Translated from Russian into English

PLITWOOD LLC
birch plywood manufacture

Proprietary standard

Laminated birch plywood

STO 15605981 — 002 — 2023

Approved by
General Director
Plitwood LLC
_____ D.V.Zachko
_____ 2023

Valid since
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Urban settlement of Vokhtoga
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Contents:

1. SCOPE

This proprietary standard applies to laminated birch plywood, of increased water resistance glued joint, lined with thermosetting polymer-based films, general purpose with outer layers of birch veneer (hereinafter referred to as birch laminated plywood).
Laminated birch plywood is used in building structures, transportation engineering, car building, furniture manufacturing, package manufacturing, etc.

2. REGULATORY REFERENCES

The following regulatory references shall be used herein:

GOST 12.1.044-89 Occupational safety standards system. Fire and explosion hazard of substances and materials. Nomenclature of indices and methods of their determination.

GOST 12.4.011-89 Occupational safety standards system. Means of protection. General requirements and classification.

GOST 427-75 Measuring metal rules. Specifications.

GOST 2140-81 Visible defects of wood. Classification, terms and definitions, methods of measurement.

GOST 3749-77 Checking 90° squares. Specifications

GOST 53920-2010 Laminated plywood. Specifications.

GOST 6507-90 Micrometers. Specifications.

GOST 7502-98 Measuring metal tapes. Specifications

GOST 8925-68 Flat clearance gauges for machine retaining devices. Design

GOST 9620-94 Laminated glued wood. Sampling and general requirements in testing

GOST 9621-72 Laminated glued wood. Methods for determination of physical properties

GOST 9622-2016 Glued laminated wood. Methods for determination of ultimate strength and modulus of elasticity in tension

GOST 9624-2009 Laminated glued wood. Method for determination of shear strength

GOST 9625-2013 Laminated glued wood. Methods for determination of ultimate and modulus of elasticity in static bending.

GOST 11358-89 Dial-type thickness gauges and dial-type wall thickness gauges graduated in 0.01 and 0.1 mm. Specifications.

GOST 15612-2013 Products from wood and wood materials. Methods for determination of roughness parameters.

GOST 18321-73 Statistical quality control. Item random sampling methods.

GOST 25898-2012 Building materials and products. Methods for determination of water vapor permeability and steam-tightness.

GOST 27678-2014 Wood-based panels and plywood. Perforator method for determination of formaldehyde content.

GOST 30255-2014 Furniture, timber and polymers. The method for determination of formaldehyde and other volatile chemicals in the air of climatic chambers.

GOST 32155-2013 Wood-based panels and plywood. Determination of formaldehyde release by the gas analysis method.

EN 310-1993 Wood-based panels; determination of modulus of elasticity in bending and of bending strength.

EN 314-1-2005 Plywood. Bonding quality. Part 1. Test methods.

EN 314-2-1993 Plywood. Bonding quality. Part 2. Requirements.

EN 322-1993 Wood-based panels; determination of moisture content.

EN 326-1-1994 Wood-based panels - Sampling, cutting and inspection - Part 1: Sampling, cutting and expression of test results.

EN ISO 12460-3 Wood-based panels and plywood. Determination of formaldehyde release, Part 3: The gas analysis method.

EN 13986-2015 Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking.

STO 15605981– 001– 2023 Proprietary standard "General purpose birch plywood".

MI SK.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF plywood and incoming inspection of facing film".

GOST R ISO 9001-2015/ISO 9001:2015 Quality management system. Requirements.

GOST R 59123-2020 Occupational safety standards system. Personal protective equipment. General requirements and classification.

SanPiN 1.2.3685-21 "Health regulations and requirements to ensure safety and/or security of environmental factors for humans".

SanPiN 2.1.3684-21 "Sanitary and epidemiological requirements for the maintenance of territories of urban and rural settlements".

GOST R 58577-2019 Regulation for establishment of permissible limits of pollutant emissions by economic entities being projected and in operation and methods of determination of the limits.

GOST 30427-96 Plywood for general use. Classification of veneer surfaces by appearance.

