall appear that all repairs found necessary have been completed to the satisfaction of the Surveyor and that the yacht is in a sound and thoroughly efficient state, she will be entitled to be Restored to the **R** class for a period not exceeding one-half the number of years originally assigned.

5. Where such term for Restoration is assigned, the Half-time Survey (*see* page 5), is to be held.

COMPOSITE YACHTS.

PERIODICAL SPECIAL SURVEYS.

First Special Survey.—At the First Special Survey the yacht is to be placed on blocks or on a slipway, so that the keel and bottom can be examined, and the lead keel bolts examined and tested. The hold must be cleared and portable ballast removed. The limber boards and ceiling, if the yacht be close ceiled, equal to one strake fore and aft on both sides in the hold, below the upper turn of the bilge, must be removed, and the yacht examined at all parts where practicable.

Second and Subsequent Special Surveys.—At the Second and subsequent Special Surveys the following requirements must be carried out in addition to those specified for the First Special Survey:—The condition of the floor-plates, frames, and keel plate must be still further ascertained by the removal of ceiling and cement at different parts, and by the removal, if necessary, of cabin lining sufficient to expose the condition of the frames, &c., in way of the same. Bolts are to be removed at various parts of the yacht for the purpose of ascertaining their condition, and whether there is any wasting in the frames. The chain cables are to be ranged for inspection, and the anchors and general equipment are to be examined.

CONTINUATION ON THE R CLASS.

1. If on the expiration of the term of years originally assigned, or at any age of a composite yacht, the Owner be desirous to have his yacht remain or be replaced on the R class, such continuation will be granted for a period not exceeding two-thirds the number of years assigned originally, provided a Special Survey, as hereafter described, be held by a Surveyor to the Society, and that all repairs found necessary be completed to his satisfaction.
2. The number of years assigned on Continuation to commence from the date of the completion of such repairs.
3. The yacht to be placed in dry dock or on blocks, so that the keel and bottom may be examined.
4. All sheathing to be entirely stripped off the bottom and elsewhere.
5. The hold to be cleared, and proper stages made outside.
6. All the outside planking from two feet below the water-line upwards, including covering board, to be scraped bright.
7. All close ceiling and lining to be removed from the inside of the frames, so that the condition of the frames throughout and the inner surface of the outside planking may be satisfactorily ascertained.

8. A plank of the bottom amidships in way of the bilge-plate, and one in the way of the sheerstrake on either side, also one plank between the keel and bilge-plate, and one between the bilge-plate and sheerstrake on either side, to be removed at the discretion of the Surveyor.
9. The condition of the deadwood to be ascertained by boring.
10. Bolts in number from six to twelve, according to the size of the yacht, to be driven out for examination.
11. The lead keel bolts are to be carefully examined and tested.
12. Cement is to be removed in places for the purpose of ascertaining the condition of the floors, frames, keel plate, butt-straps of outside planking, &c.
13. All iron or steel work to be scraped clean and recoated after examination.
14. The chain cables are to be ranged for inspection, and the anchors and general equipment are to be examined.
15. The Special Periodical Surveys to apply to yachts so Continued, as required for yachts on the original class.

LLOYD'S REGISTER OF SHIPPING.

BUILDING AND CLASSIFICATION OF YACHTS

RACING IN THE INTERNATIONAL RATING CLASSES.

RULES

FOR THE

BUILDING AND CLASSIFICATION OF YACHTS

INTENDED FOR

RACING IN THE INTERNATIONAL RATING CLASSES.

RULES
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BUILDING AND CLASSIFICATION OF YACHTS
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RACING IN THE INTERNATIONAL RATING CLASSES.

Section 1.

1. Yachts of $14\frac{1}{2}$ metres and under, intended for the International Classes and built under special survey in accordance with the requirements of the following Rules and Tables, will be classed **R** in the Society's Yacht Register, denoting that their scantlings are as required for their respective ratings.

2. Yachts exceeding $14\frac{1}{2}$ metres rating, built under special survey in accordance with the ordinary Rules for the Building and Classification of Yachts, will be classed **A1** in the Society's Yacht Register with the usual notation.

