

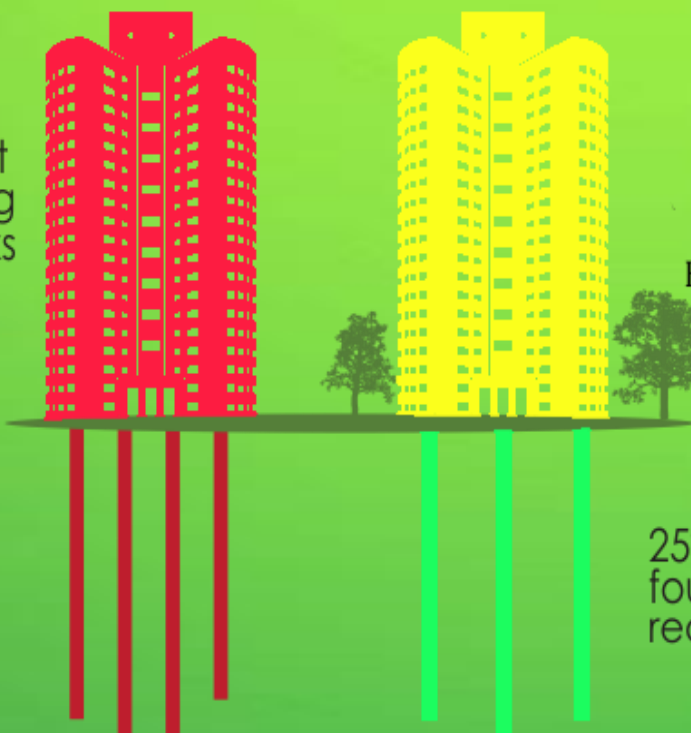


Cellolite Blocks™ Cellular Lightweight Concrete

THE ULTIMATE PREMIUM GREEN BUILDING MATERIAL



Built
using
Bricks



BUILT
USING
CLC
BLOCKS

25% less
foundation
required



CELLOLITE BLOCKS™

CELLOLITE BLOCKS was established in the year 2012. We are the leading Manufacturer & Supplier of Light Weight Blocks in Chennai- Tamil Nadu, Foamed Concrete Block & Cellular Blocks etc.

We bring forth for our clients an extensive collection of Light Weight Brick, which is available in various sizes as per the requirements of clients. Premium quality raw material is used in manufacturing of these bricks by our experts. We offer environment friendly cellular lightweight concrete, Manufactured using natural raw materials like flyash, cement, water, & foaming agent. Which is Non- hazardous Eco green product.

After a Very long research and developments for years , Now we are into fabrications of CLC machineries and setting up plants from 10m³ to 50m³ for blocks manufacturing, providing clients technical's and excellent & perfect output of the product.

We make our customer to learn what is lightweight concrete and what are the perfect way to manufacture of CLC blocks,

- 1.What is clc,**
- 2.What are the basic materials we need.**
- 3.Block Production Line**
- 4.Marketing & sales.**
- 5.Sustainability in the market.(Growth)**
- 6. labor management & Trainings**
- 7.Formula 3-5methods with recycling of cutting waste.(know how)**
- 8.Advantages & Disadvantages in production.(Do's & Don'ts)**
- 9.How to Cure blocks for to Achieve early strength.**
- 10.Sub- products in CLC.**



We **CELLOLITE BLOCKS** are widely renowned name in civil industry, engrossed in manufacturing and supplying premium quality CLC blocks & Blocks Making Machine. The machine is manufactured using quality-approved components under the stern vigilance of our brilliant professionals.

The offered machine is enormously used for making the cellular lightweight concrete brick at construction sites also. (Mobile Units)

In addition to this, the provided Automatic CLC Brick Making Machine is made available in various technical specifications to fulfill the varied requirements of our client at reasonable prices.

Features:

- Needs less maintenance, simple operations
- Scuffle-free operation that ensures optimum efficiency
- Gives fabulous performance with longer service life
- High productivity due to its high tech processes (Less Labor involved)

Easy To Cut



Customer satisfaction:

We are a customer-centric always working hard to meet the demands of our customers. Our team remains in touch with the clients to meet their requirements. Our experienced professionals are regularly trained to keep up with the emerging requirements in the field and deliver optimum quality products.

Given below are a few of the factors that enable us to ensure utmost client satisfaction:

- ✓ Prompt response to customers queries
- ✓ Timely and efficient fulfillment of their specific requirements
- ✓ Implementation of established quality control policies
- ✓ Easy business transaction
- ✓ Committed delivery.

CLC Mixer Under Fabrication Mode



Clc slurry on the vertical moulds



Bed moulds (Manual method)



Blocks line up after cutting



CLC

Cellular Light Weight Concrete (CLWC) is relatively a new material having cementitious properties, incorporated with mechanically entrained foam in the cement based slurry or mortar which can manufacture in a varying densities ranging from 300kg/m³ to 1850 kg/m³. With the increase in future requirement of the construction material, the CLWC is presently believed to have a promising future. CLWC is a versatile material, which is generally used in non-load bearing structural elements, having lower strength than conventional concrete. It is quite renowned for some application for the reason that it's self-weight (which is light in weight) such as reduction of dead load of the structure, thermal insulating materials, acoustic insulating materials and non-structural partitions walls. Since it has low strength, some material is used in order to increase the strength of the CLWC.

The applications of CLWC are very limited due least knowledge about its properties and stability.

