



SLOVENSKI STANDARD
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**Samonosilna pločevina za pokrivanje streh ter zunanje in notranje obloge -
Specifikacija proizvoda in zahteve**

Self-supporting metal sheet for roofing, external cladding and internal lining - Product specification and requirements

Selbsttragende Dachdeckungs- und Wandbekleidungselemente für die Innen- und Außenanwendung aus Metallblech - Produktspezifikation und Anforderungen

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91.060.20	Strehe	Roofs

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Self-supporting metal sheet for roofing, external cladding and internal lining - Product specification and requirements

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 128.

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COMITÉ EUROPÉEN DE NORMALISATION
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prEN 14782:2015 (E)

Foreword

This document (prEN 14782:2015) 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 NBN.

This document is currently submitted to the Enquiry.

This document will supersede EN 14782:2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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1 Scope

This draft European Standard specifies the terminology, requirements and test methods for factory made self-supporting metal sheets and tiles (for non-structural applications) delivered in the form of manufactured pieces for roofing and wall cladding and lining.

This draft standard also covers curved sheets, sheets intended to be used with insulation and membranes, ceiling (including internal metal sheet) and soffit applications and cassettes (see Figure 1).

This draft standard covers self-supporting copper, zinc, steel, aluminium and stainless steel sheet with or without coatings, e.g. metallic, organic, inorganic or multi-layer (see Annex A). A moisture retaining layer intended to reduce the fall of droplets coming from condensation may be present on the reverse side of the product.

This draft standard also includes rules for marking, labelling and evaluation of conformity.

This draft standard does not cover products for structural purposes, i.e. it does cover products used in constructions of Class III (according to EN 1993-1-3), it does not cover products used in constructions of Classes I and II (according to EN 1993-1-3) intended to contribute to the global or partial stability of the building structure by providing racking resistance or resistance to permanent static loads (excluding self-weight of the metal sheet).

Requirements concerning acoustical and thermal insulation properties are not considered in this draft standard.

This draft standard does not include calculation or design requirements with regards to the works, installation techniques or the performance of the installed products.

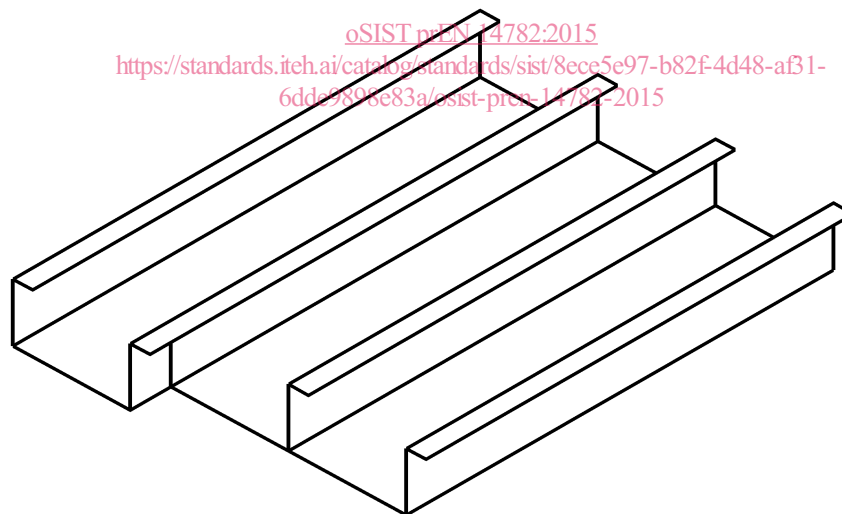


Figure 1 — Illustration of a cassette

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 506:2000, *Roofing products from metal sheet - Specification for self-supporting products of copper or zinc sheet*

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EN 508-1:2000, *Roofing products from metal sheet - Specification for self-supporting products of steel, aluminium or stainless steel sheet - Part 1: Steel*

EN 508-2:2000, *Roofing products from metal sheet - Specification for self-supporting products of steel, aluminium or stainless steel sheet - Part 2: Aluminium*

EN 508-3:2000, *Roofing products from metal sheet - Specification for self-supporting products of steel, aluminium or stainless steel sheet - Part 3: Stainless steel*