N o t e : When using this standard the validity of the reference standards shall be checked in the public information system - on the official website of the national standards body of the Russian Federation, in the Internet or in the annually published information index "National standards", which is published as of January 1 of the current year and by the corresponding monthly published information indices published in the current year. If the reference document is replaced (amended), the use of this standard shall be guided by the replaced (amended) document. If the reference document is cancelled without being replaced, the provision where reference is made thereto shall be applied insofar as it does not affect this reference.

3. TERMS AND DEFINITIONS

3.1 The following terms shall be used herein:

3.1.1 Laminated birch plywood - plywood with outer layers of birch veneer and inner layers of birch veneer or other hardwoods, lined with thermosetting polymer-based films.

4. CLASSIFICATION AND DIMENSIONS

4.1 Laminated birch plywood FBP/FLF shall be subdivided according to:

4.1.1 Depending on the surface appearance, laminated birch plywood is subdivided into grades: 1, 2, 3;

4.1.2 According to the type and method of applied coating the laminated birch plywood is subdivided by surface types;

- F – flat surface;
- W – wire mesh surface;
- U - uncoated surface;
- H - HEXA anti-slip coating with a pattern (regular hexagon).

Note:

- A combination of surface types is possible upon agreement between the manufacturer and the customer;
- for the surface without film facing, the name of the grade of the outer layer of plywood is according to STO 15605981– 001– 2023.

4.2 Dimensions:

4.2.1 The length and width of the birch plywood sheets shall correspond to those specified in Table 1.

Table 1

Length (width) of plywood sheets, mm	Maximum deviation, mm
1220, 1250	±3.0
1500, 1525	±4.0
2440, 2500	±4.0
3000, 3050, 4000	±5.0
Notes: 1. Manufacture of other sizes of plywood is allowed in accordance with the terms of the contract. 2. Length of the plywood sheet is determined along the direction of the wood grain of the outer layers.	

4.2.2 Thickness and layers of birch plywood shall comply with those specified in Table 2.

Table 2

Nominal thickness of plywood, mm	Number of plies	Maximum deviation, mm	Thickness variation, max, mm
4	3	+0.3 -0.4	0.6
6	5	+0.4 -0.5	
9	7	+0.4 -0.6	
12	9	+0.5 -0.7	
15	11	+0.6 -0.8	
18	13	+0.7 -0.9	0.6
21	15	+0.8 -1.0	
24	17	+0.9 -1.1	
27	19	+1.0 -1.2	1.0
30	21	+1.1 -1.3	
35	25	+1.3 -1.5	
40	29	+1.4 -1.6	
Note: Plywood of other thicknesses and number of plies may be manufactured as agreed between the manufacturer and the customer.			

4.2.3 Plywood sheets shall be cut at right angles. The out-of-squareness of a sheet shall not exceed 2 mm per 1 m of the length of the sheet edge.

4.2.4 Deviation from straightness of edges shall not exceed 2 mm per 1 m of the sheet length.

4.2.5 The birch plywood designation shall contain:
4.2.5.1 product name;
4.2.5.2 brand;
4.2.5.3 combination of grades;
4.2.5.4. surface type;
4.2.5.5 emission class;
4.2.5.6 dimensions;
4.2.5.7 film type;
4.2.5.8 designation of this standard.

An Example of designation of laminated birch plywood, FBP / FLF grade, type 1/1, with smooth surface on both sides, emission class E1, length 1500 mm, width 3000 mm, thickness 15 mm, with Dark Brown film 120 g/m^2 on both sides:

Laminated birch plywood, Film Faced Birch Plywood, FBP/FLF, 1/1, F/F, E1, 1500 × 3000 × 15, DB 120/ DB 120, STO 15605981 — 002 — 2023

5. SPECIFICATIONS

5.1 In the manufacture of laminated birch plywood:
5.1.1 General purpose birch plywood manufactured according to STO 15605981 – 001 – 2023 of WBP/FSF grade, sanded, grade not lower than WGE for the surface to be coated with film;

5.1.1.1 Veneer inserts of various shapes and sizes shall be used to fill knots, holes and cracks. Veneer inserts should fit the surface, be strongly adhered, correspond to the direction of grain and species of the outer layer of plywood.

