

Roofing products from metal sheet — Specification for self-supporting products of steel, aluminium or stainless steel sheet —

Part 2: Aluminium

The European Standard EN 508-2:2000 has the status of a
British Standard

ICS 91.060.20

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National foreword

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The UK participation in its preparation was entrusted by Technical Committee B/542, Roofing and cladding products for discontinuous laying, to Subcommittee B/542/5, Sheet roof and wall coverings, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 41 and a back cover.

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Part 2: Aluminium

Produits de couverture en tôle métallique - Spécification
pour les plaques de couverture en tôle d'acier, d'aluminium
ou d'acier inoxydable - Partie 2: Aluminium

Dachdeckungsprodukte aus Metallblech - Festlegungen für
selbsttragende Bedachungselemente aus Stahlblech,
Aluminiumblech oder nichtrostendem Stahlblech - Teil 2:
Aluminium

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 128 "Roof covering products for discontinuous laying and products for wall cladding", the secretariat of which is held by IBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2001, and conflicting national standards shall be withdrawn at the latest by March 2001.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

The annexes A, C, D and E of this European standard are informative, annex B is normative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Figure 1 indicates the position of this standard in the CEN framework of standards concerning roofing product of metal.

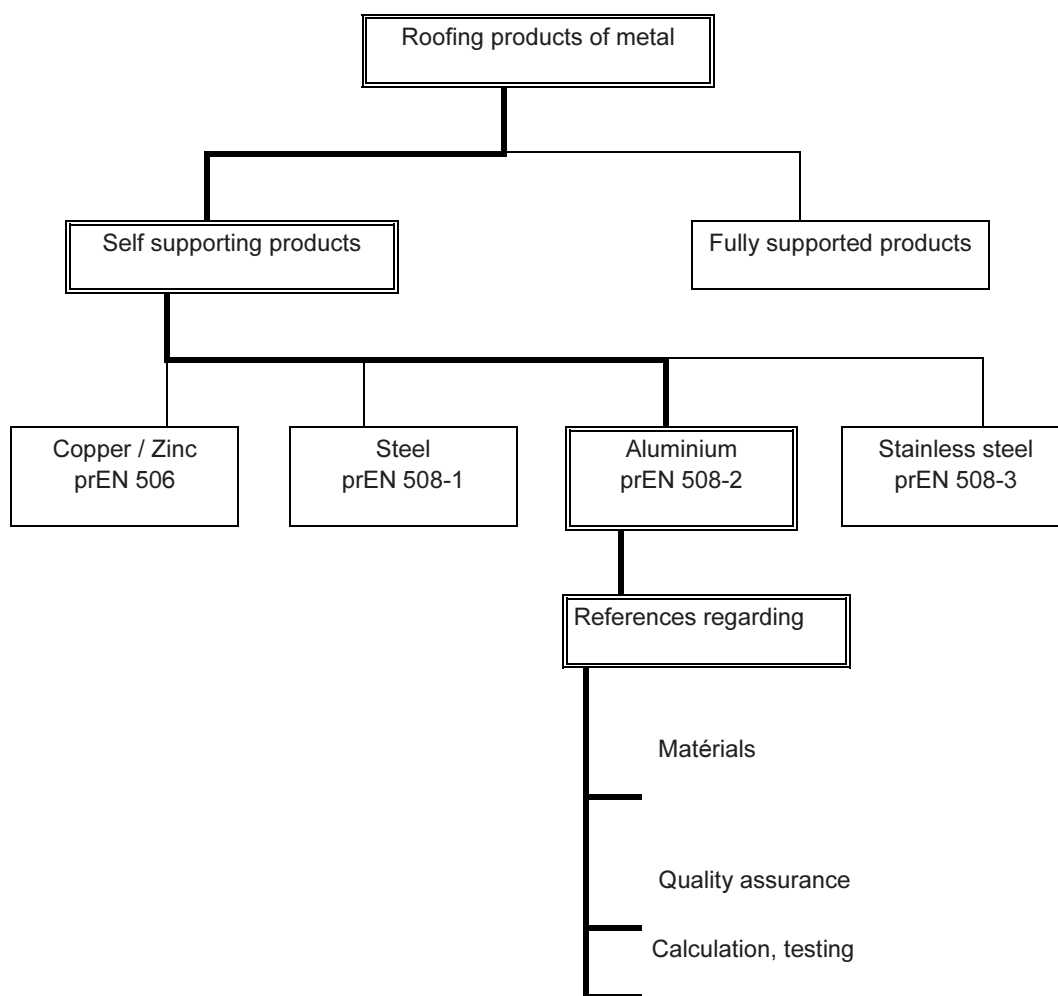


Figure 1 - Framework of standards

In this standard the performance of the product has been defined in terms of calculation and a number of type tests.