CEN/TS 1187, *Test methods for external fire exposure to roofs*

EN 1427, *Bitumen and bituminous binders - Determination of the softening point - Ring and Ball method*

EN 10088-1, *Stainless steels - Part 1: List of stainless steels*

EN 10204, *Metallic products - Types of inspection documents*

EN 10346, *Continuously hot-dip coated steel flat products - Technical delivery conditions*

EN 13162, *Thermal insulation products for buildings - Factory made mineral wool (MW) products – Specification*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

EN 13501-5, *Fire classification of construction products and building elements - Part 5: Classification using data from external fire exposure to roofs tests*

EN 13823, *Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item*

EN ISO 6270-1, *Paints and varnishes - Determination of resistance to humidity - Part 1: Continuous condensation (ISO 6270-1)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

EN ISO 6988, *Metallic and other non-organic coatings - Sulfur dioxide test with general condensation of moisture (ISO 6988)*

EN ISO 9001:2000, *Quality management systems - Requirements (ISO 9001:2000)*

EN ISO 9227, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227)*

EN ISO 11925-2, *Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 506:2000, EN 508-1:2000, EN 508-2:2000 and EN 508-3:2000 and the following apply.

3.1

base material

coated or non-coated flat sheet or strip (coil) of metal used for the production of a finished product according to this draft standard

3.2

liner tray

profiled sheet with large lipped edge stiffeners, suitable for interlocking with adjacent liner trays to form a plane of ribbed sheeting that is capable of supporting a parallel plane of profiled sheeting spanning perpendicular to the span of the liner trays

4 Requirements

4.1 Materials

The materials for the self-supporting metal sheets specified in this draft European Standard shall be in accordance with the relevant material standards listed in EN 506, EN 508-1, EN 508-2 and EN 508-3.

4.2 Nominal thickness

The nominal thickness of the self-supporting metal sheet (excluding any organic, inorganic or multi-layer coating), as defined in the relevant material standards listed in EN 506, EN 508-1, EN 508-2 and EN 508-3, shall be equal to or greater than the values given in Table 1.

Table 1 — Minimum nominal values of thickness of self-supporting metal sheet excluding any organic, inorganic or multi-layer coating

Type of metal	Specified minimum nominal thickness ^a in mm
Aluminium	0,6 for roofing applications 0,4 for other applications
Copper	0,5
Stainless steel	0,4
Steel	0,4
Zinc	0,6
^a Member States of use may require greater thickness than the value shown.	

4.3 Mechanical resistance

4.3.1 General

The suitability of a sheet for a given application should be determined by calculation or testing according to the specification applicable in the country of use, including the standards implementing the relevant European Standards.

The mechanical resistance shall be defined from the following aspects:

- intended use, i.e. roof, wall, soffit, ceiling;
- type of metal, i.e. aluminium, copper, stainless steel, steel, zinc;
- nominal thickness of the metal sheet considering where applicable the class of tolerances as defined in EN 506, EN 508-1, EN 508-2 or EN 508-3;
- grade of metal in relation to its mechanical properties;
- geometry of the product cross-section;

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- f) dimensional tolerances (see 4.7);
- g) resistance of the roofing products to concentrated forces (see 4.3.2).

4.3.2 Resistance of roofing products to concentrated forces

The resistance of roofing products to concentrated forces shall be evaluated according to Annex B when subject to regulatory requirements and may be evaluated when not subjected to such requirements.

This requirement does not apply for ceiling and soffit products, internal lining and external cladding and cassettes.

Products intended for use at a span less than or equal to 400 mm, e.g. some tile profiles, are deemed to satisfy this requirement without the need for testing.

NOTE In this case, the support structure will determine the resistance to imposed forces.

4.4 Water permeability

As long as these products have no holes (as defects), they are water impermeable.

Where required, the absence of holes shall be checked by visual inspection of the finished product.

4.5 Vapour and air permeability

As long as these products have no holes (as defects), they are air and vapour impermeable.

Where required, the absence of holes shall be checked by visual inspection of the finished product.