5.1.1.2 Patches should provide adhesion of facing materials, should neither be stained during mechanical processing and bending of plywood, nor cracked.

5.1.2 To cover the outer layer of laminated birch plywood the thermosetting polymer-based film shall be used.
5.1.3 To protect from moisture penetration, the edges of laminated birch plywood shall be coated with acrylic water-dispersion paint.
5.1.4 The surface of laminated birch plywood shall be free from any defects exceeding the norms specified in Appendix A.
5.1.5 Tolerances for wood vices and processing defects for special purpose plywood shall be agreed between the manufacturer and the customer.
5.2 The content of formaldehyde in laminated birch plywood and release thereof into the room air shall be as specified in Table 3.

Table 3

Emission class	**Formaldehyde content per 100 g of absolutely dry weight of plywood, mg (perforator method)**	**Release of formaldehyde**	
		Chamber method, mg/m^3 of air	**Gas analysis method, mg/m^2 per hour**
E0.5	Up to 4.0 inclusively	Up to 0.01 mg/m^3 inclusively	Up to 1.5 mg/m^2•h inclusively
E1	Up to 8.0 inclusively	Up to 0.124 mg/m^3 inclusively	Up to 3.5 inclusively or less than 5.0 within 3 days after manufacturing

5.3 Physical and mechanical properties of birch plywood are specified in Tables 4 and 5.

Table 4

No.	**Parameter**	**Thickness,**	**Value of physical and**

		mm	mechanical properties
1	Moisture, %	6-40	5-12
2	Ultimate strength in static bending: - along grain of the outer layers, MPa, not less than - across grain of the outer layers, MPa, not less than	9 – 40	40 30
3	Tensile strength along the grain, MPa, not less than	6 – 6,5	30
4	Modulus of elasticity in static bending: - along grain, MPa, not less than - across grain, MPa, not less than	9 – 40	6000 3000
5	Bonding strength of facing coating to plywood	6 – 40	No peeling off of facing coating at the point of intersection of two notch lines
6	Vapor resistance	6 – 40	No swelling. Minor loss of gloss. No bubbles
7	Water resistance of facing coating	6 – 40	Spots and swelling are not allowed
8	Resistance to sodium hydroxide (NaOH)	6 – 40	Color of the solution after the (NaOH) testing - light yellow colorless
9	Cement resistance	6 – 40	No staining of cement after contact with plywood
6	Hardness, MPa, not less than	9 – 40	20
10	Laminated birch plywood waviness (Rippling-test)	6 – 40	Average length of the beam not more than 20 mm
11	Resistance of the facing coating to abrasion (Taber-test), not less than, revolutions	6.5 – 40	300
12	Resistance of the facing coating to cracking	6 – 40	No cracking after (1-10) cycles. Sample surface with no cracks, swellings, bubbles
13	N o t e : Values of 4-12 parameters shall be selected by agreement between the manufacturer and the customer.		

Table 5

Average value of split strength along the adhesive layer, MPa	**Wood failure, %**
Above 0.2 to 0.4 inclusively	Over or equal to 80
Above 0.4 to 0.6 inclusively	Over or equal to 60
Above 0.6 but less than 1.0	Over or equal to 40
From 1.0 and more	-
1. The laminated birch plywood shall be tested by one of the methods: 1.1 boiling in water for 1 hour (according to GOST 9624-2009); 1.2 soaking in water at (20 ± 3) °C for 24 hours (according to EN 314-1 p.5.1.1) 1.3 boiling in water for 4 hours, drying in a ventilated cabinet at (60 ± 3) °C for (16-20) hours, repeated boiling in water for 4 hours, cooling in water at (20 ± 3) °C for 1 hour (according to EN 314-1 p.5.1.3) 1.4 boiling for (72 ± 1) hours, cooling in water at (20 ± 3) °C for 1 hour (according to EN 314-1 p.5.1.4); The method of sampling shall be by agreement between the manufacturer and the customer 2. Percentage of destruction in wood shall be determined visually. 3. The shear test shall be performed in various adhesive layers as agreed between the manufacturer and the customer.	

