
Izvedba jeklenih in aluminijastih konstrukcij - 4. del: Tehnične zahteve za hladno oblikovane konstrukcijske jeklene elemente in hladno oblikovane konstrukcijske elemente za strešne, stropne, talne in stenske konstrukcije

Execution of steel structures and aluminium structures - Part 4: Technical requirements for cold-formed structural steel elements and cold-formed structures for roof, ceiling, floor and wall applications

Ausführung von Stahltragwerken und Aluminiumtragwerken - Teil 4: Technische Anforderungen an tragende, kaltgeformte Bauelemente aus Stahl und tragende, kaltgeformte Bauteile für Dach-, Decken-, Boden- und Wandanwendungen

Exécution des structures en acier et des structures en aluminium - Partie 4 : Exigences techniques pour éléments et structures en acier formés à froid pour applications structurales en toiture, couverture, plafond, paroi verticale et plancher

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aus Stahl und tragende, kaltgeformte Bauteile für Dach-
, Decken-, Boden- und Wandanwendungen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 135.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European foreword

This document (prEN 1090-4:2025) has been prepared by Technical Committee CEN/TC 135 “Execution of steel structures and aluminium structures”, the secretariat of which is held by SN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1090-4:2018.

This document includes the following significant technical changes with respect to EN 1090-4:2018:

- Fundamental revision of the standard and adaptation to the current state of science and technology.

This document is part of the EN 1090 series, which comprises the following parts:

- EN 1090-1, *Execution of steel structures and aluminium structures — Part 1: Assessment and verification of constancy of performance for structural components*
- EN 1090-2, *Execution of steel structures and aluminium structures — Part 2: Technical requirements for steel structures*
- EN 1090-3, *Execution of steel structures and aluminium structures — Part 3: Technical requirements for aluminium structures*
- EN 1090-4, *Execution of steel structures and aluminium structures — Part 4: Technical requirements for cold-formed structural steel elements and cold-formed structures for roof, ceiling, floor and wall applications*
- EN 1090-5, *Execution of steel structures and aluminium structures — Part 5: Technical requirements for cold-formed structural aluminium elements and cold-formed structures for roof, ceiling, floor and wall applications*

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1 Scope

This document specifies requirements for the execution, i.e. the manufacture and the installation, of cold-formed structural steel members and profiled sheeting and cold-formed structures for roof, ceiling, floor, wall and cladding applications.

This document applies to structures designed according to the EN 1993 series.

This document applies to structural members and profiled sheeting designed according to EN 1993-1-3.

This document can be used for structures designed according to other design rules provided that conditions for execution comply with them and any necessary additional requirements are specified.

This document also specifies requirements for the execution i.e. the manufacture and the installation of structures made from cold-formed profiled sheeting for roof, ceiling, floor and wall applications under predominately static loading or seismic loading conditions and their documentation.

This document covers structural profiled sheeting of Structural Class I and II and structural profiled sheeting in Structural Class III according to EN 1993-1-3 used in structures.

NOTE 1 In National Annexes of EN 1993-1-3 specifications can be given regarding the use of the Structural Classes.

This document covers structural members of all structural classes according to EN 1993-1-3.

Structural profiled sheeting is understood here to be:

- profiled sheet, such as trapezoidal, sinusoidal or liner trays (Figure 1).

Structural members are understood here to be:

- members (linear profiled cross sections) that are produced by cold forming (Figure 2).

This document also covers:

- not welded built-up sections (Figure 2d);
- cold-formed closed and hollow sections including the welding of the longitudinal seam (Figure 2b and Figure 2c), not covered by EN 10219-1;
- perforated, punctured and micro profiled sheeting and members;

The welding of built-up sections are not covered. The welding provisions are given in EN 1090-2.

This document also covers spacer constructions between the outer and inner or upper and lower skins for roofs, walls and ceilings made from cold-formed profiled sheeting and the connections and attachments of the afore mentioned elements as long as all has a structural purpose.

This document covers steel profiled sheeting for composite floors, e.g. during installation and in stage of pouring concrete.