4.6 Dimensional change

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The thermal expansion shall be taken into account in the change of dimensions of the product, where this change may have an effect on the performance of the product, by stating the appropriate thermal expansion coefficient.

The following thermal expansion coefficient shall be used:

- aluminium: $24 \times 10^{-6} \text{ K}^{-1}$;
- copper: $16,8 \times 10^{-6} \text{ K}^{-1}$;
- stainless steel: $10,0 \times 10^{-6} \text{ K}^{-1} - 17,0 \times 10^{-6} \text{ K}^{-1}$, depending on the grade, see EN 10088-1;
- steel: $12 \times 10^{-6} \text{ K}^{-1}$;
- zinc: $22 \times 10^{-6} \text{ K}^{-1}$;

unless the manufacturer demonstrates by appropriate means that more accurate values are applicable.

4.7 Dimensional tolerances

The dimensional tolerances specified for roof covering products in the applicable standard from the following: EN 506, EN 508-1, EN 508-2 and EN 508-3, shall not be exceeded.

For other products, the tolerances declared shall be appropriate, due account being taken of any national provisions in the country of use.

4.8 Durability

The manufacturer shall state the type, thickness and grade of metal and, if appropriate, type and thickness (or mass) and/or category of any coating(s) to enable users to select products which may be expected to provide the required durability of the product having regard to the expected environment and/or exposure conditions and feasibility of maintenance.

4.9 External fire performance

Where the manufacturer wishes to make a declaration (e.g. when subject to regulatory requirements), the external fire performance of the products specified in this draft European Standard shall either be declared according to the provisions of 5.1 or be declared as Class F_{ROOF}.

4.10 Reaction to fire

Where the manufacturer wishes to make a declaration (e.g. when subject to regulatory requirements), the reaction to fire performance of the products specified in this draft European Standard shall either be declared according to the provisions of 5.2 or be declared as Class F.

4.11 Release of regulated dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this draft standard are placed on those markets.

In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through: <http://ec.europa.eu/enterprise/construction/cpd-ds/>.

5 Testing, assessment and sampling methods

5.1 External fire performance for roof covering products

5.1.1 Products deemed to satisfy the requirements for external fire performance

Products covered by this draft European Standard are considered “deemed to satisfy without the need for testing” in relation to the requirements for external fire performance provided that they meet the definitions given in Commission Decision 2000/553/EC [1], i.e. flat or profiled¹⁾ metal sheets of nominal thickness $\geq 0,4$ mm with any external coating which is inorganic or has a gross calorific value, PCS $\leq 4,0$ MJ/m² or a mass ≤ 200 g/m².

NOTE Individual Member States may have “deemed to satisfy” lists which go beyond the list given in the Commission Decision 2000/553/EC.

5.1.2 Products classified without the need for further testing (CWFT option)

The following products are considered to be classified in classes B_{ROOF(t1)}, B_{ROOF(t2)} and B_{ROOF(t3)} without further testing in accordance with Commission Decision 2005/403/EC: profiled steel sheets, flat steel sheets or panels of coil coated galvanized or zinc-aluminium alloy coated steel of metal thickness $\geq 0,40$ mm with an organic external (weather side) coating and, optionally, a reverse (internal) side organic coating. The external coating is of a liquid-applied Plastisol paint of maximum nominal dry film thickness 0,200 mm, a PCS of not

1) In this standard, the word "profiled" refers to the shape of the product and not the way it is manufactured.

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greater than 8,0 MJ/m² and a maximum dry mass of 330 g/m². The reverse side organic coating (if any) shall have a PCS of not greater than 4,0 MJ/m² and a maximum dry mass of 200 g/m².

5.1.3 Other products

Products not meeting the definitions as given in 5.1.1 or 5.1.2 shall be tested in accordance with the relevant method(s) in CEN/TS 1187 and classified in accordance with EN 13501-5.

The products to be tested shall be installed, in addition to the general provisions given in CEN/TS 1187, in a manner representative of their intended use.

5.2 Reaction to fire**5.2.1 Products satisfying the requirements for reaction to fire Class A1 without the need for testing**

Non-organically coated products are considered to satisfy the requirements for performance Class A1 of the characteristic reaction to fire in accordance with the provisions of EC Decision 96/603, as amended, without the need for testing.