The performance of a roof constructed with these products depends not only on the properties of the product as required by this standard, but also on the design, construction and performance of the roof as a whole in relation to the environment and conditions of use.

1 Scope

This part of EN 508 specifies requirements for self supporting roofing products for discontinuous laying made from aluminium sheet with or without additional organic coatings.

The standard establishes general characteristics, definitions, classifications and labelling for the products, together with requirements for the materials from which the products can be manufactured. It is intended to be used either by manufacturers to ensure that their products comply with the requirements or by purchasers to verify that the products comply before they are despatched from the factory. It specifies the requirements for products which enable them to meet all normal service conditions.

The standard applies to all discontinuously laid self supporting external profiled sheets for roofing. These profiled roof sheets are designed to keep wind, rain and snow out of the building, and to transfer any resultant loads and infrequent maintenance loads to the structure.

No requirements for supporting construction, design of roof system and execution of connections and flashings are included.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 485-4, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 4 : Tolerances on shape and dimensions for cold-rolled products.*

EN 1396, *Aluminium and aluminium alloys - Coil-coated sheet and strip for general applications – Specifications.*

3 Definitions and terminology

For the purposes of this standard, the following definitions and terminology apply.

3.1

self-supporting product

a product which will, by virtue of its material and shape, support all applied loadings (e.g. snow, wind, foot traffic), and transmit these loadings to spaced structural supports

3.2

materials

a) aluminium, metal with a minimum content of 99,0% by mass of aluminium and with content by mass of any other element within the following limits :

- a total content of iron and silicon not greater than 1,0% ;
- a content of any other element not greater than 0,10% except for copper which can have a content of up to 0,20% provided that neither the chromium nor the manganese content exceeds 0,05%.

NOTE Aluminium in the liquid state or in the form of lingots for remelting is often called « unalloyed aluminium

b) temper, material conditions after a production stage, for example mechanical treatment and/or heat treatment, intended to give the material physical and/or metallurgical properties

c) organic coated aluminium sheet, painted, post coated, laminated or coil coated (continuously organic coated) aluminium on one or on both sides

3.3 Profile definitions

3.3.1

trapezoidal profiled sheet

self supporting sheet which is designed to allow it to be side and end lapped, the crowns of which may be rounded and, in addition, the crowns, web and valley may be stiffened (see Figures 2, 3, 4, 5)

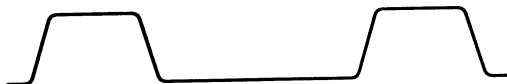


Figure 2 - Part of typical trapezoidal profile



Figure 3 - Part of typical trapezoidal profile with rounded crowns

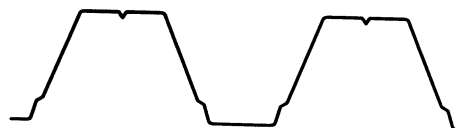


Figure 4 - Part of typical trapezoidal profile with stiffened crown and web



Figure 5 : Part of typical trapezoidal profile with stiffened valley

3.3.2

sinusoidal profiled sheet

self supporting sheet which is designed to allow it to be side and end lapped, comprising a series of arc shaped crowns and valleys interconnected with tangential webs (see Figure 6)

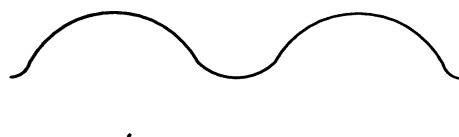


Figure 6 - Part of typical sinusoidal profiled sheet.

3.3.3

standing seam and concealed fix sheet

self supporting sheet profiled in such a way that the fixings are hidden within the construction and are not exposed to the weather, as illustrated in Figures 7 and 8

The profile shape is designed to allow the formation of side laps on site.

NOTE As these types of roof covering products are used in proprietary roofing systems, no structural requirements are given within this standard.