3. To enable a yacht to retain her class in the Yacht Register, she will require to be examined in dry dock or on a slipway by the Society's Surveyors annually if practicable, but in no case is a longer period than two years to elapse between such surveys. In addition the yacht is to be submitted to the surveys required by the ordinary Rules for the Building and Classification of Yachts.

THE INTERNATIONAL RATING RULE AND CLASSES.

Section 2.

The formula for the international rule of measurement adopted at the International Conference on Yacht Measurement (London, 1933) is:—

$$\frac{L + 2d + \sqrt{S} - F}{2.37} \quad \text{Rating in linear units, either feet or metres.}$$

Where— **L** = Length in linear units.

d = Girth difference in linear units.

S = Sail area in square units.

F = Freeboard in linear units.

Length.—The length "L" for the formula is to be the length measured at a height of 1.5 per cent. of the Class Rating above the L.W.L. plus one and a half times the difference between the Girth at the bow section measured to points of 5 per cent. of the Rating above "L" and twice the vertical height from "L" to those points, plus one-third of the difference between the girth, covering board to

covering board, at the stern ending of this length, and twice the vertical height at the side of the yacht at this station. The minimum difference of girth at bow station, as above defined, to be 30 per cent. or twice the said vertical height.

Girth Difference.—The girth difference, *d*, in the formula shall be measured in the transverse plane, vertically, at 0.55 L.W.L. from the fore end, and shall be the sum of the difference between the skin girth and chain girth, measured on the two sides of the yacht, from the mark on the covering board *d* to corresponding points in the hull surface at a level 12.5 per cent. of the Class Rating below the waterline.

Hollows in the Surface of the Hull.—No hollow shall be allowed in the surface of the hull between the L.W.L. and the sheer line, excepting in the profile of the stern forward of the point of measurement of L.

Hollows in the surface of the hull at the stern immediately resulting from the hollow allowed in the stern profile are not prohibited by this clause.

Draught.—The maximum draught allowed shall be 16 per cent. of the L.W.L., plus 0.5 metres (1.64 feet).

If the draught exceeds that allowed, three times the excess will be added to the rating.

Freeboard.—The freeboard, *F*, in the formula, is to be the freeboard at girth station, plus the freeboard at bow *L*₁ ending plus the freeboard at stern *L*₁ ending, the sum to be divided by three. The maximum freeboard used as a minus quantity in the formula when calculating the Rating shall be 0.08 multiplied by the Rating plus 0.25 metres.

Sheer.—The sheer of the yacht to be a fair continuous concave curve.

Tumble Home.—The tumble home on each side not to exceed 2 per cent. of the extreme beam. When the tumble home of the side of the yacht exceeds the amount allowed three times the excess shall be added to the Rating.

Displacement.—Displacement shall not be less than :—

$$\text{Displacement in cubic metres} = [0.2 \text{ L.W.L. (in metres)} + 0.15]^3$$

$$\text{Displacement in cubic feet} = [0.2 \text{ L.W.L. (in feet)} + 0.5]^3$$

If a yacht is less than the displacement required by the Rule for her length on L.W.L., then the difference between the length on L.W.L. to which her actual displacement corresponds by the Rule, and the actual length on L.W.L. will be doubled and added to the length measurement.

Limitation upon Minimum Beam.—The minimum beam measured at one-third of the Rule 'midship freeboard above L.W.L. at the point of greatest beam on that line shall be :—

Class Metres.	Minimum Feet.	Beam Metres.
6	6	1.83
8	8	2.44
10	9.9	3.02
12	11.8	3.60

Any deficiency to be multiplied by 4 and added to "L" in formula.

Sail Area.—The sail area, *S*, in the formula shall be measured as in the late International Rule, except that the fore triangle shall be taken at 85 per cent. of its total measured value.

Crew.—All measurements to be taken without crew on board.

Masts, Wood or Metal.—Masts shall have a minimum diameter at half the height from deck to jib halyards as follows :—

Class Metres.	Diameter.	
	M. Metres.	Feet.
6	137	0.449
8	180	0.590
10	225	0.738
12	270	0.885
14½	330	1.082

The diameters may be reduced by 5 per cent. at the deck, 20 per cent. at the jib halyards, and 50 per cent. at the highest point of measurement, with a fair rounding taper from deck to top. The shell thickness at any cross-section shall be uniform, excepting at after edge, where it may be thickened to take track fastenings.

