Instytut Techniki Budowlanej (Eng. *Building Research Institute*)

EOTA and UEAtc member

NATIONAL TECHNICAL ASSESSMENT

ITB-KOT-2021/1799 issue No. 1

This National Technical Assessment was issued on the basis of the Regulation of the Ministry of Infrastructure of November 17, 2016, regarding national technical approvals (Dz. U. of 2016, item 1968) by Instytut Techniki Budowlanej (Eng. Building Research Institute) in Warsaw at the request of:

ProDeck Sp. z o.o.

ul. Fabryczna 6, 32-005 Niepołomice

National Technical Assessment ITB-KOT-2021/1799 issue No. 1 is a positive assessment of the performance properties of the following construction product for its intended use:

A SET OF TERRACE BOARDS AND SUPPLEMENTARY ELEMENTS

OF PRODECK SYSTEM

Date of expiry of the National Technical Assessment: June 14, 2026

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dr inż. Robert Geryło

Warsaw, June 14, 2021

The document of the National Technical Assessment ITB-KOT-2021/1799 contains 14 pages, incl. one Appendix. The text of this document can be copied only in its entirety. Publishing or disseminating fragments of the National Technical Approval in any other form requires written agreement with the Building Research Institute.

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1. PRODUCT TECHNICAL DESCRIPTION

The subject matter of this National Technical Approval is a set of terrace boards and supplementary elements of ProDeck system, manufactured by ProDeck Sp. z o.o. with its registered office in Niepołomice in its production plant in Niepołomice.

This National Technical Assessment covers types of products specified by the manufacturer and the related performance properties specified in point 3 and resulting from the combination of system elements.

The set of terrace boards and supplementary elements of ProDeck system includes the following products:

a) TERRA terrace boards in the following colours: anthracite, chestnut, walnut, platinum and cherry, made of PVC composite and wood flour with modifying additives, with a cross-section of 145 x 29 mm, according to Fig. A1, linear mass of 26.0 kg/m ± 5%, determined according to PN-EN 15534-1:2014,
b) EVO-PRO terrace boards in the following colours: anthracite, chestnut, walnut, platinum and cherry, made of PVC composite and wood flour with modifying additives, with a cross-section of 160 x 25 mm, according to Fig. A2, linear mass of 29.0 kg/m ± 5%, determined according to PN-EN 15534-1:2014,
c) F-DEX terrace boards in the following colours: anthracite, chestnut, walnut, platinum and cherry, made of PVC composite and wood flour with modifying additives, with a cross-section of 140 x 22 mm, according to Fig. A3, linear mass of 22.0 kg/m ± 5%, determined according to PN-EN 15534-1:2014,
d) SOLID PRO terrace boards in the following colours: anthracite, chestnut, walnut, platinum and cherry, made of PVC composite and wood flour with modifying additives, with a cross-section of 145 x 20 mm, according to Fig. A4, linear mass of 35.5 kg/m ± 5%, determined according to PN-EN 15534-1:2014,
e) supplementary elements:

– a joist, with the cross-section of 20 x 48 mm, according to Fig. A5, made of PVC composite and wood flour with modifying additives, linear mass of 0.95 kg/m ± 5%, determined according to PN-EN 15534-1:2014,
– a single-chamber joist, with the cross-section of 38 x 48 mm, according to Fig. A6, made of PVC composite and wood flour with modifying additives, linear mass of 1.30 kg/m ± 5%, determined according to PN-EN 15534-1:2014,
– a two-chamber joist, with the cross-section of 38 x 48 mm, according to Fig. A7, made of PVC composite and wood flour with modifying additives, linear mass 1.60 kg/m ± 5%, determined according to PN-EN 15534-1:2014,
– a WPC masking strip, with the cross-section of 66 x 6 mm, according to Fig. A8, made of PVC composite and wood flour with modifying additives,