These products are normally designed by testing.



Figure 7 - Typical standing seam profile

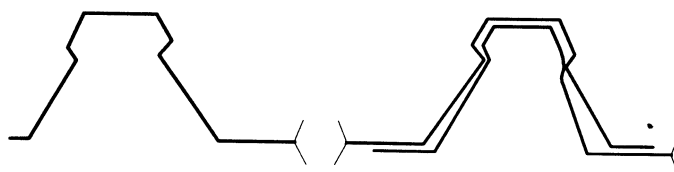


Figure 8 - Typical concealed fix profile

3.3.4 tile profiles

parts of typical tile profiled sheets are illustrated in Figures 9. The tile profile may include transverse steps

The tiles illustrated in Figures 9a, 9b, 9c shall allow the sheet to be side and end lapped.

NOTE As these types of roof covering products are used in proprietary systems no structural requirements are given within this part of EN 508.

These products are normally designed by testing.

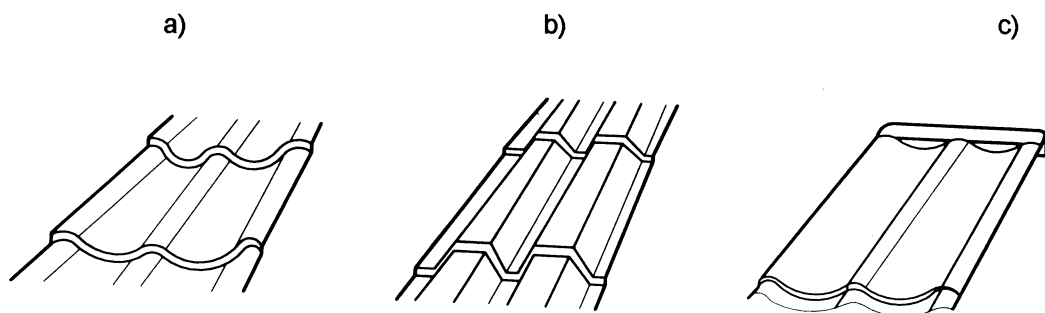
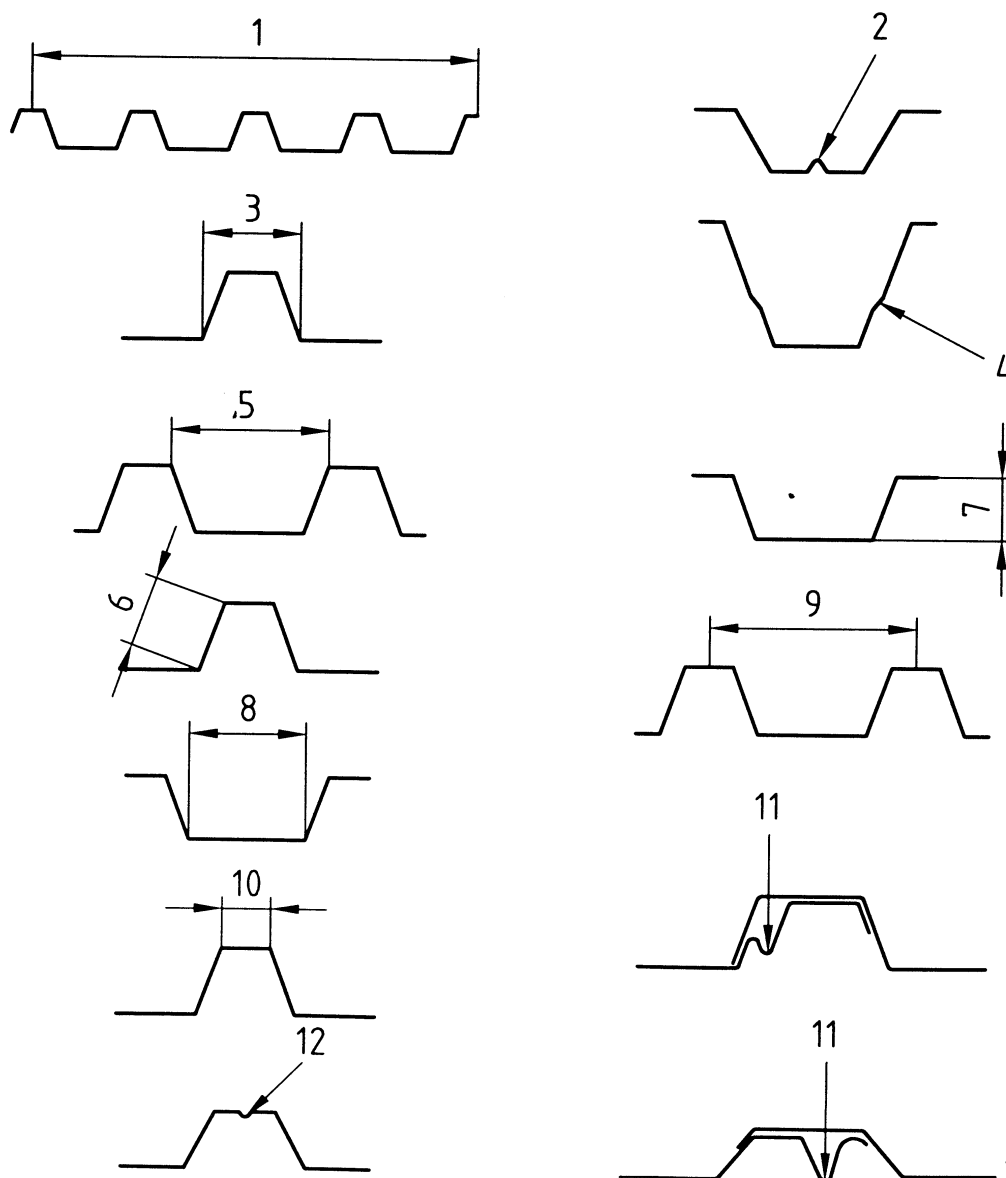


