

## World Sailing Offshore Special Regulations

### Structural Plan Review Scheme

### – World Sailing Recognised Notified Bodies and Classification Societies –

#### Introduction and Aims

This document sets out the procedures, scope and responsibilities of World Sailing and World Sailing recognised organisations within the World Sailing Offshore Special Regulations Structural Plan Review Scheme. A World Sailing recognised organisation is expected to comply with the requirements and agreements set out in this document and, where possible, their notified body Quality Management System.

The aim of the World Sailing Offshore Special Regulations Structural Plan Review Scheme is to implement compliance with the requirements of World Sailing Offshore Special Regulations 3.03 – Hull Construction Standards (Scantlings) [World Sailing - Offshore Special Regulations](#).

The objective of the scheme is for World Sailing together with World Sailing Recognised Notified Bodies to provide certification to designers, builders and/or owners to show compliance with specific parts of the International Standard ISO 12215: Hull Construction – Scantlings specified within the scope below.

#### Scope

The scope of the plan review consists of application and calculation to the following parts of ISO12215 – Small Craft – Hull construction and scantlings:

<p><b>ISO 12215 Part 5: Design pressures for monohulls, design stresses, scantlings determination</b></p> <p>All parts and annexes where applicable to design category A (“ocean”) – Sailing Craft</p>
<p><b>ISO 12215 Part 8: Rudders</b></p> <p>All parts and annexes where applicable to design category A (“ocean”) – Sailing Craft</p>
<p><b>ISO/DIS 12215 Part 9: Sailing Craft - Appendages</b></p> <p>All parts and annexes where applicable to design category A (“ocean”)</p>

#### Plan Review ISO Standard Criteria:

- The boat shall show complete compliance with the above ISO standard parts.
- In all applicable cases the ISO standards should be applied as the minimum. Where additional calculations are carried out, they should be provided to the World Sailing recognised organisation separately.
- Any proposed interpretation of the ISO standard shall be made through a World Sailing recognised organisation as confirmed by World Sailing and in consultation with all World Sailing recognised organisations. If agreed such interpretation shall then be notified to all World Sailing recognised organisations and made publicly available on the World Sailing website. Agreed interpretations shall be applied by all World Sailing recognised organisations until such a time that interpretation is withdrawn or invalid.
- In January 2020 the EU Commission harmonised EN ISO 12215 :2019 “Small craft - Hull construction and scantlings - Part 5: Design pressures for monohulls, design stresses and scantlings determination”.  
The versions of ISO standard to which the boat is assessed shall be agreed between the client and recognised organisation and shall be stated on the Certificate Identification Number Request Form under ‘Yacht Details’.

## Scope of Structural Review

The areas of the yacht that shall be reviewed are those detailed within the standards mentioned above and shall include the following as a minimum:

- Hull shell including bottom, side, deck, cockpit and superstructure
- Primary structural stiffening members including floors, girders etc.
- Bulkheads including watertight and integral tank boundaries
- Rudders, including stock, bearings and blade
- Appendages including attachment and blade
- Keels including all load cases, fins, backing plates and bolting arrangements and keel floors

Any areas of the boat's fixed structure may be assessed by the recognised organisation.

## Designer/Builder Plans

The designer shall submit plans showing scantlings, arrangements, and details of the main and fixed parts of the hull structure including the areas listed above. The plans shall include principal parameters and data for the yacht to complete the calculations to ISO 12215.

For FRP construction, the plans shall include complete laminate schedule information including the following:

- ply specification, ply weight, ply orientation, fibre material
- resin information
- if sandwich construction; core information shall be supplied

Where further information is available, then the following may be recorded as part of the assessment.

- if ply test information is available; ply fibre content and thickness
- if mechanical test data information is available; minimum mechanical properties of the laminate

The following shall be documented along with the structural keel design:

Welding symbols according to ISO 2553 [Welding and allied processes — Symbolic representation on drawings — Welded joints] and shall include reference to ISO 12215-6 Annex C 'good welding practice'.