A wooden mast shall be solid from the step to 0.3 metre (one foot) above the deck, excepting that for passing halyards a hole is permitted, the area of which shall be added to the sectional area of this part.

The athwartships diameter of masts which are not round may be reduced by not more than 10 per cent. If the athwartships diameter is reduced as permitted, the fore and aft diameter may be increased by not more than 35 per cent. of the actual athwartships diameter. The sectional area of such masts shall not be less than the area of the circles of the Rule diameters.

If the mast is solid it may be reduced in diameter by 8 per cent.

The minimum weight of masts including all fixed fittings, shall be :—6 metres, 140 lbs. ; 8 metres, 320 lbs. ; 10 metres, 585 lbs. ; 12 metres, 1,000 lbs. Centre of gravity of mast not to be lower than 0.38 of the rule height of mast above deck.

Permanently bent masts, rotating masts, double-luffed sails, and similar contrivances are prohibited under the International Rule.

Classification.—The International classes will be as follows :—

Class Metres.	Corresponding Class in Feet.
14½	47.55
12	39.37
10	32.80
8	26.24
6	19.68

WOOD YACHTS.

Section 3.

1. Wood yachts built under Special Survey in accordance with the following Rules and Tables will be classed **R** for a term of years to be regulated by the description of materials employed, the fastenings used in their construction, and other conditions as hereafter described. Where it may be desired to make slight deviations from the requirements of the Tables, sketches showing details of the proposed equivalent arrangements are to be submitted for approval.

2. The scantlings of Wood Yachts of the 14½ Metre Class are to be interpolated from those given in the Rules.

MATERIALS.

Section 4.

1. The term of years to which a yacht will be entitled under the Tables will be that of the lowest grade material used in her construction.

2. Yachts, below 14 years grade for timber materials, built under Special Survey, and in which high class materials have been judiciously employed to such an extent as to satisfy the Committee, may be allowed a period of original classification exceeding that to which the material of the lowest class used would otherwise entitle them, such additional period not to exceed two years. The highest (unless of a very limited quantity) and the lowest grade timber materials used in the construction of such yachts will be inserted in the Yacht Register.

3. The various kinds of wood which may be used for the different parts of a yacht are given in Tables 1 and 17.

Materials other than those provided for in Tables will be permitted subject to the approval of the Committee.

Balsa wood not to be used in the construction of racing yachts.

“Duralumin,” or similar light alloys, are not to be used for fastenings or structural items.

4. The whole of the timber is to be good quality, properly seasoned, free from sap, shakes, and from all other defects.

5. The Table scantlings for wood are to be based on the following standard weights:—

Grown frames	Steamed or bentwood	}	46 lbs. per cubic foot (=740 kilos. per cubic metre).
frames	... ..	
Keel	... ..	}	38 lbs. per cubic foot (=610 kilos. per cubic metre).
Stem Sternpost	... ..	
Deadwood Counter timbers	... ..	}	35 lbs. per cubic foot (=560 kilos. per cubic metre).
Planking	... ..	
Stringers	... ..	}	27 lbs. per cubic foot (=430 kilos. per cubic metre).
Beams and knees	... ..	
Decks	... ..	

Where the actual weight of the timber differs from the standard weight, the Table siding or thickness is to be increased or decreased according to the following formula, viz. :—

$$\frac{(S - W)}{(W)} T$$

where S = the standard weight for the material in lbs. per cubic foot (or kilos. per cubic metre),

W = the actual weight of the material in lbs. per cubic foot (or kilos. per cubic metre),

T = the siding or thickness given in the Tables,

The Table siding or thickness is, however, not to be decreased more than 6 per cent. excepting where teak having a weight of 45 lbs. per cubic foot (720 kilos. per cubic metre) is used for *decks*, where a reduction of 12 per cent. in the thickness will be permitted.

6. Where steel is used for floors, frames, or other parts of a wood yacht, it is to be of the usual quality required for ship steel. It is recommended that the steel be galvanized.

YACHTS BUILT UNDER A ROOF.

Section 5.

Yachts built under a substantial and efficient roof, kept in good repair, which is to project at each end beyond the length, and on each side beyond the breadth, a distance equal to half the breadth of the yacht, or the sides and ends be so constructed as to be equally efficient, may have one year added to the period prescribed, provided they have been surveyed while building.

