1. Description

Viroc® Cement-bonded Particle Board

Viroc is a composite panel consisting of a mixture of wood particles and cement called the Cement Bonded Particle Board (CBPB). It combines the flexibility of wood with the strength and durability of cement, allowing a wide range of applications both indoors and outdoors. The production of Viroc panel complies with the specifications of EN 634 and EN 13986 standards and carries the CE Marking Certificate.

The Viroc panel has a heterogeneous appearance with different shades randomly dispersed, resulting from the natural colours of the raw materials used and the chemical reactions. Tone differences may be observed on the same face, between the faces of the same panel or between different productions batches.

When exposed to the outdoors, the panels slightly change colour, becoming lighter. This shade variation depends from colour to colour and is a natural characteristic of the panel. Two panels that originally have different tones after sun exposure tend to the same colour over time.

Viroc panels are supplied raw, without finishing. The surfaces have some irregularities and imperfections, such as, marks, scratches and salts.

One of the surfaces will be visible, and upon customer's request a factory polishing/cleaning can be carried out, leaving the surface free of loose salts, dust, scratches and dirt.

The Viroc panel have two distinct faces, one smoother and one rougher. When leaving the factory, the smoothest face is the one facing upwards when the panels are piled on a pallet. The back surface has no criterion of choice so it may present dirt, scratches and holes.

2. Applications

Viroc ® Panel can be used indoors and outdoors. Facades, partition walls, wall cladding, interior floors, interior and exterior suspended ceilings, interior decoration, interior and exterior furniture, among others.

3. Colours and thickness

Colour	Thickness									Units
	8	10	12	16	19	22	25	28	32	mm
	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	inch
CZ, Grey	•	•	•	•	•	•	•	•	•	2600x1250mm 102.4x49.2" 3000x1250mm 118.1x49.2"
NG, Black	•	•	•	•	•	•	•	•	•	
BR, White			•	•						
AB, Yellow			•							2600x1250mm 102.4x49.2"
VM, Red			•							
AC, Ochre			•							

Other thicknesses upon request.
Minimum order thickness non-standard, 65m^3 (2300 ft^3)

4. Dimensions

2600 x 1250 mm / 102.4 x 49.2 "
3000 x 1250 mm / 118.1 x 49.2 "

Other dimensions upon request.
Minimum order non-standard dimensions, 15 m^3 (530 ft^3)

5. Cutting tolerances

Length and width: ± 3 mm (± 0.12")
Edge straightness: ≤ 1,5 mm/m (≤ 0.15%)
Squareness: ≤ 2,0 mm/m (≤ 0.20%)

6. Thickness tolerance

Unsanded panel

Thickness (mm)	8	10	12	16	19	22	25	28	32
(inch)	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4
Tolerance (mm)	± 0.7	± 0.7	± 1.0	± 1.2	± 1.5	± 1.5	± 1.5	± 1.5	± 1.5
(inch)	± 0.03	± 0.03	± 0.04	± 0.05	± 0.06	± 0.06	± 0.06	± 0.06	± 0.06

Sanded panel

Thickness (mm)	18	21	24	28
(inch)	0.71	0.83	0.94	1.10
Tolerance (mm)	± 0.3	± 0.3	± 0.3	± 0.3
(inch)	± 0.01	± 0.01	± 0.01	± 0.01

7. Finishes

Viroc panel is supplied raw, unfinished. The surfaces have some irregularities and imperfections, such as small incrustations, marks, scratches and salts from chemical reactions.

Whenever the panel is to be applied to open view, even if a varnish finish is not planned, a surface cleaning/polishing must be performed with a cleaning disc to remove dust, scratches, dirt and salts.

The cleaning/polishing does not change the natural look of the panel, it will remain the stains and heterogeneities that characterize it, as well as some salts and incrustations that are embedded in the surface. Viroc has suitable cleaning discs, that will be supplied upon request.

Viroc recommends that the panel should have a finish with a varnished, to protected and make maintenance and cleaning easier, see chapter 8.

Example of cleaning a panel with an orbital sander: https://www.youtube.com/watch?v=HeQZNVNOZYI

Viroc panel can be supplied with both sanded surfaces. Surface sanding is intended to calibrate the thickness of the panel, particularly when it is used as a support floor and the finishing is a thin layer like a linoleum or vinyl screen. The sanded surface of the panel has no decorative features.

