MORE FROM WOOD.

EGGER

CE DECLARATION OF PERFORMANCE

according to Regulation (EU) No. 305 of the European Parliament and the Council of 9 March 2011

	DOP No.:	**DOP EcoBox-00**
1	**Clear product identification code:**	**EcoBox**
2	**Intended purpose**	Intended as a load-bearing structural element in buildings and timber constructions, e.g. components or frame elements for walls, roofs, ceilings and beams.
3	**Name and manufacturer** registered trade name or registered trade mark and contact address of the manufacturer:	**EGGER EcoBox** **EGGER Holzwerkstoffe Wismar GmbH & Co KG** Am Haffeld 1 D-23970 Wismar web: www.egger.com
4	Not applicable	
5	**System checking and evaluating** the performance durability of the building product:	**System 1**
6	**European Assessment Document**	**EAD 130367-00-0304** Composite wood-based beams and columns
	European Technical Assessment	**ETA-23/0669 of 22.11.2023**
	Technical Assessment Body	**OIB** **Österreichisches Institut für Bautechnik** **[Austrian Institute of Construction Engineering]**
	Notified Body:	**No. 1359** **Holzforschung Austria** **Österreichische Gesellschaft** **für Holzforschung** Franz Grill-Strasse 7 A-1030 Vienna web: www.holzforschung.at

7 Stated performance(s):

No.	Key characteristic	Assessment procedure	Performance of the building product
	Basic requirements for construction works 1: Mechanical resistance and stability		
1	Bending moment capacity (edgewise and flatwise)	EN 1995-1-1 and ETA-23/0669, Annex 3	see Table 2 and Table 3
2	Tension capacity parallel to the product	EAD 130367-00-0304, Section 2.2.3	see Table 4
3	Tension capacity normal to the product	EAD 130367-00-0304, Section 2.2.4	npa
4	Compression capacity parallel to the product	EN 1995-1-1 and ETA-23/0669 (Annex 3)	see Table 5
5	Bearing capacity		see Table 6
6	Shear capacity (edgewise)		see Table 6
7	Modulus of elasticity parallel to the grain		see Table 7
8	Shear rigidity	EAD 130367-00-0304, Section 2.2.9	see Table 6
9	Torsional shear capacity and rigidity	EAD 130367-00-0304, Section 2.2.10	npa
10	Density	ρ_k and ρ_{mean} acc. to Table 1	
11	Creep and duration of the load	k_{def} according to Table 1 k_{mod} according to EN 1995-1-1, Table 3.1	
12	Dimensional stability	EAD 130367-00-0304, Section 2.2.13	npa
13	Corrosion resistance of metal fasteners and other connectors	EAD 130367-00-0304, Section 2.2.13	not relevant, npa
14	Bonding quality and durability of bonding strength - shear test according to EN 14080, Annex D - test according to EN 14374, Annex B	EAD 130367-00-0304, Section 2.2.15	Glue bond between components is equally strong as the components. Percentage of wood failure > 80% Percentage of wood failure > 70%
	Basic requirements for construction works 2: Safety in case of fire		
15	Reaction to fire	Commission Decision 2003/43/EC amended by 2003/593/EC, 2006/673/EC and 2007/348/EC	normal flammability / B2 / D-s2, d0 (see ETA-23/0669, Annex 2)
16	Fire resistance	EAD 130367-00-0304, Section 2.2.17	npa
	Basic requirements for construction works 3: Hygiene, health and the environment		
17	Content, emission and/or release of dangerous substances	EAD 130367-00-0304, Section 2.2.18	E1 (ETA-23/0669, Section 3.1.1)
	Basic requirements for construction works 6: Energy economy and heat retention		
18	Thermal conductivity	EAD 130367-00-0304, Section 2.2.19	npa
19	Thermal conductivity	EAD 130367-00-0304, Section 2.2.20	npa
	Aspects of durability		
20	Natural durability of wood - Service classes	EN 335	1 and 2

