HEMP CONCRETE BASED ON A BLEND NATURAL CEMENT – HYDRATED LIME

		Quantities (kilo) for 1 cubic meter of fresh hemp concrete*						
Formulae	Dry density*	Fresh density*	Hemp hurd	Natural cement	CL90	Citric acid**	Na_2CO_3	water
ROOF	330 kg/m^3	622 kg/m^3	147	127	53	0.39	2.82	414
WALL	370 kg/m^3	705 kg/m^3	147	152	64	0.46	3.39	426
FLOOR	460 kg/m^3	788 kg/m^3	147	203	85	0.62	4.52	449

	Quantities (kilo) for 100 litres of hemp hurd					
ROOF	10	8.639	3.605	0.026	0.192	28
WALL	10	10.340	4.354	0.031	0.230	29
FLOOR	10	13.810	5.782	0.042	0.307	30.5

**The density of the hemp concrete can be different in function of the strength of compaction, in this case we have followed the French rules of "Construire en chanvre" with a strength of 0,05 MPa. On a cast in situ, the strength of compaction is lower therefore the density will be also lower and so on the quantity of components lower.*
** * This dosage of citric acid is for a temperature < 20℃ and a setting time of 20 minutes, at temperatur e >20℃ we advise to increase twice this content of retarder.*

The ingredients are introduced in the following order: Building Hemp Aggregate + ¾ water + blend of binders and additives + remaining water

CHARACTERISTICS

Formulae	Dry density*	Compressive*** strength maximum	Compressive strength with 5% of strain***	e-modulus ***	Thermal conductivity** W.m^{-1}K^{-1}	Vapour permeability	MBV**** g/(m^2.%HR)
ROOF	330 kg/m^3	0.2 MPa	0.2 Mpa	16 Mpa	0.065	2 to 2,3 . 10^{-11} kg.m^{-1}.S^{-1}.Pa^{-1}	/
WALL	370 kg/m^3	0.3 Mpa	0.2 Mpa	19 Mpa	0.070		2.69
FLOOR	460 kg/m^3	0.4 Mpa	0.3 Mpa	31 Mpa	0.074		2.34

at 10℃ on dry hemp concrete , *** on cylindral dry specimen (16x32 cm) at 90 days * Moisture Buffer Value, this value characterizes the ability of a material to moderates changes in the humidity on the surrounding air.This value is excellent.*

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