- a joist with the dimensions of 30 x 40 mm, according to Fig. A9, made of an aluminium profile according to PN- PN-EN 755-9: 2016 produced in the extrusion process from aluminium alloy EN-AW 6063 according to PN-EN 573-3:2019, condition T6 according to PN-EN 515:2017, linear mass of 0.98 kg/m ± 5%, determined according to PN-EN 15534-1:2014,
- a masking strip, according to Fig. A10, made of an aluminium profile according to PN-EN 755-9: 2016, produced in the extrusion process from aluminium alloy EN-AW 6063 according to PN-EN 573-3: 2019, condition T6 according to PN-EN 515:2017,
- a starter clip, according to Fig. A11, with the dimensions of 24 x 40 mm, with a screw with the dimensions of ⌀3.9 x 19 mm, according to Fig. A13, made of stainless steel, grade 1.4301 according to PN-EN 10088-1: 2014,
- a mounting clip, according to Fig. A12, 30 x 18 mm, with a screw with the dimensions of ⌀3.9 x 19 mm, according to Fig. A13, made of stainless steel, grade 1.4301 according to PN-EN 10088-1: 2014.

The shape and dimensions of the products included in the ProDeck set are given in Annex No. A. The maximum length of terrace boards is 8000 mm. Dimensional deviations of non-tolerated composite supplementary elements correspond to the *v* tolerance class according to PN-EN 22768-1: 1999, and the steel supplementary elements – *m* tolerance class according to PN-EN 22768-1: 1999

2. INTENDED USE, SCOPE AND CONDITIONS OF APPLICATION

The set of wooden boards and supplementary elements of ProDeck system is intended to be used outdoors, i.e. on terraces, balconies, areas around outdoor swimming pools etc.).

The floors produced from the boards of ProDeck system on foundations of A1 and A2 class of fire reaction in accordance with PN-EN 13501-1+A1:2010, with the thickness of at least 6 mm and the density of 1800 kg/m^3, were classified as B_{fl}-s1 in accordance with PN-EN 13501-1+A1:2019 and as „flame resistant" on the basis of the Regulation of the Ministry of Infrastructure of April 12, 2002 (Dz. U. of 2019, item 1065 as amended) on technical conditions that buildings and their locations should fulfil in the scope of the level of their fire resistance.

The floors produced from the boards of ProDeck system installed on roofs with a slope of up to 20°, on chipboard sub-bases with the width of 250 mm, the thickness of 16 mm and the density of 680 kg/m^3, with straight edges, connected so that the width of the gaps is not greater than 5,0 mm, were classified as B_{ROOF}(t1) in terms of their fire resistance, and as "fire retardant" on the basis of the Regulation of the Ministry of Infrastructure of April 12, 2002 (Dz. U. of 2019, item 1065 as amended) on technical conditions that buildings and their locations should fulfil.

Terrace boards should be laid on joists (perpendicularly) placed with the axial spacing not greater than:

- 400 mm – F-DEX terrace boards,
- 450 mm – SOLID-PRO terrace boards,
- 500 mm – TERRA and EVO-PRO terrace boards.

ProDeck set elements should be laid with the distance of at least 10 mm from walls and other fixed elements, e.g. poles, for terrace boards no longer than 4,000 mm, and of at least 15 mm for terrace boards longer than 4,000 mm.

ProDeck set elements should be arranged with a slope towards water drainage of not lower than 1%.

Joists should be attached to the base with expander fittings so that water can drain between the them freely. Terrace boards should be attached to the joists with mounting clips, screwed to the joists with screws.

Side edges of the ProDeck system floor should be finished with WPC masking strips or aluminium masking strips.

Due to the corrosion resistance requirements, aluminium joists and aluminium masking strips included in the ProDeck set can be applied in an environment with a corrosivity category of up to C3 according to PN-EN ISO 9223:2012. -/-

The method of fixing ProDeck system elements to the substrate is not covered by this National Technical Assessment.

The application of the set covered by this National Technical Assessment should be in accordance with the technical project established for a particular building taking the following issues into account:

- currently binding Polish norms, and technical and building regulations, and in particular the Regulation of the Ministry of Infrastructure of April 12, 2002, on technical conditions that buildings and their locations should fulfil (Dz. U. of 2019, item 1065 as amended),
- provisions of this National Technical Assessment,
- the assembly instruction established by the manufacturer and delivered to recipients.

3. PERFORMANCE PROPERTIES OF PRODUCTS AND METHODS APPLIED TO THEIR ASSESSMENT

Performance properties of the set of terrace boards and supplementary elements, and the methods of their assessment were presented in Table 1.