Table1: Dimensions and product characteristics

Dimensions/weight EcoBox							Properties softwood flange	Properties OSB/3 bases
Product type	EB.80/10						C16 according to EN 338 Strength graded structural timber with rectangular cross section according to EN 14081-1 or structural finger jointed solid timber according to EN 15497	OSB/3 Load-bearing boards for use in humid conditions according to EN 300
Width B (Y) / thickness	80 mm						60 mm	10 mm
Height H (X)	160	200	240	280	320	mm	40 mm	-
Weight [kg/lm]	4.32	4.95	5.57	6.2	6.82	kg/lm	$f_{t,0,k}$= 8.5 MPa $f_{c,0,k}$ = 17 MPa $E_{m,0,mean}$ = 8000 MPa $E_{m,0,k}$ = 5400 MPa G_{mean} = 500 MPa ρ_k = 310 kg/m³ ρ_{mean} = 370 kg/m³	$f_{t,x,k}$ = 9.9 MPa $f_{t,y,k}$ = 7.2 MPa $f_{c,x,k}$ = 15.9 MPa $f_{c,y,k}$ = 12.9 MPa $f_{v,k}$ = 6.8 MPa $f_{v,r,k}$ = 1.0 MPa $E_{t,x}$ =$E_{c,x}$ = 3800 MPa $E_{t,y}$ = $E_{c,y}$ = 3000 MPa $E_{m,x,panel}$ = 4930 MPa $E_{m,y,panel}$ = 1980 MPa $G_{v,mean}$ = 1080 MPa ρ_{mean} = 600 kg/m³
Density [kg/m³] including insulation	337	309	290	277	267	kg/m³		
General								
Insulation cavity	standard with softwood fibre 45 kg/m³							
Moisture content during production	Timber: 12 ± 3 % / OSB: 8 ± 3 %							
Haptics / Surface	OSB / softwood planed / bevelled edging (3 mm bevel)							
Service class	Service classes 1 and 2 EN 1995-1-1 / DIN 68800						k_{def} = 0.6 in service class 1 k_{def} = 0.8 in service class 2	k_{def} = 1.5 in service class 1 k_{def} = 2.25 in service class 2

Table 2: Homogenisation factors and characteristic bending moment - main direction - My,Rk - at t = 0 and t = ∞ in service classes 1 and 2

Wood		OSB		$M_{y,Rk}$ t = 0		$M_{y,Rk}$ t = ∞ service class 1		$M_{y,Rk}$ t = ∞ service class 2	
$k_{h,m}$	$k_{h,t}$	$k_{h,OSB}$	h	Wood	OSB	Wood	OSB	Wood	OSB
-	-	-	mm	kN*m	kN*m	kN*m	kN*m	kN*m	kN*m
1.60	2.10	1.21	160	6.00	6.69	5.67	9.88	5.59	11.26
1.45	1.98	1.10	200	7.94	8.63	7.46	12.67	7.34	14.41
1.34	1.89	1.01	240	9.59	10.47	8.96	15.28	8.81	17.36
1.25	1.82	0.94	280	11.25	12.24	10.44	17.76	10.25	20.14
1.17	1.76	0.89	320	12.91	13.97	11.91	20.14	11.67	22.81

Table 3: Homogenisation factors and characteristic bending moment - weak direction - $M_{z,Rk}$ - at t = 0 and t =∞ in service classes 1 and 2

Wood		$M_{z,Rk}$ t = 0		$M_{z,Rk}$ t = ∞ service class 1		$M_{z,Rk}$ t = ∞ service class 2	
$k_{h,m}$	h	Wood	OSB	Wood	OSB	Wood	OSB
-	mm	kN*m	kN*m	kN*m	kN*m	kN*m	kN*m
1.60	160	2.12	1.73	1.69	2.15	1.59	2.33
1.45	200	2.42	1.97	1.88	2.39	1.75	2.58
1.34	240	2.72	2.22	2.08	2.64	1.92	2.82
1.25	280	3.02	2.46	2.27	2.88	2.09	3.06
1.17	320	3.32	2.70	2.46	3.13	2.25	3.31

Table 4: Calculated characteristic compression capacities parallel to the product at t = 0 and t = ∞ in service classes 1 and 2

Wood		$N_{t,Rk}$ t = 0		$N_{t,Rk}$ t = ∞ service class 1		$N_{t,Rk}$ t = ∞ service class 2	
$k_{h,t}$	h	Wood	OSB	Wood	OSB	Wood	OSB
-	mm	kN	kN	kN	kN	kN	kN
1.20	160	65	132	59	188	58	212
1.20	200	68	140	61	196	60	220
1.20	240	72	148	64	204	62	228
1.20	280	76	155	66	212	64	236
1.20	320	80	163	69	220	66	244

Table 5: Calculated characteristic tension capacities parallel to the product at t = 0 and t = ∞ in service classes 1 and 2