METAL FASTENINGS.

Section 6.

1. Two additional years will be allowed to the period prescribed, if the whole of the fastenings up to and including those in the plank sheer be of copper or yellow metal.

2. Three additional years will be allowed to the period prescribed, if the whole of the fastenings up to and including those in the upper deck be of copper or yellow metal.

WORKMANSHIP.

Section 7.

The workmanship is to be well executed for all grades, and is to be to the Surveyor's entire satisfaction.

KEEL, STEM, STERNPOST, AND RUDDER.

Section 8.

1. The dimensions given in the Tables for the keel are to be the minimum dimensions amidships. The keel may be tapered towards the ends to agree with the siding of the stem and sternpost.

2. In yachts below 8 metres rating the wood keel should be made in one length. In yachts of 8 metres rating and above the length of the keel scarph is not to be less than given in the Tables.

Where the moulding is increased beyond the Table size, the length of scarp should be correspondingly increased. If desired, the stem may be scarphed to the wood keel abaft the fore end of the lead keel. The stem itself may be scarphed provided the scarp is situated at a reasonable distance above the load water line.

3. The scantlings for the stem at head and at heel are to be measured under the bowsprit and at the heel respectively, and the stem is to have a uniform taper between these points. The scantlings for the sternpost are to be measured under the counter. The moulding is not to be less than required by the Tables and to efficiently house the ends of the planking. The sternpost need not extend above the counter and may be tapered downwards to suit the form of the yacht.

4. The horn timber is to be firmly attached at its forward end to the sternpost, where it is to be of not less sectional area than produced by the dimensions required for the sternpost at that part; it may be gradually reduced towards its after end where the sectional area may be three-fourths of that required at forward end.

5. The rudder is to be efficiently constructed, and the diameter of the head, and the diameter of the pintles, are not to be less than required by the Tables.

6. Where it is proposed to fit the rudder head of yellow metal, either of solid or tubular section, the scantlings of the same are to be submitted for approval, and where a yacht is not sheathed with copper or yellow metal an iron or steel rudder may be fitted. The diameter of the rudder head is to be of the size given in the Tables. In such cases the siding of the sternpost may be tapered to suit the diameter of the rudder stock, provided the siding at after edge of rabbet be not less than required by the Tables.

FRAMES.

Section 9.

1. "Grown" frame timbers are to be moulded in a fair taper from heel to head; they are to retain the same siding throughout their length. Where "grown" frames are butted, the butts are to be close fitted and dowelled, and side clamps are to be fitted in way of the butts. The side clamps are not to be less in length than twelve times the siding of the frame timber. Where the frame timbers are overlapped or scarphed, the length of the overlap or scarp is to be not less than nine times the siding of the frame timber. Bent wood frames are to extend in one length from keel to gunwale. The siding and moulding of the bent wood frames given in Table 3 are to be maintained as long as the Rule frame spacing is unaltered. The heels of both "grown" and bent wood frames are to be let into the wood keel. Frames which are worked down from selected material and which are steam bent to the final shape, may be accepted for the 6 metre class as equivalent to "grown" frames.

2. All frames are to be of the size given in the Tables for three-quarters the yacht's length (water line) amidships. Bent wood frames before and abaft the three-quarters length, may have their siding gradually reduced to the ends of the yacht, where it may be 10 per cent. less than amidships. "Grown" frame timbers before and abaft the three-quarters length, may have their moulding at heel and their siding at heel and head gradually reduced to the ends of the yacht, where they may be 20 per cent. less than amidships. Steel frames when fitted in place of "grown" frame timbers, may be reduced 10 per cent in thickness before and abaft the three-quarters length amidships. The frame spacing is to be the same all fore and aft.

3. The scantlings of the "grown" frame timbers and of the bent wood frames may be modified from the sizes required by the Rules provided the sectional area is not reduced, and that the mean moulding of the frames is in no case less than two-thirds the actual siding. Where the actual frame spacing is less than the rule requirement the sectional area of the frames may be reduced proportionally, provided that the siding is never less than 90 per cent. of the siding required for the rule frame spacing.

4. Where a smaller spacing than that given in the Tables is approved, the sectional area of the frames, floors, and beams may be correspondingly reduced. Where the outside planking is fitted of increased thickness, the spacing of the frames may be increased. See footnote to Tables 3 and 19.