Figure 9 - Typical tile profiles

3.4 Product geometry

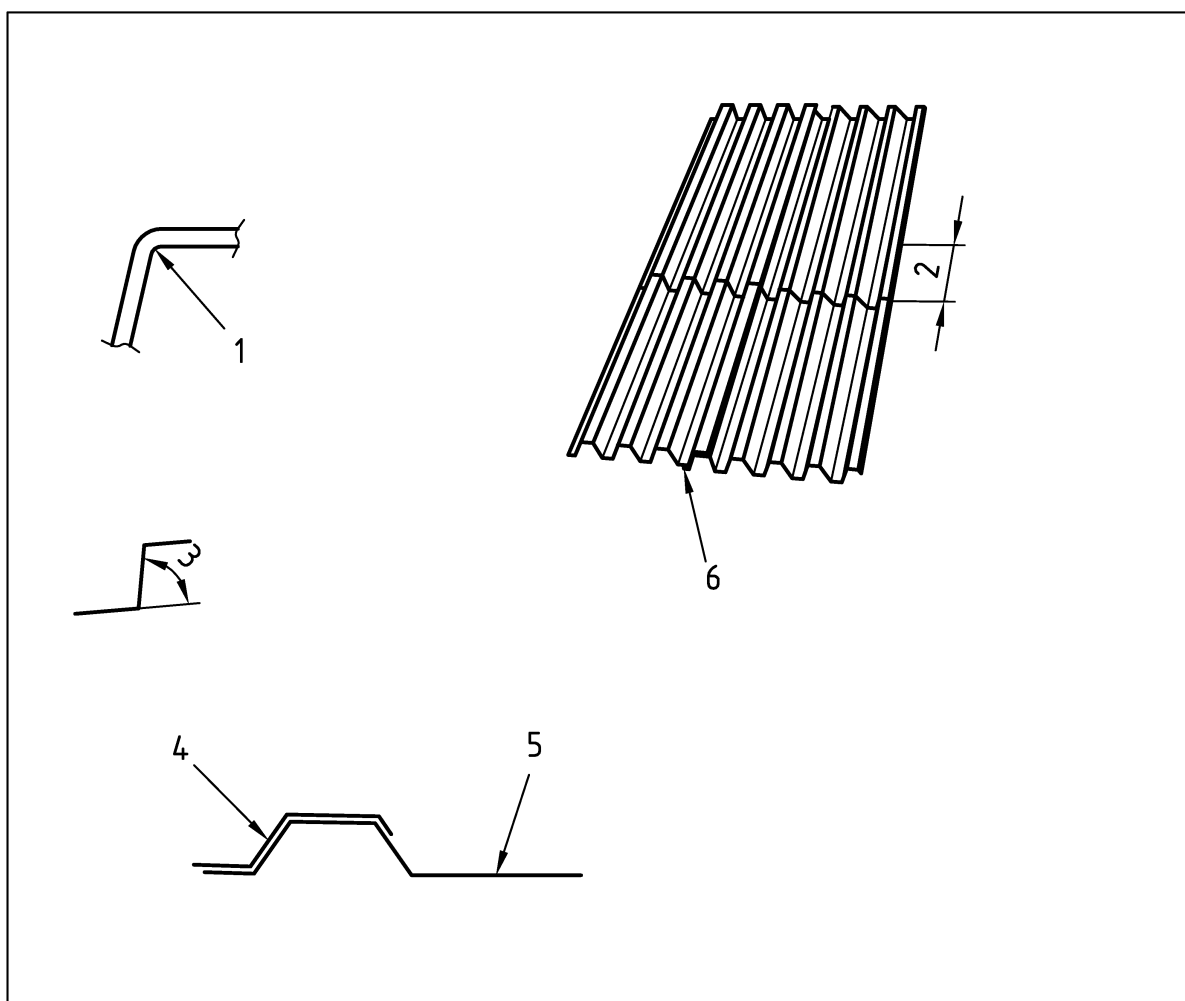
The names for various parts of typical trapezoidal profiled sheets are defined in Figures 10a and 10b, with additional definitions for sinusoidal profiles in Figure 11 and tile profiles in Figure 12.