	$N_{c,Rk}$ t = 0		$N_{c,Rk}$ t = ∞ service class 1		$N_{c,Rk}$ t = ∞ service class 2	
h	Wood	OSB	Wood	OSB	Wood	OSB
mm	kN	kN	kN	kN	kN	kN
160	107	212	98	302	96	341
200	114	224	102	315	99	354
240	120	237	106	327	103	366
280	127	250	111	340	107	379
320	133	262	115	353	110	392

Table 6: Calculated characteristic shear capacities / calculated characteristic compression capacities for EcoBox studs on bottom plate (softwood C24)

	Calculated characteristic shear capacities at t = 0 and t = ∞ in service classes 1 and 2							**characteristic compression strength perpendicular to grain direction – EcoBox on bottom plate (C24)**				
	$V_{z,Rk}$				required bearing length*		$V_{y,Rk}$					
	Base	Glued joint			End bearing	Middle bearing		Edge support	Middle support		Edge support	Middle support
h		t=0	t=∞ service class = 1	t=∞ service class = 2				$A_{ef,1}$	$A_{ef,2}$	$k_{c,90}$	$N_{c,Rk,1}$	$N_{c,Rk,2}$
mm	kN	kN	kN	kN	cm	cm	kN	cm²	cm²	-	kN	kN
160	16.3	11.8	11.1	11.0	5.0	10.0	10.2	128.0	160.0	1.25	40	50
200	21.8	15.7	14.8	14.5	6.5	13.0	10.2	148.0	184.0	1.25	46	58
240	27.2	19.9	18.5	18.2	8.0	16.0	10.2	168.0	208.0	1.25	53	65
280	32.6	24.2	22.5	22.1	9.5	19.0	10.2	188.0	232.0	1.25	59	73
320	38.1	28.7	26.5	26.0	11.5	23.0	10.2	208.0	256.0	1.25	65	80

* required bearing lengths to activate the complete shear strength $V_{z,Rk}$

Table 7: Dimensions, cross-section values and rigidities at t = 0 and t = ∞ in service classes 1 and 2

				Rigidity cross section										
Cross section				Cross-section values						t=0				
h	h_f	b	h_w	A_{wood}	$I_{y,wood}$	$I_{z,wood}$	A_{OSB}	$I_{y,OSB}$	$I_{z,OSB}$	$A_{ef,t=0}$	$I_{y,ef,t=0}$	$I_{z,ef,t=0}$	$EI_{y,t=0}$	$EI_{y,t=0}$
mm (inch)	mm (inch)	mm (inch)	mm	cm²	cm⁴	cm⁴	cm²	cm⁴	cm⁴	cm²	cm⁴	cm⁴	kN*m²	kN*m²
160	40	80	80	48	1,792	144	32.0	683	395	63.2	2,116	331	169.3	26.5
200	40	80	120	48	3,136	144	40.0	1,333	493	67.0	3,769	378	301.5	30.3
240	40	80	160	48	4,864	144	48.0	2,304	592	70.8	5,958	425	476.7	34.0
280	40	80	200	48	6,976	144	56.0	3,659	691	74.6	8,714	472	697.1	37.8
320	40	80	240	48	9,472	144	64.0	5,461	789	78.4	12,066	519	965.3	41.5
				t=∞ service class 1						t=∞ service class 2				
h	h_f	b	h_w	$A_{ef,t=0}$	$I_{y,ef,t=0}$	$I_{z,ef,t=0}$	$EI_{y,t=0}$	$EI_{y,t=0}$		$A_{ef,t=00}$	$I_{y,ef,t=00}$	$I_{z,ef,t=00}$	$EI_{y,t=00}$	$EI_{z,t=00}$
mm	mm (inch)	mm (inch)	mm	cm²	cm⁴	cm⁴	kN*m²	kN*m²		cm²	cm⁴	cm⁴	kN*m²	kN*m²
160	40	80	80	63.2	2,116	331	169.3	26.5		57.7	2,000	264	100.0	13.2
200	40	80	120	67.0	3,769	378	301.5	30.3		60.2	3,541	294	177.1	14.7
240	40	80	160	70.8	5,958	425	476.7	34.0		62.6	5,564	324	278.2	16.2
280	40	80	200	74.6	8,714	472	697.1	37.8		65.0	8,088	354	404.4	17.7
320	40	80	240	78.4	12,066	519	965.3	41.5		67.5	11,132	384	556.6	19.2

8 Not applicable

The product performance according to number 1 corresponds to the declared performance according to number 7.
Solely the manufacturer is responsible for drafting the declaration of performance according to number 3.

Signed for the and in the name of
the manufacturer by:

Raimund Hagspiel
Head of EBP Technology/ Production

Wismar, 29.07.2024