5.4 Laminated birch plywood shall be accounted for in cubic meters and/or square meters. The volume of one sheet shall be determined with an accuracy of 0.00001 m^3, the volume of a batch of plywood - with an accuracy of 0.01 m^3. The area of a plywood sheet shall be taken into account with an accuracy of 0.01 m^2, the area of sheets in a batch - with an accuracy of 0.5 m^2. When calculating the volume and area of sheets, the permissible maximum deviations in length, width and thickness shall not be taken into account.

5.5 Marking

5.5.1 Laminated birch plywood bundles shall be marked with labels in Russian and/or English on two side covers parallel or perpendicular to each other. The content of the inscription on both covers shall be the same:

5.5.1.1 name of the manufacturer and (or) its trademark,
5.5.1.2 name of the product, designation of the plywood,
5.5.1.3 geometrical dimensions,
5.5.1.4 grade of laminated birch plywood,
5.5.1.5 type of laminated birch plywood,
5.5.1.6 kind of surface,
5.5.1.7 kind of film,
5.5.1.7 emission class,
5.5.1.8 number of sheets in the bundle,
5.5.1.9 shift,
5.5.1.10 certification marks,
5.5.1.11 regulatory and technical document whereby the birch plywood is produced;
5.5.1.12 designation of the national compliance mark for the products being certified,
5.5.1.13 date of manufacture,
5.5.1.14 packaging number,
5.5.1.15 handling marks ("Keep away from moisture" and "Use no hooks"),
5.5.1.16 barcode.

5.6 Packaging

5.6.1 Laminated birch plywood shall be bundled into packages not exceeding 1500 kg in weight (or as agreed with the customer) separately by species, grades, brands, surface treatment kinds and dimensions.

5.6.2 Packaging of bundles of other weights shall be agreed between the manufacturer and the customer.

5.6.3 Bundles of plywood shall be packed to ensure integrity and safety thereof during transportation. Other types of packaging shall be allowed. The bundles should be strapped with side strips.

6. SAFETY AND ENVIRONMENTAL REQUIREMENTS

6.1 The content of harmful chemicals emitted during usage of plywood in residential premises and public buildings shall comply with the requirements established by the national sanitary and epidemiological supervision authorities.

6.2 Birch plywood shall be manufactured using materials and components approved for use thereof by the national sanitary and epidemiological supervision authorities.

6.3 The permissible level of specific activity of cesium-137 radionuclides in plywood (radiation safety index) shall comply with the standards established by the national sanitary and epidemiological supervision authorities.

6.4 Persons involved in the manufacture of plywood shall be provided with personal protective equipment in accordance with GOST R 59123-2020 and the Order № 767n of the Ministry of Labor of Russia.

6.5 The concentration of harmful substances emitted during plywood production at the boundary of the sanitary protection area of the enterprise shall not exceed the maximum permissible concentrations according to SanPiN 1.2.3685-21. Air protection shall be arranged to control emissions in accordance with GOST R 58577-2019.

6.6 The quality of surface wastewater discharged after local treatment facilities and conditionally clean storm water coming from the roofs of the main production building and the finished product warehouse shall meet the requirements of SanPiN 1.2.3685-21.

6.7 Waste accumulation shall be provided taking into account the requirements of SanPiN 2.1.3684-21 "Sanitary and epidemiological requirements for the maintenance of territories of urban and rural settlements, for water facilities, drinking water and potable water supply, atmospheric air, soils, residential premises, operation of industrial, public premises, arrangement of sanitary and anti-epidemic (preventive) measures".

7. ACCEPTANCE PROCEDURE

7.1 Plywood shall be accepted in batches.

Plywood shall be submitted for acceptance in batches. The batch shall consist of plywood of the same species, grade, formaldehyde emission class, type of surface treatment and sheet size, and shall be accompanied by one document of quality containing:

7.1.2 name of the manufacturing country;

7.1.3 name and/or trade mark of the manufacturer and its registered address;

7.1.4 plywood reference designation;

7.1.5 batch volume;

7.1.6 regulatory and technical document whereby the plywood is produced.

7.2 The quality and dimensions of plywood sheets shall be checked by random inspection, or by complete inspection by agreement between the manufacturer and the customer. During the random

inspection the plywood sheets shall be selected "randomly" according to GOST 18321 in the quantity specified in Table 6.