8. Paints and varnishes

The application of varnish on the Viroc panel aims to protect against aggressions of the environment where it is inserted, such as sun and weather exposure, increasing durability, facilitating cleaning and maintaining its appearance over time.

Applying a varnish may change the natural color tone of the Viroc panel, giving it a "wet" look with some gloss. Before applying varnish to the panels, the surfaces must be completely clean and dry, without grease, dust or surface salts. Surface cleaning should be done by polishing with a cleaning disc or alternatively sanding the surface with fine grit sandpaper 120 or higher.

There are no specific paints and varnishes to apply to Viroc. The panel has a surface alkalinity (PH) of 11 to 13, so that paints and varnishes suitable for both concrete and wood surfaces are usually the best performers when applied to the Viroc panel.

Solvent-based acrylic resin paints and varnishes have shown the best performance. Water-based acrylic resin varnishes are the ones that least alter the original panel colour.

In addition to the above characteristics, paints and varnishes must be suitable for their intended purpose. For example, if it is an exterior facade the paint/varnish must be suitable for use on exterior walls, if it is an interior floor the paint/varnish must have hardness and strength suitable for use in floors.

The use of Viroc panels on kitchen worktops and shower cubicles should be protected with a paint / varnish that does not degrade in permanent contact with water.

In general, the varnishes are easy to apply, but it is very important to note that the application must be continuous and constant, to ensure the homogeneity of the finish on the panel and so that the surface is not stained and with different shades. Panels should always be painted/varnished on both sides and tops, the application procedures, provided by the respective manufacturers, must always be followed in the recommended coats.

9. Weight

Thickness		Weight per sqm		Weight of the board			
mm	inch	Kg/m²	psf	2600x1250 kg	3000x1250 kg	102.4x49.2 Lbf	118.1x49.2 Lbf
8	5/16	10.8	2.21	35.1	40.5	77.4	89.3
10	3/8	13.5	2.77	43.9	50.6	96.8	111.6
12	1/2	16.2	3.32	52.7	60.8	116.2	134.0
16	5/8	21.6	4.42	70.2	81.0	154.8	178.6
19	3/4	25.7	5.26	83.4	96.2	183.9	212.1
22	7/8	29.7	6.08	96.5	111.4	212.7	245.6
25	1	33.8	6.92	109.7	126.6	241.8	279.1
28	1 1/8	37.8	7.74	122.9	141.8	270.9	312.6
32	1 1/4	43.2	8.85	140.4	162.0	309.5	357.1

10. Palletisation

	Number of panels per pallet								
Thickness (mm)	8	10	12	16	19	22	25	28	32
2600 x 1250 (mm)	60	48	40	30	25	24	21	18	16
3000 x 1250 (mm)	57	46	38	28	24	23	20	17	15

11. Properties

Property	Standard	Metric System	Imperial System
Density	EN 323	1350 ± 100 Kg/m^3	84.3 ± 6.3 lb/ft^3
Bending strength	EN 310	≥ 9 N/mm^2	≥ 1305 psi
Modulus of Elasticity in bending Class 1 Class 2	EN 310	 ≥ 4500 N/mm^2 4000-4500 N/mm^2	 ≥ 652700 psi 580150 – 652700 psi
Internal Bond	EN 319	≥ 0.5 N/mm^2	72.5 psi
Swelling 24h	EN 317	≤ 1.5 %	≤ 1.5 %
Internal Bond after Cycling Test	EN 319+ EN 321	≥ 0.3 N/mm^2	≥ 43.5 psi
Swelling after Cycling Test	EN 317 + EN 321	≤ 1.5 %	≤ 1.5 %
Moisture Content at Origin	EN 322	6 – 12%	6 – 12%
Surface Alkalinity	PH	11 - 13	11 - 13
Thermal Conductivity (*)	EN 12664	0.22 W/m.K	1.526 BTU in/h.ft^2.F
Superior Calorific Power (SCP) (*)	EN ISO 1716	4 ± 0.5 MJ/Kg	1934.65 BTU/Lb
Fire Reaction	EN 13501	B-s1,d0	Fuel but not Flammable

Sound insulation index (*)							
	Thickness	8 mm 5/16"	10 mm 3/8"	12 mm 1/2"	16 mm 5/8"	19 mm 3/4"	22 mm 7/8"
	Rw (C;Ctr) (dB)	31 (-1;-3)	32 (-2;-3)	33 (-1;-3)	35 (-2;-3)	35 (-1;-2)	37 (-2;-3)

(*) Tests carried out in grey Viroc panels

Formaldehyde: Class E1 (EN 13986-Annex B); No added formaldehyde.