This document also covers the deconstruction of structures made from cold-formed profiled sheeting and structural members for roof, ceiling, floor and wall applications.

Composite structural members where the interaction between dissimilar materials are an integral part of the structural behaviour such as sandwich panels and composite floors are not covered by this document.

This document does not cover the necessary analyses and detailing and execution rules for thermal insulation, moisture protection, noise control and fire protection.

This document does not cover regulations of roof cladding and wall cladding, produced by traditional plumber methods or tinsmith methods.

This document does not cover detailed requirements for water tightness or air permeability resistance and thermal aspects of profiled sheeting.

NOTE 2 The structures covered in this document can be for example.

- single- or multi-skin roofs, whereby the load-bearing structure (lower skin) or the actual roof covering (upper skin) or both consist of cold-formed structural members and profiled sheeting;
- single- or multi-skin walls whereby the load-bearing structure (inner skin), the actual cladding (outer skin) or both consist of cold-formed structural members and profiled sheeting, or
- trusses from cold-formed members.

NOTE 3 Structures can consist of an assembly of structural members and profiled sheeting made of steel according to EN 1090-4 and of aluminium according to EN 1090-5.

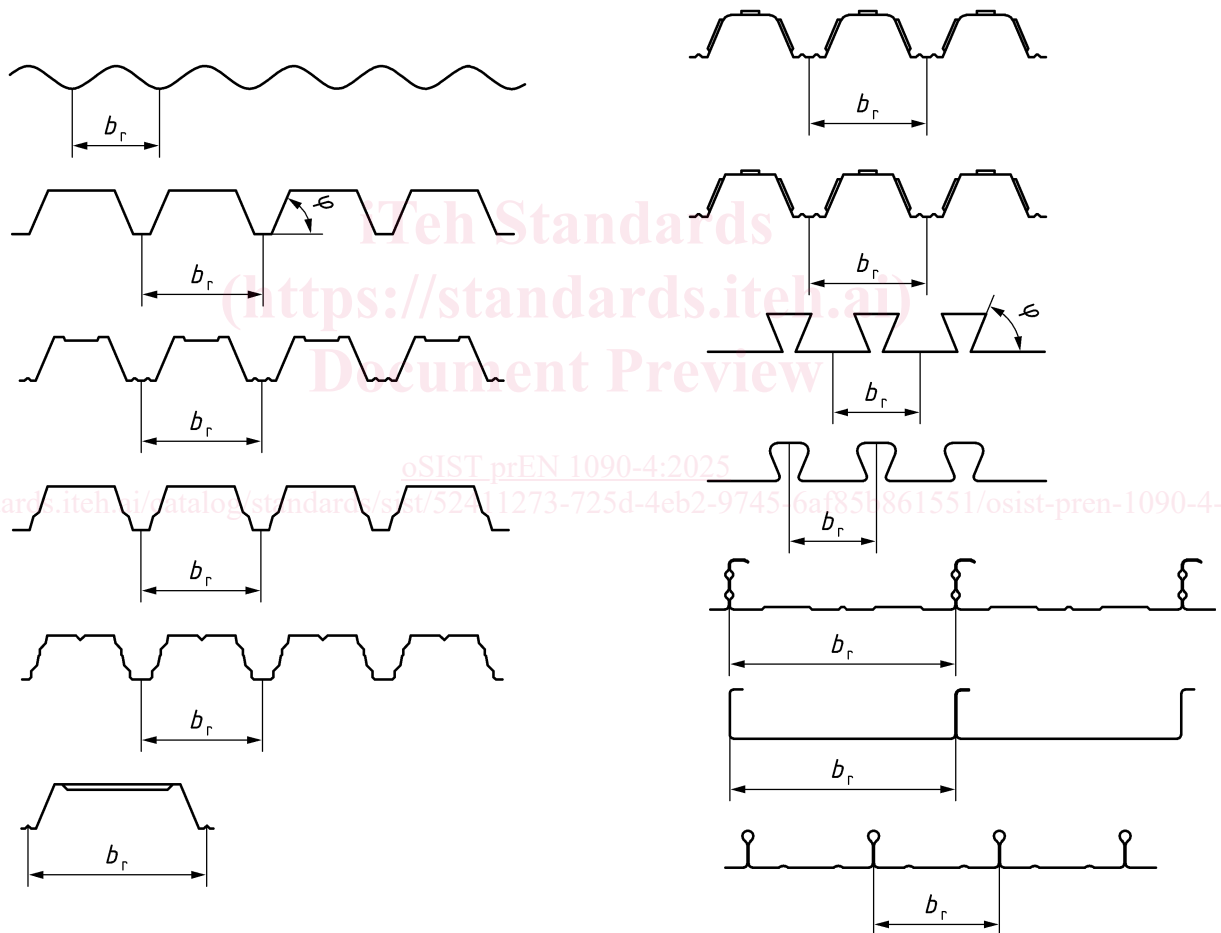
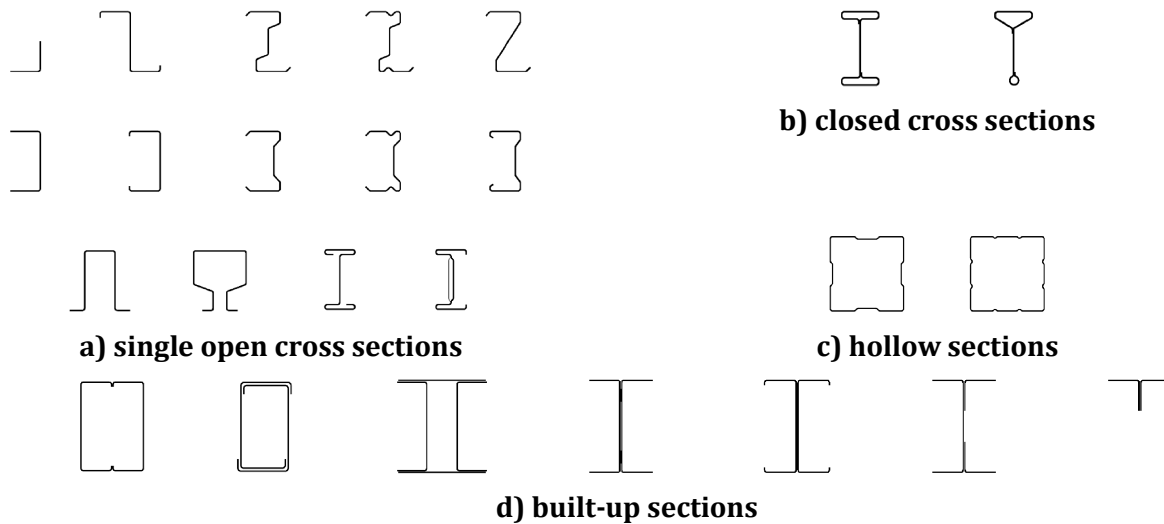