Table 6

Batch volume, Number of sheets	**Monitored indicator by items:**			
	4.2.1 - Length/width of plywood sheets; 4.2.2 - Thickness and number of plies; 4.2.3 - Out-of-squareness; 4.2.4 - Deviation from edge straightness;		**5.1.4 - Tolerance for flaws and defects in outer layers; 5.1.7 - Composition of outer layers by grade; 5.1.8 - Veneer inserts**	
	Sampling volume	**Acceptance number**	**Sampling volume**	**Acceptance number**
Up to 500	8	1	13	1
from 501 to 1200	13	1	20	2
from 1201 to 3200	13	1	32	3
from 3201 to 10000	20	2	32	3

7.2.1 Sampling volume for items (4-12) of Table 4 - as agreed between the manufacturer and the customer.

7.3 Moisture, the strength limit for shearing along the adhesive layer, at static bending along the grain, at tension along the grain shall be controlled for each grade, thickness and layer of plywood at least once a month. Each batch may be controlled in accordance with the terms of the contract, therefor 0.1% of sheets from the batch are selected, but not less than one sheet.

7.4 One sheet of laminated birch plywood shall be taken from any sample volume for formaldehyde emission control. The indicator of formaldehyde emission shall be controlled for laminated birch plywood of WBP/FLF grade at least once every 7 days.

7.5 The batch shall be considered to comply with the requirements of this standard and shall be accepted if in the samples:

7.5.1 the number of laminated birch plywood sheets that do not meet the requirements of the standard in terms of dimensions, out-of-squareness, straightness, wood defects and processing defects is less than or equal to the acceptance value specified in Table 5;

7.5.2 all sheets of plywood contain no blisters, delaminations and patches;

7.5.3 formaldehyde emission complies with the standards specified in Table 3;

7.**5.4** physical and mechanical properties correspond to the standards specified in Tables 4, 5.

8. INSPECTION PROCEDURES

8.1 Sampling for physical and mechanical testing shall be made according to GOST 9620, EN 326-1. Formaldehyde release by gas analysis method - according to GOST 30255, GOST 32155, EN ISO 12460-3. Formaldehyde content - according to GOST 27678.

8.2 The length and width of plywood shall be measured at two points parallel to the edges at a distance of at least 100 mm from the edges using a metal tape according to GOST 7502 with an error of 1 mm. The actual length (width) of the sheet shall be the mean value of the results of two measurements.

8.3 The thickness shall be measured at a distance of at least 25 mm from the edges and in the middle of each side of the sheet with an accuracy of up to 0.1 mm using thickness gage according to GOST 11358 or micrometer according to GOST 6507.

8.3.1 The mean value of the results of four measurements shall be taken as the actual thickness of the sheet.

8.3.2 The thickness variation in one sheet of plywood shall be considered as the difference between the largest and the smallest thickness of four measurements.

8.4 Deviation from the straightness of the edges of a plywood sheet shall be determined by measuring the maximum gap between the edge of the sheet and the edge of the metal ruler according to GOST 427, gauge - according to GOST 8925 with an accuracy of 0.2 mm.
8.5 The out-of-squareness of a birch plywood sheet shall be measured according to GOST 30427. The out-of-squareness shall be measured with an L-square according to GOST 3749. The out-of-squareness shall be determined by measuring the greatest deviation of the sheet edges from the surface of the angle with a metal ruler according to GOST 427 with an error of 1 mm.
8.6 Warping of birch plywood sheet shall be measured in accordance with GOST 30427. Warping of birch plywood sheet shall be determined by applying a ruler diagonally to the sheet placed on an even horizontal surface and measuring the maximum deflection range by an indicator of ICh-10 type, fixed on the ruler's sliding scale according to GOST 577.
8.7 Moisture – according to GOST 9621, EN 322.
8.8 Strength limit for shearing along the adhesive layer - according to GOST 9624, EN 314 parts 1 and 2.
8.9 Strength and modulus of elasticity in static bending - according to GOST 9625, EN 310.
8.10 Tensile strength along the grain - according to GOST 9622.
8.11 Formaldehyde content - according to GOST 27678, release of formaldehyde into the environment - according to GOST 30255, GOST 32155, EN ISO 12460-3.
8.12 Measurement of wood flaws and processing defects - according to GOST 30427.
8.13 Vapor resistance of facing coating - according to MI SC.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF grade plywood and incoming inspection of facing film".
8.14 Water resistance of facing coating - according to MI SC.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF grade plywood and incoming inspection of facing film".
8.15 Bond strength of facing coating with veneer – according to MI SC.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF grade plywood and incoming inspection of facing film".
8.16 Resistance of facing coating to sodium hydroxide (NaOH) – according to MI SC.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF grade plywood and incoming inspection of facing film".
8.17 Cement resistance of facing coating - according to MI SC.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF grade plywood and incoming inspection of facing film".
8.18 Waviness of laminated birch plywood (Rippling-test) – according to MI SC.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF grade plywood and incoming inspection of facing film".
8.19 Resistance of facing coating to abrasion (Taber-test) – according to MI SC.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF grade plywood and incoming inspection of facing film".
8.20 Resistance of facing coating to cracking – according to MI SC.00-8.6-07-01-01-23 Methodological Instruction "Testing of FLF grade plywood and incoming inspection of facing film".
8.21 Other methods of control may be used as agreed between the manufacturer and the customer.