- Material specifications
- Fabrication tolerances according to ISO 13920 [Welding. General tolerances for welded constructions. Dimensions for lengths and angles. Shape and position] or IACS rec 47 [International Association of Classification Societies Rec47 Shipbuilding and Repair Quality Standard.]
- Inspection notes and documentation requirements shall be specified e.g.:
  - 100% visual inspection ("VT")
  - 100% Liquid penetrant ("PT") or Magnetic Particle Test ("MT") on all external welds
  - 25% PT or MT on internal welds
  - PT or MT on specific (high stress) areas as called up on drawing and/or provided by notified body
  - 100% of PT or MT external surface, if keel is milled down
  - Post-weld inspection carried out >48hours after completion of welding

The installation of the keel shall be documented by 'Construction Notes or Instructions' in a written form (possibly assisted with sketches or detail drawings) as follows:

- The principles and specifics of the installation of the keel to the hull shall be described. The following aspects shall be highlighted:
  - Installation general principle (positive fit "plug head"); face-to face T-Flange; canting keel; lift keel; etc.)
- Building tolerances: Address required shape fit between Keel and hull structure, corrective measures for possible deviations to be given
- Installation specifics:
  - Dry fit and consequential measures for mismatch of under-/over size
  - Material specifications for bedding compounds if used
  - Washer plate shape including rounding corners and chamfered bottom specifications, fit and bedding requirements
  - Bolt torque
  - Bolt and lug diameter tolerances
  - Bolt and pin securing measures
  - Corrosion protection measures, if applicable

## Calculations

The plan review shall include independent calculations by the recognised organisation of the areas listed above. These calculations may be by hand, spreadsheet or by an ISO 12215 program. The designers/builders submitted calculations shall not be taken as the only proof of compliance.

## Quality Procedures

The World Sailing plan review procedures shall reflect the accredited Notified Body or Classification Society ISO quality management procedure.

## Certification

There are two forms of certification:

- a) Series production; where several boats of the same type are produced in accordance with the plans and therefore each yacht will not require individual review and certification
- b) Custom or unique boat where the boat is a one of a kind yacht or a series production yacht that has been built or modified such that it is not in accordance with the plans of that series.

World Sailing will maintain a list of yachts reviewed under the scheme on its website with certification information. If the yacht is a series type production there will be a single entry for that type of yacht with a link to a certificate for an owner or builder to make a hardcopy. The owner then signs the declaration including the CIN/HIN of their particular yacht. For a unique yacht the certificate will not be published on the website and certificates will be issued directly from the World Sailing to the World Sailing recognised organisation upon compliance with the review requirements.

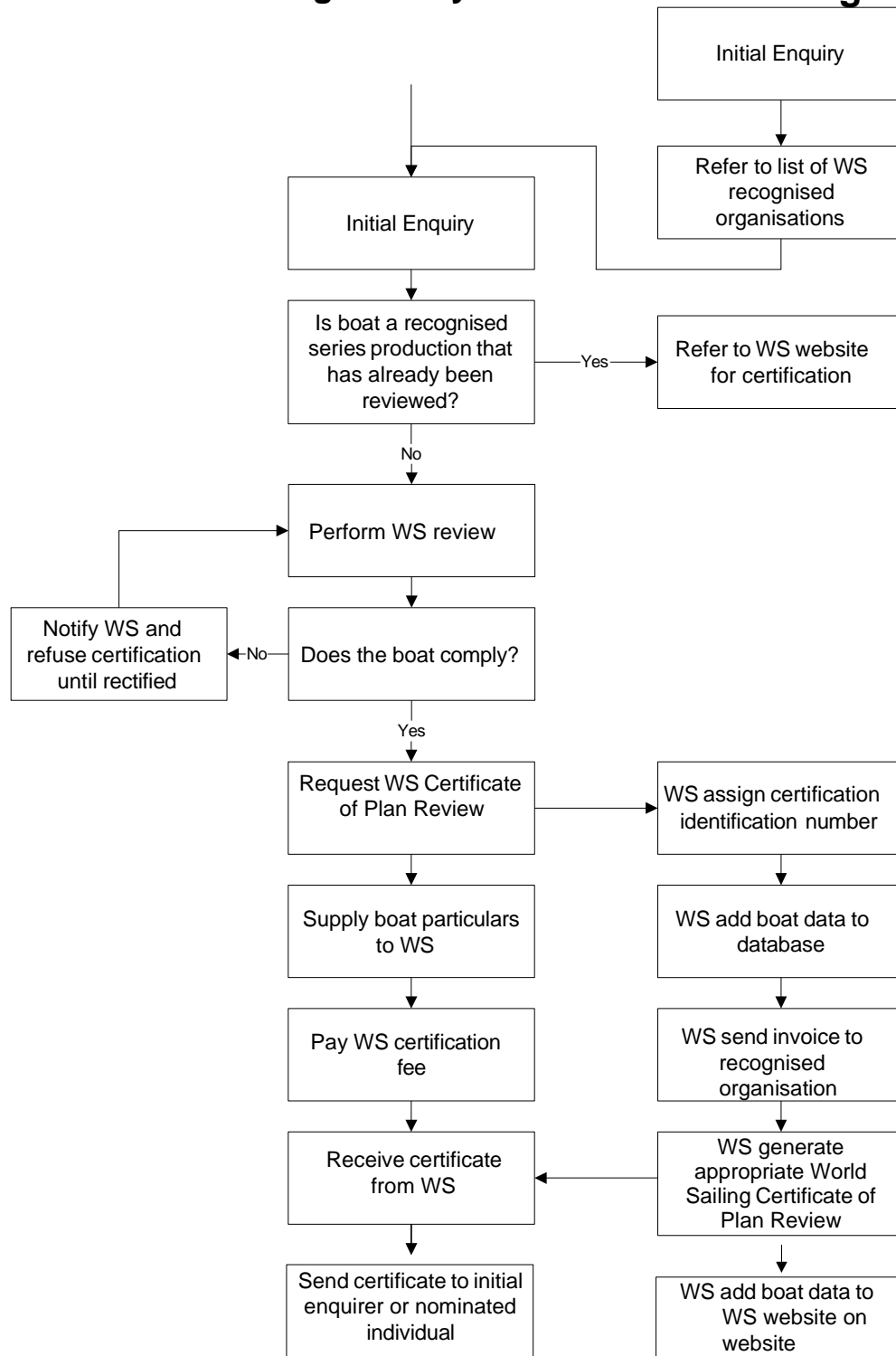
Unique or custom certificates should be forwarded by the World Sailing recognised organisation to the original enquiry source or their nominated individual.

