

DECLARATION OF PERFORMANCE

NO. MW/PW/421-003/CPR/DOP



1. PRODUCT-TYPE:

Metsä Wood Spruce FireResist structural spruce plywood
- Treated against fire
- Phenol-formaldehyde adhesive (exterior gluing quality)

2. INTENDED USES:

Structural elements in internal applications in construction

EN 636-1 S
- for internal structural use in dry conditions

3. MANUFACTURER:

Metsäliitto Cooperative
Metsä Wood
Revontulenpuisto 2 A
FI-02100 Espoo, Finland
Tel. +358 10 4605
www.metsawood.com

5. SYSTEM OF ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE:

AVCP System 1

6a. HARMONISED STANDARD:

EN 13986:2004+A1:2015

Notified body:
Eurofins Expert Services Oy, Notified product certification body No. 0809

Certificate of constancy of performance:
0809 – CPR – 1004

7. DECLARED PERFORMANCES

ESSENTIAL CHARACTERISTICS		PERFORMANCE							
Strength and stiffness for structural use:		Sanded Metsä Wood spruce plywood							
		Nominal thickness (mm)							
		12	12	15	18	21	24	27	30
		Number of plies							
		4	5	5	6	7	8	9	10
Characteristic bending strength (N/mm ²)		20,6	25,6	23,1	21,5	20,7	20,5	19,4	18,9
	⊥	6,5	8,1	11,1	12,3	12,7	12,4	13,4	13,7
Mean modulus of elasticity in bending (N/mm ²)		8237	10235	9237	8615	8277	8205	7752	7558
	⊥	1363	1765	2763	3385	3723	3795	4248	4442
Characteristic compression strength (N/mm ²)		11,5	21,1	17,6	19,7	16,8	22,3	16,4	17,8
	⊥	12,5	8,9	12,4	10,3	13,2	7,7	13,6	12,2
Characteristic tension strength (N/mm ²)		6,9	12,6	10,6	11,8	10,1	13,4	9,8	10,7
	⊥	7,5	5,4	7,4	6,2	7,9	4,6	8,2	7,3
Mean modulus of elasticity in comp./tension (N/mm ²)		4591	8430	7034	7886	6732	8936	6566	7119
	⊥	5009	3570	4966	4114	5268	3064	5434	4881
Characteristic panel shear strength (N/mm ²)		3,5							
	⊥	3,5							
Mean modulus of rigidity in panel shear (N/mm ²)		350							
	⊥	350							
Characteristic planar shear strength (N/mm ²)		0,94	1,58	1,63	1,76	1,41	2,15	1,46	1,50
	⊥	NPD	0,81	0,87	0,64	1,18	0,39	1,12	0,72
Mean modulus of rigidity in planar shear (N/mm ²)		35,5	66,1	50,5	71,4	51,8	142,9	52,1	63,2
	⊥	NPD	20,9	29,1	24,9	37,4	24,6	41,3	35,2

|| = along the face veneer grain direction

⊥ = across the face veneer grain direction

The material values in this DoP are to be used for structural calculations with EN 1995 (Eurocode 5).

ESSENTIAL CHARACTERISTICS	PERFORMANCE		
Bonding quality	Class 3 (exterior)		
Release of formaldehyde	E1		
Reaction to fire	End use condition <ul style="list-style-type: none"> - with substrates of at least class A2-s1,d0 with a density of at least 30 kg/m³ (e.g. insulation) - with or without an air gap between the product and the substrate of at least class A2-s1,d0 and density of at least 525 kg/m³ (e.g. gypsum board) - without a joint or with max. 2 mm open vertical or horizontal joints - fixed mechanically to wooden or metallic frames 	Minimum thickness (mm) 15	Class B-s1, d0
	<ul style="list-style-type: none"> - with or without an air gap between the product and a wood based substrate or any substrate of class A1 or A2-s1,d0 and density of at least 470 kg/m³; the air gap can be filled with a thermal insulation of class A1 or A2-s1,d0 and density of at least 23 kg/m³ - without an air gap between the product and a plywood substrate with density of at least 400 kg/m³ 	12	B _{fi} -s1
Water vapour permeability	Mean density	Wet cup	Dry cup
	460 kg/m ³	45 μ	500 μ
Airborne sound insulation	NPD		
Sound absorption	0,10 (250 Hz – 500 Hz) 0,30 (1000 Hz – 2000 Hz)		
Thermal conductivity	0,12 W/(m K)		
Impact resistance	See annex 2		
Strength and stiffness under point load	See annex 1		
Mechanical durability	k_{mod}	According to EN 1995-1-1	
	k_{def}	According to EN 1995-1-1	
Biological durability (EN 335)	Use class 1		

The material values in this DoP are to be used for structural calculations with EN 1995 (Eurocode 5).

ESSENTIAL CHARACTERISTICS	PERFORMANCE
Content of pentachlorophenol (PCP)	< 5 ppm
Characteristic embedment strength	Calculated according to EN 1995-1-1: - characteristic density (ρ_k) 400 kg/m ³
Racking resistance	Calculated according to EN 1995-1-1: - panel thickness 12-30 mm - characteristic embedment strength, see above
Air permeability	NPD

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The performance of the product identified above is in conformity with the set of declared performance/s. This declaration of performance is issued, in accordance with Regulation (EU) No 305/2011, under the sole responsibility of the manufacturer identified above.