9. TRANSPORTATION AND STORAGE

9.1 Birch plywood shall be transported in closed vehicles in accordance with the rules of cargo transportation, operating in this type of transport.

9.1.1 During transportation humidification of birch plywood shall be avoided to prevent changes in geometric, physical, qualitative characteristics of birch plywood and emission class.

9.2 Birch plywood shall be stored packed in the form of horizontally stacked packages on pallets or wooden shims in closed premises at the temperature from minus 40 °C to plus 50 °C and relative humidity of no more than 80%. Distance from the outermost shims to the edges should not exceed 150 mm.

10. MANUFACTURER WARRANTY

10.1 The manufacturer shall guarantee that the quality of laminated birch plywood meets the requirements of this standard, provided that the transportation and storage conditions are met.
10.2 The warranty storage period of birch plywood WBP/FLF shall be 5 years from the date of manufacture thereof.
10.3 When using birch plywood for further processing, it is recommended to contact the manufacturer to specify the properties and characteristics of plywood.

11. MAINTENANCE RECOMMENDATIONS

11.1 Laminated birch plywood shall be designed for multiple use. Increase of the service life of the plywood shall be achieved by following the rules for the application and storage thereof.
11.2 During transportation of laminated birch plywood a minor deviation in thickness along the edge at a distance of up to 50 mm from the edge is allowed, occurring under the influence of humid air.
11.3 Plywood shall be cut with a saw blade or band saw: first across the direction of grains of the face, then lengthwise, thereby minimizing corner splitting and chipping.

When using a circular saw, a high saw blade speed and a low feed rate are recommended. After cutting the plywood, the ends thereof shall be treated with acrylate-based water-dispersion paint or with other sealant. This manipulation will hel[to prevent the absorption of moisture by the plywood. Holes made in the sheet during installation operations shall also be filled with acrylate-based water-dispersion paint or other sealant.
11.4 Drilling of laminated birch plywood. To get holes with even edges, a sharp drill with a front cutter shall be used. The sheet shall be drilled from the front side. Using a backing sheet will help to avoid splits on the reverse side.

The use of nails is not advisable as it results in splitting of the sheet plies. We recommend ordinary threaded nails or screws instead. The distance from the edge of the sheet to the nail shall be ideally 12-15 mm.
11.5 Rippling shall be a wave-like ripple on the surface of birch laminated plywood due to the wood processing technology and the properties of the wood material. Ripples shall vary in length and the height thereof shall be approximately up to 0.8 mm. They occur mainly due to the absorption of water by laminated birch plywood under direct contact.

Rapid climate changes during the day or in rainy months, when laminated birch plywood is used in exposed areas, may result in a Rippling effect.

Laminated birch plywood is saturated with moisture up to about 28% through cut edges, edges with no additional sealant protection, drilled holes, installed rivets or damage to the coating that cannot be easily seen.

