

**BMEA**

**CODE OF PRACTICE**

for

Electrical and Electronic Installations in Small Craft

Incorporating BMF guidelines

for

The Recreational Craft Directive

**Fourth Edition**

(supersedes Third Edition)

**Updated to May 2011**

**Prepared by**

**The British Marine Electronics Association**

## ACKNOWLEDGEMENTS

The British Marine Electronics Association (BMEA) sponsors this Code of Practice. The BMEA is a group association of marine electrical and electronic dealers, manufacturers and importers within the British Marine Federation (BMF).

The Editor would like to thank many members of the Federation who have made contributions to this edition, in particular the following:-

Mr St John Bickley	Chairman BMEA, BSI Technical Committee GME/33
Mr S Goldsbrough	Canal Boat Association
Mr J Coleman	Past Chairman BMEA
Mr C Goatcher	Boat Builders Association
Mr T Johns	Secretary BMEA
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## **FOREWORD**

### **BMEA Code of Practice**

Welcome to this Fourth Edition of the BMEA Code of Practice.

Over the past few years many Standards have been issued, largely as result of influences from the European Union. The Code of Practice is our way of making sense and translating some of those Standards affecting boat construction today.

After some years in committee, the a.c. and d.c. Electrical Standards have now finally come into existence as ratified ISO Standards. This Fourth Edition encompasses the changes that have taken place since the early draft and includes many new ideas and practices used today by installers and boat building companies. EMC and relevant parts of the RCD are also included.

This document is designed for those involved in the design and installation of marine electrical and electronic systems in leisure craft up to 24 m in length. It references the relevant Standards and an explanation of them linked to our own recommendations. The intention is to help the installer, boat builder, or boat owner understand the regulations, and enable him to complete a safe and legal system.

Previous editions were seen as an engineer's guide. I would hope that this Fourth Edition will be seen as the definitive Reference Book of all things electrical and, will sit proudly on the shelves of today's Engineering Departments.

The Code of Practice is designed such that updates can be easily included. Please remember to register your copy with the BMF for inclusion on the mailing list.

Finally I would like to thank all those members of the team listed in the acknowledgements, along with the many other contributors who gave up so much time and so much effort to make this happen.

St John Bickley  
Chairman BMEA

## **HELP**

The BMF through their Technical Services Section can provide enquirers with information as to where they can obtain any Standards mentioned in this Code of Practice.

Their address is:-

Technical Services Section  
British Marine Federation  
Marine House  
Thorpe Lea Road  
Egham  
Surrey TW20 8BF  
Telephone: +44 (0) 1784 473377  
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E-mail: [technical@britishmarine.co.uk](mailto:technical@britishmarine.co.uk)  
Internet: <http://www.britishmarine.co.uk>

There is at the end of the Code of Practice a Technical Glossary of the terms used.

### **The Dolphin Inspection Scheme**

This Scheme has been set up to enable a detailed inspection to be made of the electrical and electronic equipment installed in craft within the scope of the BMEA Code of Practice. The purpose of the Scheme is to check the condition of such installations for the benefit of the owner (user), at any desired period, e.g. prior to a cruise, delivery, purchase or even while in build, etc. A multi page proforma report has been generated to cover such inspections and is available to BMEA member companies taking part.

Only those BMEA member companies who have chosen to take part in the Scheme and who have suitably qualified staff will undertake such inspections. A company has been set up within BMEA to be responsible for the functioning of the Dolphin Inspection Scheme.

## INTRODUCTION

The Fourth Edition of this Code has been published embodying the latest editions of the two ISOs (published 2000) for small craft electrical systems.

There are many changes to the Standards, some of which are confirming current practice in the UK and others of a minor nature, which should remove many ambiguities.

Standards for craft are first published by the International Standards Organisation (ISO). British Standards copy the relevant ISOs using identical English language prefixing the title with BS EN..... and adding the year of publication which in some cases is not the same as the original ISO.

The other sections have been updated to the current issues of appropriate Standards. Remarks made about the Third Edition have been noted and action taken to clarify guidance notes where appropriate.

Members of the BMEA have provided many practical suggestions. They have been incorporated in the Code whenever such items are not covered by a Standard. In particular the advice given to achieve electromagnetic compatibility of an installation should enable boat builders to plan a better layout of equipment and the associated wiring.

Under the Boat Safety Scheme introduced by British Waterways and the National Rivers Authority their booklet entitled 'Boat Safety Scheme' issued in 1999 makes reference to this Code of Practice. The two major UK inland navigation authorities endorse the contents of this Code which complements the requirements laid down in their booklet, to which reference may be made regarding their Boat Safety specification for craft navigating inland waterways.

The British Marine Federation (BMF) is currently working through the International Federation (International Council of Marine Industry Associations ICOMIA) to achieve the objective whereby all these Standards for small craft will be accepted both within the European Community and internationally.

This Code of Practice has been registered with the Office of Fair Trading.

## SCOPE

This Code of Practice has been prepared to help installers and boat builders in the design and installation of electrical and electronic equipment fitted on board. In the case of existing boats the Code should be read as a general guide to improve safety and reliability. It has been written principally for small craft with hull lengths from 2.5 to 24 metres.

Reference is made to the Recreational Craft Directive to help installers meet the mandatory Essential Safety Requirements for electrical installations in small craft. In subsequent sections of the Code full details will be found of these requirements along with guidelines to help meet the needs for conformity documentation.

In some instances the full text of electrical requirements of the Directives, Regulations and Standards are given. In all other cases only relevant selected information is printed. Appropriate references are given (see Appendix 'A') so that anyone can study the full text of any official document.

The highlighted boxes (see Sections 2 and 3) indicate full text of the Electrical Installation ISOs 10133 and 13297. Sections outside these boxes contain information for use as guidance only. Attention is focused on the information a boat builder or installer of electrical equipment needs to guide him in the purchase equipment, which must comply with the Electromagnetic Compatibility (EMC) Directive.

There are occasions when small craft are built where there is a requirement to comply with the Rules and Regulations for the Classification of Yachts and Small Craft (Chapter 4 Electrical Installations) and IOR rules. When such a situation arises their rules shall take precedence over this Code of Practice.

This Code does not include the special needs for electrically propelled boats. The Electric Boat Association does provide some useful information sheets for the installation of this equipment.

In 2006, a new section was added to draw the reader's attention to the requirements of the Health and Safety Executive.

In 2007, a reference to the WEEE Directive (disposal of electrical and electronic waste) has been added together with references to the existence of new EMC requirements.

In 2008, some additional guidance was added to clarify the matter of battery ventilation and high power charging.

In May 2011, an advisory note in Section 2 was added referring to the definition of the word "system" and the connection of battery banks.

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