Position	Main characteristics	Performance properties	Test method
1	*2*	*3*	*4*
1	Dimensional tolerances, mm: - Length - Width - Overall thickness - Upper wall thickness - Lower wall thickness	± 5 ± 1.5 ± 1.0 ± 1.0 ± 1.0	PN-EN 15534-1:2014 PN-EN 15534-4:2014
2	Edge straightness, mm/m	≤1.0	
3	Transverse curvature, mm	≤0.5	
4	Resistance level to impact energy, with the energy of 7J: at temp. 23°C and at temp. - 20°C	no cracks with the length of ≥ 10 mm no dents with the depth of ≥ 0.5 mm	
5	Bending properties: a) destructive force, N b) deflection under loads of 500 N, mm c) bending strength, MPa d) flexural modulus, MPa	mean value ≥ 3300 single value ≥ 3000 mean value ≤2.0 single value ≤2.5 ≥ 35 ≥ 4000	PN-EN 15534-1:2014 PN-EN 15534-4:2014
6	Resistance to humid conditions,		

	determined by the decrease in bending strength after humidity cycles, %	mean value ≤20 single value ≤30	PN-EN 15534-1:2014 PN-EN 15534-4:2014
7	Thickness swelling after 28 days of immersion in water at (+20 ± 2)°C, %: - in the longitudinal direction - in the latitudinal direction - in the direction of thickness	mean value ≤0.4 single value ≤0.6 mean value ≤0.8 single value ≤1.2 mean value ≤4 single value ≤5	PN-EN 15534-1:2014 PN-EN 15534-4:2014
8	Absorbability after 28 days of immersion in water at (+20 ± 2)°C, %:	mean value ≤7 single value ≤9	
9	Changes of linear thermal expansion of boards at temp. between -20 °C ÷ + 80 °C, K^{-1}	≤ $5 * 10^{-5}$	PN-EN 1770:2000
10	Resistance level to accelerated ageing after 300 hours of exposure to sunlight, determined by the colour difference: - Walnut - Anthracite - Chestnut	$\Delta E_{ab}^* \leq 6$	PN-ISO 7724-2:2003 PN-ISO 7724-3:2003 PN-EN ISO 4892-2:2013 (met. A) PN-EN 15534-4:2014

		$\Delta E_{ab}^* \leq 5$ $\Delta E_{ab}^* \leq 7$	
11	Floor slip resistance, dry and wet surface, PTV	≥36	PN-EN 15534-1:2014 PN-EN 15534-4:2014
12	An ability to keep connectors determined by: - destructive force, N - drag capacity, MPa	≥1200 ≥80	PN-EN 1383: 2000 (joist - clip - screw system)
13	Dynamic load resistance of the floor, Nm	≥736	PN-EN 1195: 1999 (a bag with the weight of 30 kg and the diameter of 250 mm, impact in the middle of the support spacing)
14[2)]	Classification in terms of reaction to fire	B_{fl} – s1	PN-EN 13501-1:2019
15[3)]	Classification of roof resistance to external fire	B_{ROOF}(t1) ≥50	PN-EN 13501-5:2016
16.	Durability of aluminium joists and masking strips, determined by the environment corrosivity category	to C3	PN-EN ISO 9223:2012

1) with supports spacing: 400 mm - in the case of F-DEX terrace boards, 450 mm - in the case of SOLID-PRO terrace boards and 500 mm - in the case of TERRA and EVO-PRO terrace boards

2) the classification applies to floors made on sub-bases, classification in terms of reaction to fire A1 or A2 according to PN-EN 13501-1: 2019

3) the classification applies to floors on roofs with a slope of up to 20°, on chipboard sub-bases with the width of 250 mm, the thickness of 16 mm and the density of 680 kg/m³, with straight edges, connected so that the gap width is not more than 5.0 mm

4. PACKAGING, STORAGE, TRANSPORT; METHOD OF PRODUCT MARKING

The products included in the ProDeck set should be delivered in original packaging, and stored and transported in a manner preventing changes in their technical properties.

The method of marking the product with the building mark should conform to the Regulation of the Ministry of Infrastructure of November 17, 2016, on the *method of declaring the performance of construction products* and *method of marking them* with the *construction products mark* (Dz. U. of 2016, item 1966, as amended).