Waviness from the surface of laminated birch plywood sheets disappears when it is completely saturated with moisture. Usually, this effect is achieved after 2-3 cycles of contact of laminated birch plywood with water, as well as under drying between contacts.

Laminated birch plywood is required to be clean from concrete mixture residues at the end of formwork operations.

When laminated birch plywood is used for a long period of time, the strength properties thereof shall be reduced as the moisture content increases.

Therefore, laminated birch plywood is required to be dried, therewith the plywood is recommended to be naturally dried to avoid external deformations.

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APPENDIX A

Standards for limitation of wood flaws and processing defects for the outer layers of laminated birch plywood

Table 7

Defect name	**Defect limitation standards for types**		
	1	**2**	**3**
1.Traces of wood grain structure, sound knots, inlays, wood structure defects	Allowed		
2. Delamination, no film coating, film peeling	Allowed on one edge not more than 3 mm if coated with moisture-protective paint	Allowed not more than 2% of the sheet area if coated with moisture-protective paint	Allowed
3. Temperature stains	Allowed without violating the integrity of the facing coating		Allowed
4.Overlaps (folds, wrinkles) of the film	Allowed with a width of up to 10 mm and a length of up to 500 mm of at least 1 piece / m^2	Allowed	
5.Adhesion of film fragments on the lined surface	Allowed of up to 30x30 mm in size of up to 1 piece/m^2 or 10x100 mm of up to 1 piece/m^2	Allowed	
6a. Burning film (burnout) due to defects of the outer layer: cracks, damage, missing knots	Not allowed	Allowed	
6b. Burning film (burnout) due to defects of the outer layer: rough peeling	Allowed up to 2% of the sheet area, provided the film is firmly adhered thereto	Allowed	
6c. Burning film (burnout) due to defects of the outer layer: stripes and stains from sanding	Not allowed	Allowed up to 25% the sheet area	Allowed

Table 7 continued

Defect name	Defect limitation standards for types		
	1	2	3
7a. Traces of defects in the inner layer: missing knots, holes	Allowed as spots of up to 25x25 mm in size, of 1 piece/m^2	Allowed	
7b. Traces of defects in the inner layer: open split, cracks	Allowed of up to 5 mm in width, up to 300 mm in length, of not more than 1 piece/m^2	Allowed	
8. Traces of built-up or spliced veneer	Allowed without damage to the veneer coating	Allowed	
9. Streaks and stains from the press plates	Allowed		
10. Streaks and stains from the film	Allowed up to 15% the sheet area	Allowed	
11. Local blisters on the surface of laminated birch plywood	Not allowed	Allowed with a diameter of up to 100 mm of up to 1 piece/m^2	Allowed
12. Veneer particles glued into the outer layer	Not allowed	Allowed	
13. Hollows	Allowed with a diameter of up to 6 mm of up to 1 piece/m^2, provided the film is firmly adhered thereto	Allowed	
14. Scratches	Not allowed	Allowed without damage to the facing coating	Allowed
15. Cutting defects, edge splintering	Allowed of up to 3 mm in length, if coated with moisture-protective paint	Allowed of up to 10 mm in length, if coated with moisture-protective paint	Allowed
16. Paint leaks on the faced surface	Allowed of up to 5 mm in width	Allowed	
17. Lack of veneer	Not allowed	Allowed on one edge with a depth of up to 5 mm	Allowed

Table 7 continued

Defect name	**Defect limitation standards for types**		
	1	**2**	**3**
18. Local delamination of veneer in the inner layers of laminated birch plywood (hidden blister)	Not allowed		Allowed
19.Warping	Ignored in laminated plywood with a thickness of up to 6.5 mm inclusive, allowed in laminated plywood with a thickness over 6.5 mm with a deflection arrow not exceeding 15 mm per 1 m of the plywood sheet diagonally.		
20. Deviations from permissible geometric dimensions	geometric dimensions are in accordance with pp. 4.2.1, 4.2.2, 4.2.3, 4.2.4.		Allowed

Note – Defects not indicated in Appendix 7 are not allowed.

ACKNOWLEDGEMENT LIST

PROPRIETARY STANDARD STO 15605981 — 002 — 2023

LAMINATED BIRCH PLYWOOD

Date	Full name	Signature