Effective date: TBD
Status: PROPOSAL

INTERNATIONAL ETCHELLS CLASS ASSOCIATION

BUILDING SPECIFICATIONS FOR SPARS

The Etchells was designed in 1966 by Skip Etchells and was adopted as an International Class in 1974.

sport / nature / technology

World Sailing
Class Association

TABLE OF CONTENTS

INTRODUCTION

These Spar Building Specifications are provided for the use of Licensed Spar Makers only. They do not govern the use of or permit the modification of the equipment defined herein. Rules governing the use of and permitted **modifications** of equipment may be found in the **class rules**.

To ensure the one design, closed class rules, nature of the Etchells is maintained, the International Etchells Class Association provides the following documents to Licensed Spar Makers for International Etchells:

- the **class rules**
- Spar Building Specifications (this document)
- Plans

When building spars for an International Etchells, Licensed Spar Makers must comply with all requirements in the documents above, and their Spar Maker's Licence Agreement.

The Spar Building Specifications and the Plans are part of the **class rules**.

The International Etchells Class Association **class rules** are closed class rules: if the **class rules** do not say that you may, then you shall not.

The Spar Building Specifications include references to the Plans.

THESE SPAR BUILDING SPECIFICATIONS ARE PART OF THE **CLASS RULES**.
ANY DEVIATIONS FROM THE METHODS, MATERIALS, WEIGHTS OR DIMENSIONS CONTAINED HEREIN IS PROHIBITED

Section SBS.A — ADMINISTRATION

SBS.A.1 DEFINITIONS

(a) Licensed Spar Maker: a spar maker who has a valid Licence Agreement to build spars for International Etchells.

(b) Licence Agreement: a document executed with World Sailing ("WS"), which may include the International Etchells Class Association ("IECA") as a party, agreed in writing by all parties.

SBS.A.2 Changes to this document shall be made in accordance with the IECA Constitution and WS Regulations.

SBS.A.3 When a term is printed in "**bold**" the definition in the WS Equipment Rules of Sailing (ERS) applies, except where the term is used in headings.

IMPORTANT NOTICE

It is impossible to mention every suggestion that has been ruled illegal in the past, and to foresee every innovation which may be thought of in the future. Therefore, when considering anything in connection with the spars which is not clearly permitted by the class rules, it must be assumed illegal until approval has been obtained from WS through the IECA.

Section SBS.B — TOOLING

SBS.B.1 EXTRUSION DIES

(a) Extrusion dies requiring approval, and their respective approval authority, are shown in Table 1. Approval shall be obtained before use for production.

Table 1

Tooling Item	**Type**	**Approval Authority**
Mast section extrusion	Die	WS
Boom section extrusion	Die	WS
Spreader section extrusion	Die	WS

(b) The requirement for approval of extrusion dies exists to ensure the extrusion created therein is strictly controlled.

(1) It is prohibited to place material in the extrusion die that modifies the intended shape of the extrusion.

(2) It is prohibited to deform the extrusion die in a way that modifies the intended shape of the extrusion.

(c) Extrusion dies:

(1) shall be approved in accordance with WS/IECA Extrusion Die Approval Procedures

(2) shall not be modified in any way, unless the modification is approved in writing in advance by WS and the IECA.

Section SBS.C — GENERAL

SBS.C.1 The mast, spreaders, and boom are strictly controlled.

(a) All **fittings** welded or mechanically attached to the mast and boom shall accomplish their specified and/or intended functions and shall be located in their specified positions.

(b) The detailed design of the **fittings** is optional where so stated in the Plans, provided that they are of the general types shown on the Plans. If other types are used, prior written approval is required from WS through the IECA.

SBS.C.2 The mast, boom and spreaders shall only be built by Licensed Spar Makers with a current Licence Agreement.

SBS.C.3 Everything in the Spar Building Specifications or on the Plans is mandatory unless specifically denoted as recommended ("rec") or optional ("opt"). For anything that is denoted as "rec", the recommendation shall be followed, unless prior approval to use an alternative is received in writing from the IECA.

