DECLARATION OF PERFORMANCE

NO. MW/PW/421-001/CPR/DOP

1. PRODUCT-TYPE:
Metsä Wood structural spruce plywood
- Uncoated or overlaid
- Phenol-formaldehyde adhesive (exterior gluing quality)

2. TYPE, BATCH OR SERIAL NUMBER OR OTHER IDENTIFICATION:
Metsä Wood structural spruce plywood
- Uncoated or overlaid
- Phenol-formaldehyde adhesive (exterior gluing quality)

3. INTENDED USE OR USES:
Structural elements in internal or external applications in construction

EN 636-2 S
- for internal structural use in dry conditions
- for internal or protected external structural use in humid conditions

EN 636-3 S
(overlaid and edges protected)
- for internal structural use in dry conditions
- for internal or protected external structural use in humid conditions
- for external structural use

4. NAME AND ADDRESS OF THE MANUFACTURER:
Metsäliitto Cooperative
Metsä Wood
Askonkatu 9 E
FI-15100 Lahti, Finland
Tel. +358 10 4650 499
www.metsawood.com

6. SYSTEM OF ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE:
AVCP System 2+

7. CONSTRUCTION PRODUCT COVERED BY A HARMONISED STANDARD:
VTT Expert Services Ltd, Notified production control certification body No. 0809, performed initial inspection of the manufacturing plants and of factory production control and performs continuous surveillance, assessment and evaluation of factory production control under system 2+ and issued the certificate of conformity of the factory production control:

0809 – CPR – 1003

9. DECLARED PERFORMANCE

Harmonized technical specification EN 13986:2004

ESSENTIAL CHARACTERISTICS		PERFORMANCE								
Strength and stiffness for structural use:		Sanded Metsä Wood spruce plywood Nominal thickness (mm)								
		9	12	12	15	18	21	24	27	30
		Number of plies								
		3	4	5	5	6	7	8	9	10
Characteristic bending strength (N/mm^2)	II	22,9	20,6	25,6	23,1	21,5	20,7	20,5	19,4	18,9
	⊥	3,0	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)	II	9178	8237	10235	9237	8615	8277	8205	7752	7558
	⊥	422	1363	1765	2763	3385	3723	3795	4248	4442
Characteristic compression strength (N/mm^2)	II	15,5	11,5	21,1	17,6	19,7	16,8	22,3	16,4	17,8
	⊥	8,5	12,5	8,9	12,4	10,3	13,2	7,7	13,6	12,2
Characteristic tension strength (N/mm^2)	II	9,3	6,9	12,6	10,6	11,8	10,1	13,4	9,8	10,7
	⊥	5,1	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)	II	6212	4591	8430	7034	7886	6732	8936	6566	7119
	⊥	3388	5009	3570	4966	4114	5268	3064	5434	4881
Characteristic panel shear strength (N/mm^2)	II	3,5								
	⊥	3,5								
Mean modulus of rigidity in panel shear (N/mm^2)	II	350								
	⊥	350								
Characteristic planar shear strength (N/mm^2)	II	1,42	0,94	1,58	1,63	1,76	1,41	2,15	1,46	1,50
	⊥	-	-	0,81	0,87	0,64	1,18	-	1,12	0,72
Mean modulus of rigidity in planar shear (N/mm^2)	II	45,1	35,5	66,1	50,5	71,4	51,8	142,9	52,1	63,2
	⊥	-	-	20,9	29,1	24,9	37,4	24,6	41,3	35,2

II = along the face veneer direction

⊥ = across the face veneer grain direction

Harmonized technical specification EN 13986:2004

ESSENTIAL CHARACTERISTICS		PERFORMANCE								
Strength and stiffness for structural use:		Unsanded Metsä Wood spruce plywood Nominal thickness (mm) 9	12	12	15	18	21	24	27	30
		Number of plies 3	4	5	5	6	7	8	9	10
Characteristic bending strength (N/mm^2)	II	23,1	21,0	26,1	23,8	22,2	21,3	21,1	20,0	19,4
	⊥	2,7	6,0	7,5	10,4	11,7	12,1	11,9	12,9	13,2
Mean modulus of elasticity in bending (N/mm^2)	II	9244	8400	10437	9504	8889	8536	8438	7984	7776
	⊥	356	1200	1563	2496	3111	3464	3563	4016	4224
Characteristic compression strength (N/mm^2)	II	16,0	12,0	21,4	18,0	20,0	17,1	22,5	16,7	18,0
	⊥	8,0	12,0	8,6	12,0	10,0	12,9	7,5	13,3	12,0
Characteristic tension strength (N/mm^2)	II	9,6	7,2	12,9	10,8	12,0	10,3	13,5	10,0	10,8
	⊥	4,8	7,2	5,1	7,2	6,0	7,7	4,5	8,0	7,2
Mean modulus of elasticity in comp./tension (N/mm^2)	II	6400	4800	8571	7200	8000	6857	9000	6667	7200
	⊥	3200	4800	3429	4800	4000	5143	3000	5333	4800
Characteristic panel shear strength (N/mm^2)	II	3,5								
	⊥	3,5								
Mean modulus of rigidity in panel shear (N/mm^2)	II	350								
	⊥	350								
Characteristic planar shear strength (N/mm^2)	II	1,41	0,93	1,56	1,61	1,73	1,42	2,09	1,46	1,50
	⊥	-	-	0,78	0,85	0,62	1,15	-	1,10	0,70
Mean modulus of rigidity in planar shear (N/mm^2)	II	46,9	36,3	67,1	51,0	71,1	52,1	137,8	52,4	63,2
	⊥	-	-	20,0	28,2	24,2	36,5	24,1	40,5	34,6

II = along the face veneer direction
⊥ = across the face veneer grain direction

Harmonized technical specification EN 13986:2004

ESSENTIAL CHARACTERISTICS	PERFORMANCE					
Bonding quality	Class 3 (exterior)					
Release of formaldehyde	E1					
Reaction to fire	**End use condition**		**Minimum thickness (mm)**		**Class (excluding floorings)**	**Class (floorings)**
	Without an air gap behind the panel		9		D-s2, d0	D_{fl}-s1
	With a closed or an open air gap not more than 22 mm behind the panel		9		D-s2, d2	-
	With a closed air gap behind the panel		15		D-s2, d1	D_{fl}-s1
	With an open air gap behind the panel		18		D-s2, d0	D_{fl}-s1
	Any		3		E	E_{fl}
Water vapour permeability	**Mean density**		**Wet cup**		**Dry cup**	
	460 kg/m^3		66 µ		190 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	NPD					
Strength and stiffness under point load	See annex 1					
Mechanical durability (EN 1995-1-1)	**Service class**	**Permanent action**	**Long term action**	**Medium term action**	**Short term action**	**Instantaneous action**
k_{mod}	1	0,60	0,70	0,80	0,90	1,10
	2	0,60	0,70	0,80	0,90	1,10
	3	0,50	0,55	0,65	0,70	0,90
k_{def}	**Service class 1**			0,80		
	Service class 2			1,00		
	Service class 3			2,50		
Biological durability (EN 335)	**Uncoated or overlaid**			Use class 2		
	Overlaid and edges protected			Use class 3		

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Arto Salo
Vice President, Product Category Spruce plywood
Building and Industry business line

Lahti 1.7.2013 ……

Harmonized technical specification EN 13986:2004

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

Harmonized technical specification EN 13986:2004

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