Key

- 1 Cover width
- 2 Valley stiffener
- 3 Rib
- 4 Web stiffener
- 5 Trough
- 6 Web
- 7 Depth
- 8 Valley
- 9 Pitch
- 10 Crown
- 11 Drainage groove
- 12 Crown stiffener

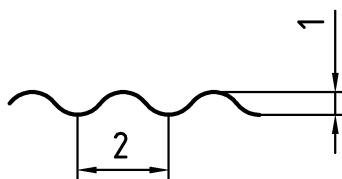
Figure 10 a) - Definitions of the parts of typical trapezoidal profiled sheets



Key

- 1 Bend radius
- 2 End lap
- 3 Web angle
- 4 Overlap
- 5 Underlap
- 6 Side lap in principle the same on tiles

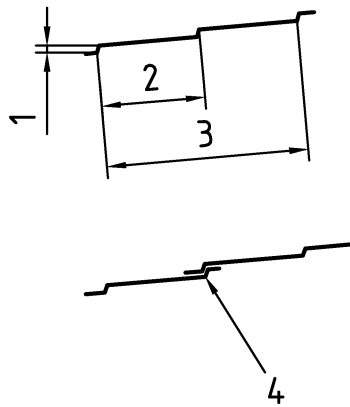
Figure 10 b) - Definitions of the parts of typical trapezoidal profiled sheets



Key

- 1 Depth
- 2 Pitch

Figure 11 - Definitions of the parts of typical sinusoidal profiled sheets



Key

- 1 Height of the step
- 2 Length of the step
- 3 Number of steps
- 4 End lap

Figure 12 - Definitions of the parts of typical tile

3.5 Symbols and abbreviations

AA	The symbols for aluminium sheets are the alloy symbols as in 4.2.1
H	The aluminium temper symbol
AY	Acrylic paint coating
SP	Polyester paint coating
SP-SI	Silicone-modified polyester paint coating
PVDF	Polyvinylidene fluoride paint coating
PVF(F)	Polyvinyl fluoride film coating
SP-PA	Polyamid-modified polyester paint coating
PUR	Polyurethane paint coating
PUR-PA	Polyamide-modified polyurethane paint coating
AK	Alkyd paint coating
EP	Epoxy paint coating for use within a building

4 Requirements

4.1 General

The product shall be manufactured from materials complying with clause 4.2.

NOTE 1 The supplier of the materials is responsible for carrying out the tests necessary to verify that the materials supplied to the manufacturer comply with the requirements and should provide appropriate inspection documents (according to EN 10204) on request.

NOTE 2 The symbols and abbreviations to be used to designate the aluminium alloy the type and thickness of the organic coating are those of the standards referred to in clause 2.