Pentachlorophenol: Don't contain.

Asbestos: Don't contain.

Silica: Contains silica remnants from cement.

Note: Only 12 and 16 mm thickness can have QB/Avis Technique Certification.

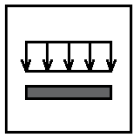
12. Technical assistance

VIROC Portugal S.A. has a Technical Department that can provide technical assistance both in the design and construction phase, whose email is: suporte.tecnico@investwood.pt

13. Characteristics

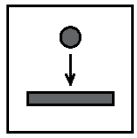

Non-toxic


Soundproof

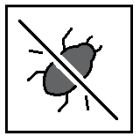

Resistant to loads

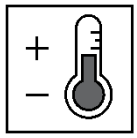

Easily installed

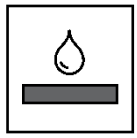

Fungi resistant

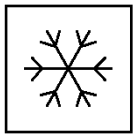

Impact resistant


Fire resistance

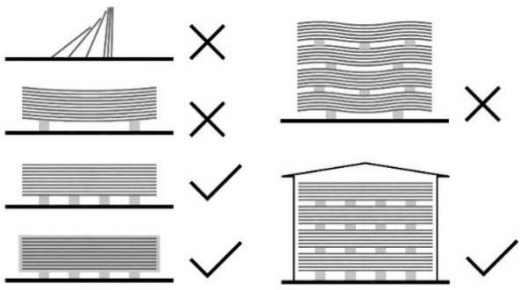

Termite resistant


Thermal insulation


Outdoor use


Frost resistant

14. Storage

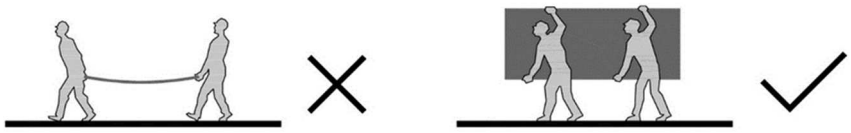


The panels, when leaving the factory for transportation, are protected by a waterproof plastic screen. The side edges are protected with L-shaped cardboard including those in contact with the strapping of the packaging system. The protection of these edges should be maintained until the date of installation of the panels.

Viroc panels should be stored in a covered area, protected from sunlight and rain, with a flat and horizontal base. Pallets should be placed on supports high enough (≥8 cm) for easy forklift access. The maximum distance between supports should not exceed 800 mm and the distance between the first support and the top of the pallet should not exceed 210 mm.

If the pallets are piled on top of each other, all the support bases must be aligned to prevent deformation.
It is allowed to pile up to 6 pallets, with a maximum of 4 meters.

15. Handling



Whenever possible, the handling of the panels should be performed using appropriate equipment such as forklifts or plate lifts.

When the panels have to be moved manually, they must be moved one by one in an upright position to remain flat and not deformed.

The panels are heavy, so their manual movement should not be performed without sufficient people being present.

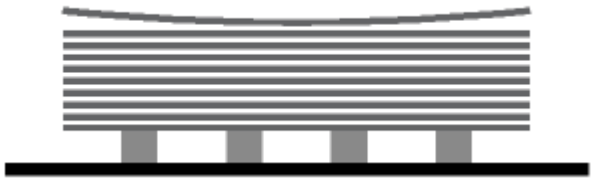
Good manual handling practices should be followed, using appropriate personal protective equipment and following the rules of European Health and Safety legislation, Osha.Europa.eu (Factsheet 73).

16. Acclimatisation

When leaving the factory, the panels have a humidity of 6 to 12%.

To ensure proper installation conditions, the panel must adapt to the temperature and humidity conditions of the installation location. To do this, the straps should be cut and the protective plastic removed from the pallets. Prior to application, the panels must be at rest for at least 72 hours to acclimate to the installation site.