Signed for and on behalf of the manufacturer by:

At Espoo on 31.01.2020

Henrik Söderström
SVP, Supply Chain Management
Metsä Wood



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Juha Kasslin
VP, Product Management
Metsä Wood



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ESSENTIAL CHARACTERISTICS		PERFORMANCE						
Strength and stiffness under point load (50 x 50 mm ²) for floor and roof panels (EN 12871):		Metsä Wood spruce plywood						
		Long edges of the panel tongue and grooved, and short edges supported						
		Nominal thickness (mm)						
		12	15	18	21	24	27	30
		Number of plies						
		4	5	6	7	8	9	10
Span 300 mm	Ultimate limit state capacity (N)	2230	3170	4370	4700	6150	7810	9070
	Serviceability limit state capacity (N)	1300	2580	2980	4700	4900	6730	6880
	Stiffness R _{mean} (N/mm)	456	646	994	1270	1580	2370	3170
Span 400 mm	Ultimate limit state capacity (N)	2230	3170	4370	4700	6150	7810	9070
	Serviceability limit state capacity (N)	1300	2580	2980	4700	4900	6730	6880
	Stiffness R _{mean} (N/mm)	296	420	646	830	1026	1540	2060
Span 600 mm	Ultimate limit state capacity (N)	2230	3170	4370	4700	6150	7810	9070
	Serviceability limit state capacity (N)	1300	2480	2980	4700	4900	6730	6880
	Stiffness R _{mean} (N/mm)	161	228	352	452	559	839	1120
Span 800 mm	Ultimate limit state capacity (N)	1530	3170	3760	4590	6150	6900	9070
	Serviceability limit state capacity (N)	1190	2370	2340	4160	4900	5890	6880
	Stiffness R _{mean} (N/mm)	105	148	228	293	363	545	729
Span 1200 mm	Ultimate limit state capacity (N)	1180	1700	3450	4540	4980	6820	9070
	Serviceability limit state capacity (N)	1130	1510	2010	3900	3160	3650	6880
	Stiffness R _{mean} (N/mm)	57	81	124	169	198	297	397

The material values in this DoP are to be used for structural calculations with EN 1995 (Eurocode 5).

ESSENTIAL CHARACTERISTICS		PERFORMANCE						
Strength and stiffness under point load (50 x 50 mm ²) for floor and roof panels (EN 12871):		Metsä Wood spruce plywood All four edges of the panel supported						
		Nominal thickness (mm)						
		12	15	18	21	24	27	30
		Number of plies						
		4	5	6	7	8	9	10
Span 300 mm	Ultimate limit state capacity (N)	4590	5380	7030	8390	7720	12500	13200
	Serviceability limit state capacity (N)	3910	4550	4540	7620	4660	6970	8960
	Stiffness R_{mean} (N/mm)	968	1190	1320	1810	2720	3850	4790
Span 400 mm	Ultimate limit state capacity (N)	4460	5380	7030	8300	7720	12500	13200
	Serviceability limit state capacity (N)	3910	4550	4540	7620	4660	6970	8960
	Stiffness R_{mean} (N/mm)	629	772	858	1180	1760	2500	3110
Span 600 mm	Ultimate limit state capacity (N)	4190	5200	7030	8120	7720	12500	13200
	Serviceability limit state capacity (N)	3910	3820	4540	7620	4660	6970	8960
	Stiffness R_{mean} (N/mm)	342	420	467	642	962	1360	1690
Span 800 mm	Ultimate limit state capacity (N)	3660	4840	6350	7940	7720	12500	13200
	Serviceability limit state capacity (N)	2400	3090	4540	5240	4660	6970	8960
	Stiffness R_{mean} (N/mm)	222	273	303	417	625	885	1100
Span 1200 mm	Ultimate limit state capacity (N)	3390	4110	6010	7580	7720	12500	13200
	Serviceability limit state capacity (N)	1640	2260	4540	4050	4660	6970	8960
	Stiffness R_{mean} (N/mm)	121	149	165	313	340	482	599

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ESSENTIAL CHARACTERISTICS	PERFORMANCE						
Impact resistance for floor and roof panels (EN 12871):	Metsä Wood spruce plywood						
	Long edges of the panel tongue and grooved, and short edges supported or all four edges of the panel supported						
	Nominal thickness (mm)						
	12	15	18	21	24	27	30
	Number of plies						
	4	5	6	7	8	9	10
Span ≤ 400 mm	Class II	Class I Class II	Class I Class II	Class I Class II	Class I Class II	Class I Class II	Class I Class II
Span ≤ 600 mm	Class II	Class II	Class I Class II	Class I Class II	Class I Class II	Class I Class II	Class I Class II
Span ≤ 800 mm	-	Class II	Class II	Class II	Class I Class II	Class I Class II	Class I Class II
Span ≤ 1200 mm	-	-	Class II	Class II	Class II	Class II	Class II

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