SBS.C.4 Dimensions and weights with tolerances are mandatory.

SBS.C.5 The mast and boom shall be inscribed with IECA authorised serial numbers. The locations of the serial numbers are specified in the **class rules**.

SBS.C.6 Mast and boom sections shall be of constant section throughout, except in way of the specified taper in the mast. Lightening holes or unused holes are prohibited. Unused holes, diameter 8mm or less, shall be filled with pop rivets or machine screws. Unused holes, diameter greater than 8mm, shall be filled with aluminium.

SBS.C.7 Permanently bent masts and booms are prohibited. There are provisions in the **class rules** for permanent set due to distortion, with maximum limits for **mast spar curvature** and **boom spar curvature**.

SBS.C.8 Materials:

(a) The materials shall be as follows or equivalent:

(1) Mast, boom, and spreader extrusions: 6061-T6 Aluminium Alloy

(i) The nominal composition of 6061 is: 0.25% Copper, 0.6%. Silicon, 1% Magnesium, 0.25% Chromium, and Aluminium and normal impurities constitute the remainder.

(ii) Typical physical properties:

Weight - 2713 kg/m^3

Modulus of Elasticity - 68.95 kN/$mm^{2.}$

(iii) Minimum mechanical properties:

Ultimate Tensile Strength - 262,000 kN/m^2

Yield Tensile Strength - 241,320 kN/m^2
Elongation – 10%
Yield Compressive Strength - 241,320 kN/m^2
Ultimate Shear - 165,470 kN/m^2
Yield Shear Strength - 137,900 kN/m^2
Ultimate Bearing - 55,580 kN/m^2
Yield Bearing Strength - 386,100 kN/m^2

(2) Plates, Masthead Crane, Masthead Cap, Sheave Boxes: 6061-T6 Aluminium Alloy

(i) Nominal Composition: 0.25% Copper, 0.6% Silicon, 1% Magnesium, 0.25% Chromium. Aluminium and impurities constitute the remainder.

(ii) Typical physical properties:

Weight: 2713 kg/m^3
Modulus of elasticity: 68.95 kN/mm^2

(iii) Minimum mechanical properties:

Ultimate tensile: 289,580 kN/m^2
Yield tensile: 241,320 kN/m^2
Elongation: 10%
Yield compressive: 241,320 kN/m^2
Ultimate shear: 186,160 kN/m^2
Yield shear: 137,900 kN/m^2
Ultimate bearing: 606,720 kN/m^2
Yield bearing: 399,900 kN/m^2

(3) Stainless Steel, Type 304L or 316

SBS.C.9 All welds are continuous and of user's standard proportions, unless otherwise noted.

SBS.C.10 A protective **coating** is to be applied to the mast, boom, and spreaders. Anodizing, or application of a PVC or electrostatic **coating**, is recommended. A clear or aluminium colour is preferred for the mast and boom, and a black, clear or aluminium colour is preferred for the spreaders.

SBS.C.11 The luff and foot grooves shall be continuous throughout, except for specified sail entry cutaway. Saw cuts are prohibited.

SBS.C.12 Stainless steel or bronze **fittings** attached to the mast or boom shall be insulated from the aluminium with zinc chromate paste, insulation tape or equivalent.

Section SBS.D — MAST

SBS.D.1 The mast section shall be supplied by the Licensed Spar Maker with no less than the **fittings** shown in this list permanently installed. Each is as defined on the Plans.

(a) Masthead Crane

(b) Masthead Cap

(c) Spinnaker & Headsail Halyard Sheave Box

(d) Lower Halyard Sheave Boxes

SBS.D.2 Spreaders

(a) Specifications for **spreaders** may be found in the **class rules** and Plans.

SBS.D.3 Fittings

(a) Specifications for other **fittings** for the **mast** and **spreaders** may be found in the **class rules** and Plans.

Section SBS.E — BOOM

SBS.E.1 The boom section shall be supplied by the Licensed Spar Maker. The boom section may be supplied as a blank section.

SBS.E.2 Fittings

(a) Specifications for **fittings** for the **boom** may be found in the **class rules** and Plans.