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BSI Standards Publication

Design for manufacture, assembly, disassembly and end-of-life processing (MADE)

Part 221: Remanufacture of luminaires — Code of Practice

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Foreword

Publishing information

This part of [BS 8887](#) is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 December 2024. It was prepared by Subcommittee TPR/1/7, [BS 8887 Design for MADE](#), under the authority of Technical Committee TPR/1, *Technical Product Realization*. A list of organizations represented on these committees can be obtained on request to the committee manager.

Relationship with other publications

This part of [BS 8887](#) is intended to be read in conjunction with:

- [BS ISO 8887-1](#): specifies the requirements for preparation, content and structure of design output and the preparation of technical product documentation in the MADE process;
- [BS ISO 8887-2](#): defines terms used in design for manufacture, assembly, disassembly, end-of-life processing (MADE); and
- [BS 8887-3](#): introduces sustainable design principles into product development.

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The provisions of this document are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

The word “should” is used to express recommendations of this document. The word “may” is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word “can” is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this document. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. “organization” rather than “organisation”).

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Introduction

The aim of this part of [BS 8887](#) is to give the lighting sector the terminology and processes required to specify, plan and conduct work on luminaires beyond initial production and installation, apart from that of regular maintenance. It provides clarity on the process involved in remanufacturing luminaires, regardless of their original light-source technology.

Remanufacture can be conducted in situ or in an industrial environment, and luminaires range from being unused through to used luminaires being sold to a second or third user in the product life cycle, as described in [Annex A](#) and [Annex B](#). Remanufactured luminaires might meet their original design intent and specification or be significantly altered in response to changed technology or requirements.

This document provides a framework for the remanufacturing of luminaires, while providing confidence to the purchaser/end-user of the remanufactured equipment that the remanufacturing meets accepted industry norms. [Annex C](#) provides an overview of remanufacture of luminaires process.

Remanufacturing is an important process in the Circular Economy. Keeping luminaires or components in use for longer has significant potential benefits, including reducing the amount of equipment being sent for recycling or landfill, in turn reducing demand for virgin materials and energy and resource expenditure during production, and hence, reducing embodied carbon.

1 Scope

This part of [BS 8887](#) specifies the process of remanufacturing luminaires (regardless of their original light-source technology) within the framework of manufacture, assembly, disassembly and end-of-life processing (MADE). It emphasizes the need for remanufactured luminaires to be supported by robust technical documentation, testing and conformity assessment.

This part of [BS 8887](#) covers disassembly and end-of-life processing, following which, luminaires and/or components might be returned to use for a subsequent life cycle.

This part of [BS 8887](#) does not cover maintenance or luminaires for use in explosive atmospheres.

This part of [BS 8887](#) is intended to be used by the stakeholders involved at any stage of the remanufacturing process, including end users.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document¹⁾. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[BS 8887-3](#), *Design for manufacture, assembly, disassembly and end-of-life processing (MADE) – Guide to choosing an appropriate end-of-life design strategy*

[BS EN 60598](#) (all parts), *Luminaires*

[BS EN IEC 60598-1:2021+A11:2022](#), *Luminaires – Part 1: General requirements and tests*

[BS ISO 8887-1](#), *Technical product documentation – Design for manufacturing, assembling, disassembling and end-of-life processing – Part 1: General concepts and requirements*

[BS ISO 8887-2](#), *Technical product documentation – Design for manufacturing, assembling, disassembling and end-of-life processing – Part 2: Vocabulary*

¹⁾ Documents that are referred to solely in an informative manner are listed in the Bibliography.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this part of [BS 8887](#), the terms and definitions given in [BS ISO 8887-1](#), [BS ISO 8887-2](#) and the following apply.

3.1.1 component

individual element or part of the core that is either removed, retained or added during the remanufacturing process

NOTE 1 Examples of components are light source(s), optic(s), bracket(s) and controlgear(s).

NOTE 2 Core can be a component.

3.1.2 component harvesting

process by which components are removed from the core for remediation, reuse or resale

NOTE 1 Components may be harvested from luminaires which are themselves not reused.

NOTE 2 Harvested components may be reused in the remanufacture of luminaires other than their origin luminaire.

NOTE 3 Component harvesting, or secondary processing of harvested components, may be conducted by a different organization than the remanufacturer.

3.1.3 contracted remanufacturer

CR

remanufacturer operating in direct partnership or agreement with the relevant original equipment manufacturer (OEM)

NOTE 1 The main characteristic of this arrangement is that remanufacture is performed based on a contract, as a service for the relevant OEM.

NOTE 2 The CR is therefore generally not responsible for resale of the remanufactured equipment.

3.1.4 core

component or luminaire retained through the remanufacturing process

NOTE 1 Refer to [Annex A](#) for further examples of core acquisition.

NOTE 2 The definition of core is dependent on the condition of its assemblies and components, e.g. fixings are not necessarily part of the core.

NOTE 3 In a lighting context, core can refer to any number of luminaire(s), housing(s), enclosure(s) or component(s), for example, optic(s), controlgear(s) or light-emitting diode (LED) module(s), regardless of condition.

[SOURCE: [BS ISO 8887-2:2023](#), **3.46**, modified (“product” changed to “luminaire”, “varies from sector to sector, but” and “part-exchanges; deposit returns” removed from Note 1, “warranty returned product; user send-back schemes, etc.” have been replaced in Note 1, Note 3 is new)]

3.1.5 design for remanufacture

DfRem

design methodology whereby an item is designed to facilitate remanufacturing processes

3.1.6 donor

origin organization which makes core available for remanufacturing

3.1.7 end user

organization which operates the remanufactured luminaires

3.1.8 independent remanufacturer**IR**

remanufacturer operating independent of the OEM

NOTE 1 IRs usually operate in direct contact with the end user and generally develop their own technical documentation in lieu of receiving technical support from the OEM.

NOTE 2 OEMs may, but are not obliged to, disclose technical information to IRs.

3.1.9 luminaire

apparatus which distributes, filters or transforms the light transmitted from one or more light source(s) and which includes all the parts necessary for supporting, fixing and protecting the light source(s), but not the light source(s) themselves, and where necessary, circuit auxiliaries together with the means for connecting them to the supply

[SOURCE: [BS EN IEC 60598-1:2021+A11:2022](#), **1.2.1**, modified ('lamps' changed to 'light source(s)', Note 1 deleted)]

3.1.10 original equipment manufacturer**OEM**

organization that makes new luminaires from component parts

3.1.11 original equipment remanufacturer**OER**

OEM which remanufactures its own branded luminaires

NOTE 1 OERs may remanufacture luminaires from other OEM brands (acting in IR capacity).

NOTE 2 OERs typically source core directly from end users or through the supply chain.

3.1.12 recipient

organization receiving core from a donor with the intention of remanufacturing

3.1.13 remanufacture

industrial process which creates a luminaire from used and/or new luminaires and/or components

NOTE 1 For examples of remanufacturing in the lighting industry, see [Annex B](#).

NOTE 2 Luminaires may be remanufactured to their original performance specification or may be altered to a significant degree, as defined in the scope of work.

NOTE 3 A significant proportion of the remanufactured luminaire can be composed of core.

NOTE 4 Remanufacturing might result in the luminaire being newly placed on the market; this can be on the open market or a specific project. This does not preclude luminaires being remanufactured without a change of ownership, which are still considered to be placed on the market. The organization placing the luminaire on the market can be the remanufacturer, original equipment manufacturer (OER), distributor or authorized representative. In the case of contracted remanufacturing, the organization placing the luminaire on the market is specified in the scope of works.