5.2.2 Products classified without the need for further testing (CWFT option)

Products with a polyester coating having a maximum nominal thickness of 25 µm and a PCS up to 1 MJ/m² (included) and a mass ≤ 70 g/m² are considered to satisfy the requirements for reaction to fire performance Class A1 without further testing in accordance with the EU Decision 2010/737/EU.

Products with a plastisol coating having a maximum nominal thickness of 200 µm, a mass ≤ 300 g/m² and a PCS up to 7 MJ/m² (included) are considered to satisfy the requirements for reaction to fire performance Class C-s3,d0 without further testing in accordance with the EU Decision 2010/737/EU.

5.2.3 Other products

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Products not complying with the provisions of 5.2.1 or 5.2.2 shall be tested and classified in accordance with EN 13501-1.

When testing in accordance with EN 13823 (SBI test), the product shall be mounted according to Annex C.

6 Assessment and verification of constancy of performance - AVCP**6.1 General**

The compliance of the products covered by this draft European Standard with the requirements of this draft standard and with the performances declared by the manufacturer shall be demonstrated by:

- determination of the product type;
- factory production control by the manufacturer, including product assessment.

The manufacturer shall always retain the overall control and shall have the necessary means to take responsibility for the conformity of the product with its declared performances.

6.2 Type testing**6.2.1 General**

Type testing shall be performed to show conformity with this draft standard.

Tests or assessments previously performed in accordance with the provisions of this draft standard (same product, same characteristic(s), test method, sampling procedure, system of attestation of conformity, etc.) may be taken into account to reduce the number of checks. In addition, type testing shall be performed at the beginning of the production of a new product type (unless a member of the same family) or at the beginning of a new method of production (where this may affect the stated properties) on the profile machine and/or the product itself.

Where the finished product manufacturer buys a base material whose characteristics have already been determined in accordance with the provisions of this draft standard and are declared by the base material supplier (e.g. following an inspection document conforming to EN 10204), these characteristics need not be reassessed in order to demonstrate conformity with this draft standard, provided that the production process for the finished product does not change these characteristics in an unfavourable way. ITT for the characteristics of the finished product related to the characteristics of the base material itself is given in Table 2 and may be assessed either by the base material supplier or the roofing/cladding product manufacturer. ITT for the other product characteristics is given in Table 3.

NOTE The profile process can increase locally the yield strength of the metal. Where the manufacturer uses this fact to claim a higher yield strength for the finished product, a type test will be required.

For the purposes of assessment, the manufacturer's products may be grouped into families, where it is considered that the results for one or more characteristics from any product within the family are representative for that same characteristics for all products within that same family

Products may be grouped in different families for different characteristics.

In addition, the determination of the product type shall be performed for all characteristics included in the draft standard for which the manufacturer declares the performance:

- at the beginning of the production of a new or modified self-supporting metal sheet for roofing, external cladding and internal lining (unless a member of the same product range), or
- at the beginning of a new or modified method of production (where this may affect the stated properties); or

they shall be repeated for the appropriate characteristic(s), whenever a change occurs in the self-supporting metal sheet for roofing, external cladding and internal lining design, in the raw material or in the supplier of the components, or in the method of production (subject to the definition of a family), which would affect significantly one or more of the characteristics.

The base material may be presumed to have the performances stated of them by their supplier, although this does not replace the responsibility on the finished product manufacturer to ensure that only a base material having the correct values of characteristics to allow the finished roofing or cladding product to meet the requirements of this draft standard are used.

All characteristics in Clause 4 shall be subject to type testing, with the following exceptions:

- external fire performance when using the CWFT option, in accordance with 5.1.2 or when deemed to satisfy, in accordance with 5.1.1 (although measurement may be required to ensure that the product meets the definitions required for CWFT and deemed to satisfy),
- reaction to fire when using the CWFT option (although measurement may be required to ensure that the product meets the definition required for CWFT), in accordance with 5.2.2, or when deemed to satisfy Class A1, in accordance with 5.2.1,
- release of regulated substances may be assessed indirectly by controlling the content of the substance concerned.