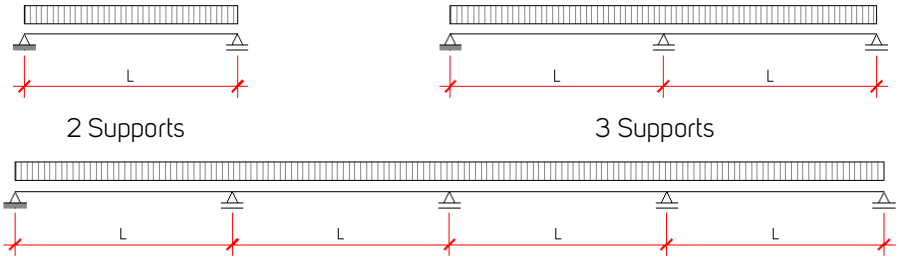
During acclimatization, the panels at the top of the pallets, whose straps have already been removed, may buckle, forming an upward facing concavity. This phenomenon is natural and happens due to the differential loss of moisture between the two surfaces. This process is reversible. The panel will be flat again if turned upside down with the face up. The same effect will be achieved by wetting the concave face (surface up) with water.



For more information you should consult the technical documentation available on the Viroc portal. www.viroc.pt.

17. Load chart

Ultimate Strength: 9.0 N/mm² / 1305 psi
Modulus of Elasticity: 4500 N/mm² / 652700 psi
Safety factor: 3



2 Supports

3 Supports

Multiple Supports (>3)

Panel Thickness		Span (L)		2 or 3 Supports				Multiple Supports			
				Max. Load		L/250		Max. Load		L/250	
mm	inch	m	inch	kN/m²	psf	kN/m²	psf	kN/m²	psf	kN/m²	psf
18 (*)	0.709	0.3	12	14.2	296	14.2	296	16.6	346	16.6	346
		0.4	16	7.9	164	7.9	164	9.2	193	9.2	193
		0.5	20	4.9	103	4.9	103	5.8	121	5.8	121
		0.6	24	3.4	70	2.9	60	4.0	83	4.0	83
19	0.748	0.3	12	15.8	330	15.8	330	18.5	386	18.5	386
		0.4	16	8.8	183	8.8	183	10.3	215	10.3	215
		0.5	20	5.5	115	5.5	115	6.5	136	6.5	136
		0.6	24	3.8	78	3.4	71	4.4	93	4.4	93
21 (*)	0.827	0.3	12	19.3	403	19.3	403	22.6	473	22.6	473
		0.4	16	10.7	224	10.7	224	12.6	263	12.6	263
		0.5	20	6.8	141	6.8	141	8.0	166	8.0	166
		0.6	24	4.6	96	4.6	96	5.4	114	5.4	114
22	0.866	0.3	12	21.2	443	21.2	443	24.8	519	24.8	519
		0.4	16	11.8	247	11.8	247	13.8	289	13.8	289
		0.5	20	7.4	156	7.4	156	8.8	183	8.8	183
		0.6	24	5.1	106	5.1	106	6.0	125	6.0	125
24 (*)	0.945	0.3	12	25.3	528	25.3	528	29.6	618	29.6	618
		0.4	16	14.1	294	14.1	294	16.5	345	16.5	345
		0.5	20	8.9	186	8.9	186	10.4	218	10.4	218
		0.6	24	6.1	127	6.1	127	7.2	149	7.2	149
25	0.984	0.3	12	27.4	573	27.4	573	32.1	671	32.1	671
		0.4	16	15.3	319	15.3	319	17.9	374	17.9	374
		0.5	20	9.7	202	9.7	202	11.4	237	11.4	237
		0.6	24	6.6	138	6.6	138	7.8	162	7.8	162
26	1.024	0.3	12	29.7	620	29.7	620	34.8	726	34.8	726
		0.4	16	16.5	346	16.5	346	19.4	405	19.4	405
		0.5	20	10.5	219	10.5	219	12.3	257	12.3	257
		0.6	24	7.2	150	7.2	150	8.4	176	8.4	176
28	1.102	0.3	12	34.5	720	34.5	720	40.3	843	40.3	843
		0.4	16	19.2	401	19.2	401	22.5	471	22.5	471
		0.5	20	12.2	254	12.2	254	14.3	298	14.3	298
		0.6	24	8.3	174	8.3	174	9.8	205	9.8	205
32	1.260	0.3	12	45.1	941	45.1	941	52.8	1102	52.8	1102
		0.4	16	25.2	526	25.2	526	29.5	616	29.5	616
		0.5	20	16.0	333	16.0	333	18.7	391	18.7	391
		0.6	24	10.9	229	10.9	229	12.9	269	12.9	269

(*) Thickness available in sanded panel only