5. Efficient framing is to be fitted to the part of the structure abaft the sternpost, and where the overhanging part is of considerable length, special care is to be taken to maintain the continuity of strength between the counter and the hull of the yacht.

6. In addition to the strengthening in way of the mast and rigging, as set forth in this and the next paragraph, extra strengthening is to be provided at this part, the nature and arrangement of which to be left to the Designers and Builders, but the weight of the extra strengthening to be not less than 60 lbs. (27.2 kilos.) in the case of 12 metre, 40 lbs. (18.2 kilos.) in 10 metre, 25 lbs. (11.3 kilos.) in 8 metre, and 10 lbs. (4.5 kilos.) in 6 metre yachts. The above weights are exclusive of hanging knees, beam brackets or fastenings. The Surveyors to be satisfied that this additional strengthening is reasonably disposed. In Yachts of 12 metres rating and above, steel web frames are to be fitted on each side in way of masts and rigging and lead ballast keel. An efficient mast step is to be fitted to take the heel of the mast, and is to be extended to strengthen the fore part of the Yacht.

7. In yachts of less than 12 metres rating where bent wood frames only are adopted, two "grown" frame timbers of the dimensions given for the same in the Tables are to be fitted on each side in way of the mast. Where the system of framing consists of a combination of "grown" frame timbers and bent wood frames, two "grown" frame timbers on each side in way of the mast are to have their sectional area increased by one-half beyond the Table size. Where steel frames are fitted in lieu of "grown" frame timbers, two steel frames on each side in way of the mast are to be fitted with reversed frames extending to the deck and of the size given in the Tables. These steel frames and reversed frames may also be fitted in lieu of the above mentioned wood frames of increased dimensions.

8. In yachts of 12 metres rating and above, web frames are to be fitted in number and size as required by the Tables. The web frames are to be fitted with an angle on the inner edge and they are to be attached to the outside planking by means of a steel angle of frame size or bolted to a "grown" frame timber. The lower ends of each pair of web frames are to be attached to a steel floor plate of the size required by the Tables and having an angle on both upper and lower edges. The upper ends are to be efficiently attached by brackets to a beam of the size required for hatch end beams. The web plates may be lightened by holes of a diameter not exceeding one-third the width of the plate and not less than one diameter apart. In yachts having steel frames, reversed frames of the size given in the Tables and extending from keel to gunwale may be fitted in place of the web frames required by rule; there should be not less than three reversed frames fitted to consecutive frames for each web frame in yachts of 12 metres rating and four for each web frame in yachts of 14, and 14½ metres.

9. Where the form of the yacht above the keel is very fine or narrow, steel or iron floor plates are to be fitted, or other means provided to tie the two sides of the yacht together at this part.

10. Where steel frames are substituted for "grown" frame timbers, they are to be efficiently connected at the heels by means of steel floor plates having an angle on both upper and lower edges of not less size than required for reversed frames in the Tables; the angle at upper edge may be dispensed with if the floor plate be flanged, the breadth of flange to be not less than the broader flange of the reversed frame. Before and abaft the three-quarters length (water line) amidships, the floor plates may be reduced in thickness as provided for in the Tables, and the depth may be gradually reduced to the ends of the yacht where it may be at fore end one-half, at sternpost three-quarters, and in way of counter one half of that given in the Tables, or angle steel floors of the size given in the Tables may be fitted at forward end of yacht and in way of counter.

11. Wrought iron, angle steel, plate, or wood floors of the scantlings required by the Tables are to be fitted to all "grown" frame timbers throughout the yacht. Where steel plate floors are fitted to "grown" frame timbers the reversed angle at upper edge of floor is to extend up the frame to the same height as required for the arms of wrought iron floors. A reduction in moulding could be allowed for wood floors on "grown" frame timbers abaft the sternpost, but the moulding of these floors should in no case be less than the moulding of the "grown" frame timbers.