Figure 1 — Examples of profiled sheeting

prEN 1090-4:2025 (E)**Figure 2 — Examples of members****2 Normative references**

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

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

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

EN 1090-1, *Execution of steel structures and aluminium structures — Part 1: Requirements for conformity assessment of structural elements*

EN 1090-2:2018+A1:2014, *Execution of steel structures and aluminium structures — Part 2: Technical requirements for steel structures*

EN 1990, *Eurocode - Basis of structural and geotechnical design*

EN 1993-1-3:2024, *Eurocode 3 — Design of steel structures — Part 1-3: General rules — Supplementary rules for cold-formed members and sheeting*

EN 1995-1-1, *Eurocode 5: Design of timber structures - Part 1-1: General - Common rules and rules for buildings*

EN 10143, *Continuously hot-dip coated steel sheet and strip - Tolerances on dimensions and shape*

EN 10152, *Electrolytically zinc coated cold rolled steel flat products for cold forming - Technical delivery conditions*

EN 10162:2003, *Cold rolled steel sections — Technical delivery conditions — Dimensional and cross-sectional tolerances*

EN 10169:2022, *Continuously organic coated (coil coated) steel flat products — Technical delivery conditions*

- EN 10204, *Metallic products — Types of inspection documents*
- EN 10346, *Continuously hot-dip coated steel flat products for cold forming — Technical delivery conditions*
- EN 13501-5, *Fire classification of construction products and building elements - Part 5: Classification using data from external fire exposure to roofs tests*
- EN 13523-1, *Coil coated metals - Test methods - Part 1: Film thickness*
- EN 13523-6, *Coil coated metals - Test methods - Part 6: Adhesion after indentation (cupping test)*
- EN 13523-7:2021, *Coil coated metals — Test methods — Part 7: Resistance to cracking on bending (T-bend test)*
- EN 13523-8, *Coil coated metals - Test methods - Part 8: Resistance to salt spray (fog)*
- EN 13523-10, *Coil coated metals - Test methods - Part 10: Resistance to fluorescent UV radiation and water condensation*
- EN 13523-19, *Coil coated metals - Test methods - Part 19: Panel design and method of atmospheric exposure testing*
- EN 13523-21, *Coil coated metals - Test methods - Part 21: Evaluation of outdoor exposed panels*
- EN 13523-26, *Coil coated metals - Test methods - Part 26: Resistance to condensation of water*
- EN 15048-1:2016, *Non-preloaded structural bolting assemblies - Part 1: General requirements*
- EN 62305-3:2011, *Protection against lightning - Part 3: Physical damage to structures and life hazard (IEC 62305-3)*
- EN 62561-1, *Lightning Protection System Components (LPSC) - Part 1: Requirements for connection components (IEC 62561 1)*
- EN ISO 717-1, *Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation (ISO 717-1)*
- EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods (ISO 1461)*
- EN ISO 2081, *Metallic and other inorganic coatings - Electroplated coatings of zinc with supplementary treatments on iron or steel (ISO 2081)*
- EN ISO 2409, *Paints and varnishes - Cross-cut test (ISO 2409)*
- EN ISO 2808, *Paints and varnishes - Determination of film thickness (ISO 2808)*
- EN ISO 2810, *Paints and varnishes - Natural weathering of coatings - Exposure and assessment (ISO 2810)*
- EN ISO 4042, *Fasteners - Electroplated coating systems (ISO 4042)*
- EN ISO 4136, *Destructive tests on welds in metallic materials - Transverse tensile test (ISO 4136)*

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EN ISO 4628-2, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering (ISO 4628-2)*

EN ISO 4628-3, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting (ISO 4628-3)*

EN ISO 4628-4, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 4: Assessment of degree of cracking (ISO 4628-4)*

EN ISO 4628-5, *Paints and varnishes - Evaluation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 5: Assessment of degree of flaking (ISO 4628-5)*

EN ISO 4628-8, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 8: Assessment of degree of delamination and corrosion around a scribe or other artificial defect (ISO 4628-8)*

EN ISO 5173, *Destructive tests on welds in metallic materials - Bend tests (ISO 5173)*

EN ISO 6270-1, *Paints and varnishes - Determination of resistance to humidity - Part 1: Condensation (single-sided exposure) (ISO 6270-1)*

EN ISO 6507 (all parts), *Metallic materials — Vickers hardness test (ISO 6507)*

EN ISO 8492, *Metallic materials - Tube - Flattening test (ISO 8492)*

EN ISO 8493, *Metallic materials - Tube - Drift-expanding test (ISO 8493)*

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

EN ISO 11654, *Acoustics - Sound absorbers for use in buildings - Rating of sound absorption (ISO 11654:1997)*

EN ISO 12944-2, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 2: Classification of environments (ISO 12944-2)*

EN ISO 12944-4, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 4: Types of surface and surface preparation (ISO 12944-4)*

EN ISO 12944-6, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 6: Laboratory performance test methods (ISO 12944-6)*

EN ISO 12944-7, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems - Part 7: Execution and supervision of paint work (ISO 12944-7)*

EN ISO 15613, *Specification and qualification of welding procedures for metallic materials - Qualification based on pre-production welding test (ISO 15613)*

EN ISO 17639, *Destructive tests on welds in metallic materials - Macroscopic and microscopic examination of welds (ISO 17639)*