## Procedure

The procedure from initial enquiry through to certification for structural plan review scheme is detailed in the following flow chart.

## Organisations Recognised by WS

## World Sailing



# Agreement and Responsibilities

## 1. World Sailing Responsibilities

- 1.1 List of organisations recognised in the World Sailing Certificate of Plan Review Scheme
  - a) World Sailing will maintain a list of recognised organisations.
  - b) World Sailing will list all recognised organisations on their website with appropriate contact details.
  - c) All enquiries for World Sailing Plan Review will be referred to the recognised organisations list.
  - d) World Sailing will review the list on an annual basis unless there is any change or issue with a particular organisation.
- 1.2 Auditing and Accreditation
  - a) World Sailing will ensure that recognised organisations have regular independent audit and maintain a quality system. No physical auditing will take place by World Sailing but evidence of accreditation body auditing will be required.
- 1.3 Certification
  - a) World Sailing will maintain a list on its website of all boats or boat models that have undergone World Sailing plan review by a recognised organisation.
  - b) Upon payment and supplied details of particulars of boats (shown in Appendix A), World Sailing will supply the recognised organisation with a World Sailing Certificate of Plan Review including an unique identification number.
- 1.4 Termination
  - a) World Sailing may terminate the recognition of a recognised organisation at any time with 2 months notice unless there is a breach of the responsibilities or agreement at which time it may be terminated immediately.

## 2. World Sailing Recognised Organisations Responsibilities

- 2.1 Auditing
  - a) The recognised body will maintain their Notified Body and/or Classification Society accreditation and have periodic independent audits.
  - b) The recognised notified body will provide World Sailing with evidence of periodic audits.
- 2.2 Fees and Certification
  - a) The recognised notified body will pay World Sailing a fee of £300.00 per year to maintain World Sailing recognised status.
  - b) For each boat certified the recognised Notified Body will provide World Sailing with the particulars detailed in Appendix A of this document.
  - c) For a unique boat certified there will be a fee of £85.00 in return for an exclusive World Sailing Certificate of Plan Review.
  - d) For a production boat certified there will be a fee of £300.00 in return for a series production World Sailing Certificate of Plan Review.
  - e) The recognised organisation will maintain a list of every boat certified together with the World Sailing unique identification number.
- 2.3 Termination
  - a) A recognised organisation may terminate its recognition status at any time with 2 months notice unless there is a breach of the responsibilities or agreement at which time it may be terminated immediately.

## Appendix A – Certificate Request Form

The following particulars are to be supplied to World Sailing by World Sailing recognised organisations before a Certificate of Plan review can be issued:

### WORLD SAILING CERTIFICATE OF PLAN REVIEW REQUEST FORM



RECOGNISED ORGANISATION DETAILS	
Name of Notified Body	
Name of contact	
Telephone number	
Email address	
YACHT DETAILS	
Does the yacht comply with the ISO Standards set out in the scope of the World Sailing plan review scheme?	Yes / No
ISO 12215 Part 5: Design pressures specify version:	
Is the certificate type a Series Production (yes/no)	
Designer	
Builder/Manufacturer	
Yacht Design name	
Yacht Name (if known)	
Hull length	
Mass of displacement m <sub>LDC</sub> (kg)	
Mass of the ballast keel Q (kg)	
Major Construction material (e.g. glass sandwich)	
Other notes (e.g. modifications to standard specification)	