12. Wrought iron or angle steel floors are to be fitted on all bent wood frames for the length of the water line except in yachts of 6 metres rating, having bent wood frames only, where they may be fitted on every alternate frame. Beyond the ends of the water line the wrought iron or angle steel floors are to be fitted at every third frame in yachts with bent wood frames only. Where the system of framing consists of "grown" frame timbers or steel frames in combination with two intermediate bent wood frames, the floors required to the latter may be dispensed with, provided a single floor of twice the sectional area of the iron floors to bent wood frames be fitted midway between the "grown" frame timbers, due regard being paid to the maintenance of strength. Where such single floors are of wood, they are to have a sectional area 14 times that of the iron floor to bent wood frames. The length of arms of floors at ends of yacht need not exceed one-third the length of the frames.

13. In yachts of 6 metres rating, having bent wood frames only, oak floors may be fitted to alternate frames amidships, clear of lead keel bolts, and to every third frame at ends, instead of the iron or steel floors required by the Table. The moulding of the floors at middle line is to be at least 6 inches (150 mm) and the siding is to be not less than twice the siding of the bent wood frames. The arms are to extend up the frame to the same height as required for the arms of wrought iron floors. As an alternative arrangement, an oak floor may be fitted amidships at each lead keel bolt, provided the keel bolts be spaced not more than three frame spaces apart and the siding of the floors be not less than four times the diameter of the keel bolt for the breadth of the keel. In the case of 8 metre Yachts having bent wood frames only, an arrangement of wood floors at the keel bolts could be accepted provided a suitable proposal be submitted for approval. Where oak floors are fitted to every frame, however, the siding may be not less than that of the bent wood frames as fitted.

14. Where bolts attaching the lead keel pass through the wood floors, the siding of the floors is to be not less than four times the diameter of the bolt for the breadth of the keel, and from there to be

tapered to the Rule siding at the ends of the floor. Where bolts attaching the lead keel pass through wrought iron floors, these floors in way of the bolts should be not less than four times the diameter of the bolt.

15. Where steel angle floors are fitted at the side of wood frames (either "grown" or bent) they are to be attached both to the outside planking and the frames.

16. Where the frames, either of wood or steel, at ends of yacht extend in one length from covering board to covering board, no floors are required at middle line.

17. Breasthooks and crutches are to be fitted at the ends of yachts to efficiently tie the sides together.

BEAMS.

Section 10.

1. The beams are to be of the midship size for three-quarters the yacht's length (water-line) amidships: before and abaft this length the scantlings may be reduced to the size given in the Tables for beams beyond the three-quarters length. Pillars are to be fitted to the beams in way of mast where halliards are fastened to deck.

2. Hatch end beams are to be fitted at the ends of openings where more than two beams are cut.

3. The beams in way of winch, bowsprit bitts, and mainsheet are to be of not less scantlings than required by the Tables for mast beams. In yachts of 6 metres rating, not more than three strong beams need be fitted, two in way of mast and one at after end of cockpit.

4. All beams are to be either dovetailed or doweled to the shelf and as far as practicable to be fitted against the frames. Where the alternative arrangement of steel sheerstrake instead of shelf is adopted, plate knees are to be fitted at the ends of each beam. Hanging knees are to be fitted to mast and hatch end beams, and to ordinary through beams, in number and size as required by the Tables. In place of the wrought iron hanging knees, steel angles of equal weight may be fitted. In yachts of 6 metres rating, oak knees may be fitted in place of the wrought iron hanging knees required by rule, the dimensions at throat to be at least $2\frac{3}{4} \times 1\frac{5}{8}$ inches (70 × 41 mm). The moulding or larger dimension is to be measured clear of the inner lower corner of the shelf or clamp, and the length of the arms to be the same as required for the arms of wrought iron hanging knees. In yachts of 12 metres rating and above, fitted with web frames as required by the Rules, a web frame may count as a hanging knee. Lodging knees are to be fitted to the beams in way of masts, and at ends of cockpit. The length of arms of hanging knees at ends of yacht need not exceed one-third the length of the frame or beam.

5. The deck is to be strengthened in the vicinity of the mast holes by larger beams, carlings, etc., and care should be taken to strengthen the stern framing, in order to withstand the strains brought on it by the main sheet.

BILGE STRINGERS AND BEAM SHELVES.

Section 11.

1. In yachts of 8, 10, 12, 14 and $14\frac{1}{2}$ metres rating, a bilge stringer is to be fitted on each side, of not less sectional area than required by the Tables. Beyond the three-quarters length (water line) amidships, the beam shelves and bilge stringers may be gradually reduced towards the ends of the yacht, where the sectional area may be 25 per cent. less than amidships.