The products marked with the construction marks should include the following information:

- the last two digits of the year in which the construction mark was first placed on the construction product,
- the name and address of the manufacturer's registered office or an identification mark which allows for unambiguous identification of the name and address of the manufacturer's registered office,
- name and type designation of the construction product,
- number and year of issue of the national technical assessment according to which the performance properties were declared (ITB-KOT-2021/1799 issue no. 1),
- number of the national declaration of performance,
- level or class of declared performance properties,
- manufacturer's website address, if the national declaration of performance is available there.

Together with the national declaration of performance, a material safety data sheet and/or information on hazardous substances included in the construction product, referred to in Art. 31 or 33 of the Regulation (EC) No. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency, should be delivered.

What is more, the construction product, which is a hazardous mixture according to REACH, should be marked in a way what complies with the requirements of the Regulation (EC) No. 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (CLP), amending and repealing the Directive No. 67/548/EEC and 1999/45/EC, and amending the Regulation (EC) No. 1907/2006.

5. ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE PROPERTIES

5.1. National system of assessment and verification of constancy of performance properties

In accordance with the Regulation of the Ministry of Infrastructure and Construction of November 17, 2016, on the *method of declaring the performance of construction products* and *method of marking them* with the *construction products mark* (Dz. U. of 2016, item 1966, as amended), the system No. 4 of assessment and verification of constancy of performance is applied.

5.2. Initial type testing

The performance properties assessed in point 3, test the product type until there are no changes in raw materials, components, production line or the production plant.

5.3. Factory production control

The manufacturer should implement a factory production control system in the production plant. All system elements, requirements and provisions adopted by the manufacturer should be documented in a systematic manner, in the form of rules and procedures, including test records. Factory production control should be adapted to the production technology and ensure that the declared product performance properties are maintained in series production.

Factory production control includes specification and verification of raw materials and components, control and testing in the production process as well as control tests (according to point 5.4) conducted by the manufacturer according to the prescribed test plan, and the rules and procedures specified in the documentation of the factory production control.

The results of production control should be recorded in a systematic manner. The register records should confirm that the products meet the criteria of assessment and verification of constancy of performance properties. Individual products or product batches and related production details must be fully identifiable and traceable.

5.4. Testing ready products

5.4.1. Test programme

The test programme includes:

a) current tests,
b) periodical tests.

5.4.2. Current tests.

Current tests include checking:

a) dimensional tolerances,
b) edge straightness
c) transverse curvature,
d) weight of a linear meter of a terrace board.

5.4.3. Periodical tests

Periodical tests include checking:

a) resistance level to impact energy,
b) properties when bending,
c) thickness swelling,
d) absorption of water,
e) slip resistance,
f) an ability to keep the connectors,
g) fire classification in terms of reaction to fire;

5.5. Frequency of tests

Current tests should be conducted in accordance with the schedule, but not less frequently than for each batch of products. The size of a batch of products should be specified in the factory production control documentation.

Periodical tests should be carried out not less frequently than once in every three years.

6. INSTRUCTION

6.1. The National Technical Assessment No. ITB-KOT-2021/1799 issue no. 1, is the document stating the fitness of the performance properties of these basic characteristics of the set of terrace boards and supplementary elements of the ProDeck system, which, in accordance with their intended use resulting from the provisions of the Assessment, influence the fulfilment of the basic requirements by the construction facilities in which the product will be used.

6.2. The National Technical Assessment No. ITB-KOT-2021/1799 issue no. 1 is not a document granting authorization to mark the construction product with a construction mark. Pursuant to the Act of April 16, 2004, on construction products (Dz.U. of 2020, item 215, as amended) the set of products which this National Technical Assessment relates to, may be marketed or made available on the domestic market, if the manufacturer assessed and verified the constancy of performance properties, drew up a national declaration of performance in accordance with the National Technical Assessment ITB-KOT-2021/1799 issue no. 1 and marked the products with a construction mark in accordance with applicable regulations.

