

# Asian Laboratories

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## CEMWET CL-30



### CELLULAR LIGHTWEIGHT CONCRETE PRODUCING ADDITIVE

CEMWET CL-30 lightweight concrete producing additive has been used in a number of projects in India particularly in Schools, Hospitals, Five-Star Hotels, Industrial and Commercial Buildings. The product produces lightweight cellular concrete at the construction sites utilizing same equipment, moulds etc., normally in use for conventional concrete.

The density of cellular lightweight concrete obtained with CEMWET CL-30 is 1000 kg/m<sup>3</sup> for Blocks and 1200 kg/m<sup>3</sup> for walls cast in situ. The typical mix for 1000 kg/m<sup>3</sup> density cellular lightweight concrete to be used in Blocks is as follows :-

Cement (Portland)	190 kg = 61 liters
Sand (0-2mm or finer)	430 kg = 164 liters
Fly-Ash	309.kg = 100 liters (approx.)
Water	250 kg = 250 liters
Foam (CEMWET CL-30)	= 423 liters
	=1179 kg/m <sup>3</sup>
Wet density	=1179 kg/m <sup>3</sup>
Total volume (submerged in water)	=1000 liters (1m <sup>3</sup> )
Expected (Oven-dry) density, approx.	=1000 kg/m <sup>3</sup>
Content of air in concrete approx.	=43%.
Content of Fly-Ash in solid material (929 kg)	=33%.
Content of Fly-Ash (Oven-dry material)	=31%.

#### BENEFITS OF CEMWET CL-30 BLOCKS/ ELEMENTS.

- \* Tremendous weight reduction.
- \* High Thermal insulation.
- \* Optimum fire ratings.
- \* Substantial material savings.
- \* Easy and fast production.
- \* Boost for remote areas with only sand available.

Cellular lightweight concrete with CEMWET CL-30, like conventional concrete ages well, increasing its strength by as much as 50% between 28 and 90 days after pouring. As long as Cellular lightweight concrete draws humidity from the atmosphere, it will keep on increasing its mechanical properties.

Only 1 kg (1 liters) of CEMWET CL-30 foaming agent is essential to produce 1 m<sup>3</sup> of cellular lightweight concrete for instance in a density of 1200 kg/m<sup>3</sup>. A 200 kg/liters drum of CEMWET-CL-30 lasts for more than 200 m<sup>3</sup> of cellular lightweight concrete. CEMWET CL-30 has a shelf-life of minimum 24 months.

Curing period of lightweight concrete is the same period as conventional concrete. The de-moulding of the cast foam-concrete can be done after 24 hours. Curing can be speeded up by either heat, steam or chemical (accelerator).

#### COST :-

Customers of CEMWET CL-30 lightweight concrete undertook extensive costing in different Projects to evaluate competitiveness against conventional concrete blocks, clay-bricks and autoclaved aerated blocks on the finished wall.

In particular if Fly-Ash is utilize, blocks of CEMWET CL-30 often turnout to be the most competitive ones, also due to little equipments required (no block-marking plant) can be produce on the site, saving transport and multi-handling.

CEMWET CL-30 cellular lightweight concrete is an excellent and competitive material for low-rise, load-bearing construction and outside walls as well as partitioning work in multi-storeyed blocks.

COMPARISON BETWEEN ALTERNATIVE HOUSING MATERIALS

S.No.	Parameters	Lightweight concrete		Burnt Clay Blocks
		Cellular	Aerated Autoclaved	
1.	Basic raw material and other inputs	Cement, Sand, Fly-Ash, foaming compound water	Cement, Lime, Sand, Aeration compound, Fly-Ash, energy	Top agricultural soil, energy
2.	Production process and set-up	Can be produced at project site using ordinary concrete mixer and a foaming generator	Produced only in well established plant equipped with steam boiler and high pressure autoclaves	Processed in specially erected or central brick kilns
3.	Technology tie-up	NEOPOR-GERMANY	SIPOREX-SWEDEN YTONG-GERMANY	None
4.	Dry density kg/m <sup>3</sup>	400    800-1000    1600-1800	650        750	1900
	Compressive Strength kg/cm <sup>2</sup>	20-30    40-60    125-180	40        40	50-125
	Usage	Insulation, Partitions, Non load bearing	Non load bearing blocks    Reinforced panels	Load bearing and non load bearing
5.	Pre cast block size	500x250x90/190 mm.	625x250x100/200 mm.	229x114x70 mm.
	Cast - in - place	Any shape 7 size in density range 400-1800 kg/m <sup>3</sup>	Not Feasible	Not feasible
6.	Compaction during production	None	None	Yes
7.	Aging	Gains strength with age	No	No
8.	Fire Proofness	Fireproof	Fireproof	Fireproof
9.	Thermal Conductivity units (W/m.k)	0.098 for 400 kg/m <sup>3</sup> 0.151 for 700 kg/m <sup>3</sup> 0.238 for 1000 kg/m <sup>3</sup>	0.132-0.151 for 650 kg/m <sup>3</sup>	0.4
10.	Sound Insulation	Superior	Superior	Normal
11.	Termite resistance	High	High	High
12.	Ease of working	Can be cut, sawn, nailed, drilled as timber	Can be cut, sawn, nailed, drilled as timber	Normal
13.	Durability	High	High	High
14.	Eco-Friendliness	Pollution free process with least energy requirement; also consumes waste Fly-Ash.	Pollution free process with high energy requirement	Process creates smoke, uses high energy and renders agricultural land waste
15.	Relative cost per m <sup>3</sup>	162%	250-400%	100% hand moulded, 156% machine moulded