2. Where bent wood frames are fitted, it is recommended that the bilge stringers be fitted with their greater dimension normal to the frames.

3. The beam shelves and the bilge stringers are to be efficiently scarphed at the butts. Ledge pieces or clamps of not less than one-half the sectional area required for the shelf are to be fitted in addition to the shelf in way of the rigging.

4. In place of fitting a shelf and clamp, an alternative arrangement may be adopted consisting of plate knees at the ends of each beam, with a steel sheerstrake of the same scantlings as required for composite Yachts fitted between the framing and the outside planking. When this arrangement is adopted, larger knees must be fitted in way of the rigging.

5. The minimum area of beam shelf as given in Tables 4 and 20 is to be measured between the beams, provided that the scoring of the shelf in way of the beams does not remove more than about 10 per cent. of the sectional area.

Section 12.

OUTSIDE PLANKING AND DECK PLANKING.

1. No butts of outside planking are to be nearer than 5 feet (1.5m) to each other unless there be a strake wrought between them, and then a distance of 4 feet (1.25m) will be allowed; no butts to be on the same timber unless there be three strakes between. A departure from this rule will be allowed at the ends of the yacht, provided the arrangement be of a satisfactory character. The butts of the garboard strakes are to be kept clear of each other and of the keel scarphs.

2. Where the outside planking is fitted of increased thickness, the spacing of the frames may be increased. See footnote to Tables 3 and 19.

3. Where the deck is covered with canvas and painted, the thickness of the deck planking may be $\frac{1}{8}$ of an inch (3 mm) less than given in the Tables.

4. The caulking of the outside and deck planking is to be well executed, and is to be carefully tested by the Surveyor. Pine decks are to be laid with the grain vertical.

Section 13.

FASTENINGS.

1. The fastenings are to be of the diameters given in the Tables, except where steel frames are fitted in wood yachts, when the through fastenings may be of nut and screw bolts, or of clenched bolts of the following sizes:—

					Inches.		Mm.
6 Metres	...	...	...	...	$\frac{9}{32}$	...	7
8 "	...	...	...	...	$\frac{11}{32}$	...	9
10 "	...	...	...	...	$\frac{6}{16}$	...	10
12 "	...	...	...	...	$\frac{6}{16}$	...	10

The through bolts are to be clenched on rings of the same metal as the bolts. Where the bolts are of exceptional length the diameter is to be increased. The points of the plank copper fastenings may be turned over instead of being clenched on rooves, on the bentwood frames, in yachts of 10 metres rating and under.

2. Short dump or nail fastenings are to be of the same diameter as required by the Tables for bolt fastenings; where these short fastenings are of square section, they are to be of not less sectional area than required when round.

3. All iron fastenings are to be galvanized. When yachts are sheathed with copper or yellow metal, no iron fastenings are to be used in way of the same.

4. All floors are to be attached to the keel by one or more through bolts, according to the breadth of the keel. At ends of yacht the floors are to be attached to the stem and also to the sternpost and horn timber, if practicable, by at least one through bolt. The sizes of wood keel bolts are to be increased throughout by one-eighth of an inch (4 mm.) above the sizes given in the Tables.

5. There are to be not less than four bolts in each arm of the wrought iron floors, hanging knees, breasthooks and crutches. The bolts at the side of the yacht are to pass through the outside planking, and one should be placed as near the angle of the throat as possible, but not in it. The beam bolts of the knees to be clenched on the beams on rings of the same metal as the bolts. The bolts in the throats of floors on bentwood frames are to be $\frac{1}{8}$ of an inch larger in diameter than those in the arms.

6. Steel angle floors are to be attached to the frame timbers by not less than four bolts in each arm. In yachts of 12 metres rating and above, they are to be attached to the outside planking by through bolts and nuts. In yachts of less than 12 metres rating they may be attached to the outside planking by brass screws. The bolts and screws are to be of the size required in "grown" frame timbers and bent wood frames respectively.

7. There is to be at least one through bolt in the shelves and the stringers at each frame. Where "grown" frames are fitted in association with bent wood frames, fillings are to be fitted between the bent wood frames and the shelves or stringers to take the through bolts.