6.3. The National Technical Assessment No. ITB-KOT-2021/1799 issue no. 1 does not validate the rights resulting from the regulations of industrial property protection and in particular, the Act on industrial property right of June 30, 2000, (uniform text: Dz. U. of 2021, item 324). Ensuring these rights is the responsibility of the users of this National Technical Assessment.

6.4. By issuing the National Technical Assessment, Instytut Techniki Budowlanej (Eng. Building Research Institute) does not bear any responsibility for possible infringements of any exclusive or acquired rights.

6.5. The National Technical Assessment does not relieve the manufacturer from the responsibility for the proper quality of those products and the contractors carrying out the building works from the responsibility for their proper application.

6.6. The validity of the National Technical Assessment may be prolonged to further periods, however, not longer than 5 years.

7. LIST OF DOCUMENTS USED IN THE PROCEEDINGS

7.1. Reports, test reports, assessments, classifications

1) Test reports no. LZM01-02700/20/Z00NZM and LZM03-02700/20/Z00NZM, Engineering Department of Engineering of Construction Materials ITB
2) The classification report in the field of roof resistance to external fire for the product "Roof with WPC composite boards by Prodeck Sp. z o.o.", No. 1113.1/21/Z00NZP, ITB Fire Research Department
3) Reaction to fire classification report according to PN-EN 13501-1: 2019, No. 1131.2/21/Z00NZP, ITB Fire Research Department

7.2. Standards and related documents

PN-EN 515:2017	*Aluminium and aluminium alloys. Wrought products. State markings*
PN-EN 573-3:2019	*Aluminium and aluminium alloys. Chemical composition and types of plastic processed products. Part 3: Chemical composition and types of products*
PN-EN 755-9:2016	*Aluminium and aluminium alloys. Extruded rods, pipes and sections. Part 9: Tolerances for dimensions and shapes of sections*
PN-EN 1195:1999	*Wooden constructions. Test methods. Behaviour of structural floor covers*

PN-EN 1383:2000	*Wooden constructions. Test methods. Pull-through capacity of timber connectors*
PN-EN 1770:2000	*Products and systems for the protection and repair of concrete structures. Test methods. Determination of the coefficient of thermal expansion*
PN-EN 10088-1:2014	*Corrosion resistant steel. Part 1: Types of corrosion resistant steel.*
PN-EN 13501-1:2019	*Fire classification of construction products and building elements. Part 1: Classification on the basis of the results of the reaction to fire.*
PN-EN 13501-5:2016	*Fire classification of construction products and building elements. Part 5: Classification on the basis of the results of external fire effects on roofs*
PN-EN 15534-1:2014	*Composites made of cellulose-based materials and thermoplastics (polymer-wood composites (WPC) or natural fibre composites (NFC)). Part 1: Test methods for the characterization of mixtures and products*
PN-EN 15534-4:2014	*Composites made of cellulose-based materials and thermoplastics (polymer-wood composites (WPC) or natural fibre composites (NFC)). Part 4: Specifications for floor profiles and tiles*
PN-EN 22768-1:1999	*General tolerances. Tolerances for linear and angular dimensions without individual tolerance markings*
PN-EN ISO 4892- 2:2013	*Plastics. Methods of exposure to laboratory light sources. Part 2. Xenon arc lamps*

PN-EN ISO 9223:2012	*Corrosion of metals and alloys. Corrosivity of atmospheres. Classification, determination and assessment*
PN-ISO 7724-2:2003	*Paints and varnishes. Colorimetry. Part 2: Colour measurement*
PN-ISO 7724-3:2003	*Paints and varnishes. Colorimetry. Part 3: Computing colour differences*

Appendices:

Fig. A1 Terra terrace board 145x29 mm

Fig. A2 EVO-PRO terrace board 160x25 mm

Fig. A3 F-DEX terrace board 140x22 mm

Fig. A4 SOLID-PRO terrace board 145x20 mm

Fig. A5 A joist 20x48 mm

Fig. A6 A single-chamber joist 38x48 mm

Fig. A7 A two-chamber joist 38x48 mm

Fig. A8 A masking strip 66x6 mm

Fig. A9 An aluminium joist

Fig. A10 An aluminium masking strip

Fig. A11 A stainless steel starter clip

Fig. A12 A stainless steel counting clip

Fig. A13 A stainless steel screw