8. The number of fastenings attaching the outside planking to the frame timbers is to be in accordance with the Tables. Not less than one half the fastenings in "grown" frame timbers, are to be through fastenings. Brass screws may be accepted as equivalent to through fastenings required for the attachment of the outside planking to the frame timbers. Screws may be substituted for dump or nail fastenings in all Classes. All the fastenings in bent wood frames are to be through fastenings and of copper.

9. The number of fastenings at the butts of outside planks is to be at least as required at the frame timbers for the same width of plank, but there are not to be less than two through bolt fastenings in each plank at the butts. Where the number of bolt fastenings exceeds that prescribed, the sectional area of the fastenings may be correspondingly reduced.

10. The deck planks are to be efficiently side fastened by nails and dowels.

11. Two additional years will be allowed to the period prescribed, if the whole of the fastenings up to and including those in the plank sheer be of copper or yellow metal.

12. Three additional years will be allowed to the period prescribed, if the whole of the fastenings up to and including those in the upper deck be of copper or yellow metal.

13. "Duralumin," or similar light alloys, are not to be used for fastenings or structural items.

BALLAST.**Section 14.**

1. In yachts of 12 metres rating and above, steel web frames with plate floors are to be fitted in way of the masts and rigging and lead ballast keel, in number and size as required by the Tables.

2. Where the form of the yacht above the keel is very fine or narrow, steel or iron floor plates are to be fitted, or other means provided to tie the two sides of the yacht together at this part.

3. If cast-iron or lead ballast is fitted between the timbers, each piece is to be cast with lips at each end so as to allow the weight to rest on the frame timbers instead of upon the bottom planking.

4. Where ballast in any considerable quantity is fitted, the yacht at this part is to be additionally fastened.

5. Special attention is to be paid to the fitting and fastening of lead keels. All bolts used for fastening lead ballast keels are to be of copper or yellow metal. The diameter of the bolts is not to be less than required by the Tables. It is recommended that the keel bolts be fitted alternately on opposite sides of the middle line, and wing or side bolts are to be fitted when necessary on account of the weight or form of the lead keel.

CEILING AND LINING.**Section 15.**

Where ceiling is fitted in wood yachts, air courses are to be left, all fore and aft below the shelves, and proper air openings provided in the hold. It is recommended that the cabin fittings and lining against the side of the yacht be fitted so as to be easily removed when required.

HATCHWAYS AND MAST PARTNERS.**Section 16.**

All hatchways are to be properly framed to receive half beams, where required, and the mast holes to have partners at the wedging deck.

SKYLIGHTS.**Section 17.**

1. Skylights are in all cases to be substantially constructed and the coamings to which they are attached are to be efficiently fastened to the beams.

2. The skylights are to be securely attached to the coamings, and the glass in them is to be efficiently protected by metal bars or gratings; in addition, further means are to be provided to prevent them from being damaged during bad weather. Any translucent material of equivalent weight may be substituted for glass in these skylights and further, if reinforced or armoured glass of suitable thickness and weight is used, the metal bars or gratings referred to above may be dispensed with.

PORTS AND SCUPPERS.**Section 18.**

A sufficient number of ports and scuppers is to be fitted to relieve the deck of water, unless a space is left between the bulwarks and the planksheer.

PUMPS.**Section 19.**

Efficient pumps, with lead tail pipe and rose at end, are to be fitted in all yachts, except those of 6 metres rating where a portable pump with india-rubber tail pipe may be carried in place of a fixed pump.

EQUIPMENT.**Section 20.**

1. All yachts are required to have their masts, spars and rigging in good order, and sails in sufficient number and in good condition.

2. There being much difference of practice in regard to the masting and rigging of yachts engaged in racing, rules for the same have not been formulated. These fittings are left to the judgment, and experience of owners and builders.

3. Every yacht is to be provided, according to her rating, with anchors, cables, &c., in number and length as set forth in the Tables. The anchors are to be of approved design.

4. All Anchors exceeding 168 lbs. (76 kg) in weight, including stock, and all Chain Cables for yachts of 12 metres rating and above are to be tested at a recognised Proving House, according to the requirements of the Act of Parliament and of the Society's Rules. Certificates of Test are to be produced before the yacht is classed.