CLWC, fairly a new material as compare to conventional concrete, has become more popular material in construction industry. Fly ash and Silica fume are getting more attention nowadays since their uses usually improve the properties of mixed cement concrete, economical and reduction of harmful environmental effects. The properties of CLWC vary according to a different type of mixture and its composition.

This study investigates the mechanical and physical properties of CLWC specifically dry density, water absorption and compressive strength. In this study, the cubes are casted for different target densities 800 to 1000 kg/m³, 1000 to 1200 kg/m³ and 1200 to 1400 kg/m³ by varying the fly ash content 50% to 80% at the interval of 5% and corresponding decrease in cement content 50% to 20%. The water content of all mixes are kept constant as 40% of weight of cement and fly ash combined. The foam consists of one part of foaming agent diluted with 35 parts of water. As the amount of foam affects the dry density of concrete, hence foam content is varied from 1% to 1.5% to get different target density. After getting the optimum content of fly ash, the cement content is further reduced by adding silica fume. Silica fume is incorporated in the mix 0% to 15% at the interval of 5% by the weight of cement and tested for same mechanical and physical properties.

INTRODUCTION

Cellular light weight concrete, as indicated by its name, the concrete having self-weight lighter than the conventional concrete. This provides almost similar strength to normal strength concrete having lower grades. Lightweight concrete is defined as concrete having density (air-dry) below 2000 kg/m³ as compared to normal concrete with a density in the region of 2350 kg/m³. The concept behind in the manufacturing of the CLWC is to create porous microstructure by entrapment of air bubbles in the concrete mix. This can be done by adding preformed foam or chemical surfactant which reacts during the mixing to create air bubbles in the mix. The air bubbles continue their size, shape and remain stable for the period of the setting process. Diameter of air bubbles ranging from 0.1 and 1 mm. The "skin" of voids or bubbles must be able to withstand mixing, transportation and compaction. This air bubbles gives foamed concrete its lightweight property. As there is no coarse aggregate, is used in CLWC, the term concrete is strictly speaking inappropriate. Mechanical foaming can be done in two principal ways. "By pre-foaming foam, a suitable agent with water and then adding the foam with the paste or mortar"; and "By adding a quantity of foaming agent to the slurry and aerated the mixture into a stable mass of required density". The most commonly used foaming agents are based on protein hydrolyzed or synthetic surfactants

They are formulated to produce air bubbles which are more stable and able to resist the physical and chemical forces executed during mixing, placing and hardening.

The main objectives of this study are as follows:

1. To determine properties of CLWC such as dry density, compressive strength and water absorption for various target densities. In CLWC the fly ash content is varied from 50% to 80% at the regular interval of 5% and correspondingly the cement content is decreased to find out optimum proportion of cement content and fly ash for optimal dry density and compressive strength with least water absorption.
2. To study effect of partial replacement of cement by silica fume in CLWC. The cement is replaced with silica fume in 5%, 10% and 15% percentages for cement and fly ash proportions corresponding to optimum mix and results are reported through parameters such as dry density, compressive strength and water absorption.





CELLOLITE BLOCKS
REGENERATING LIVES

Nature & Advantages of CLC Blocks

Cellular Lightweight Concrete

Cellolite foam concrete is one of the few materials available having good mechanical strength combined with light weight and low thermal conductivity.

It can be produced in a wide range of densities and properties which can be varied to suit particular requirements. Like ordinary concrete, it can easily be molded to any desired shape.

Its surface texture makes it a good sound absorbent and provides a good mechanical bond for stucco and plaster.

Its production cost per unit volume is comparable with that of ordinary concrete.

Precast foamed concrete block can be used to particularly advantage in tall framed building, the reduction of dead load permitting a lighter frame.

Precast foamed concrete block can be used to particularly advantage in tall framed building, the reduction of dead load permitting a lighter frame. The low density and fire resistance of **CELLOLITE Foam Concrete** make it particularly suitable for the construction of fire-resisting walls in old structures which, in many cases, are not strong enough for the erection of walls of dense concrete or clay bricks.



Economic



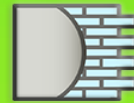
Low
Water Absorption



Fire
Resistance



High Strength



Reduce Plating
Cost



Weathering
Resistance



Thermal
Conductivity



Reduce Labor
Cost



Sound
Absorption



Frost Resistance



Reduce Blocking
Cost




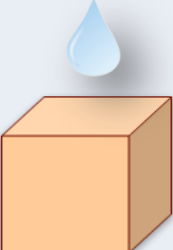
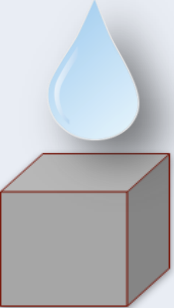
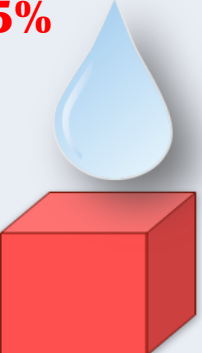


Properties of
CLC concrete



VERY MUCH COST EFFCETIVE

Comparison of Wall-Building Materials

parameters	Clc Blocks	Concrete Blocks	RED CLAY BRICKS
Fire Resistance 11,5 cm Wall	Exceeding 6 hours 	1.8 Hours 	1.5 Hours 
Water Absorption Density 900 kg/m3	12% 	52% 	95% 
Recycling Industrial waste	Up to 30% fly ash, 100% recycled Waste product	Up to 5 %	Nil Used only natural precious top soil



BUILD WITH CELLOLITE CLC BLOCKS GO GREEN

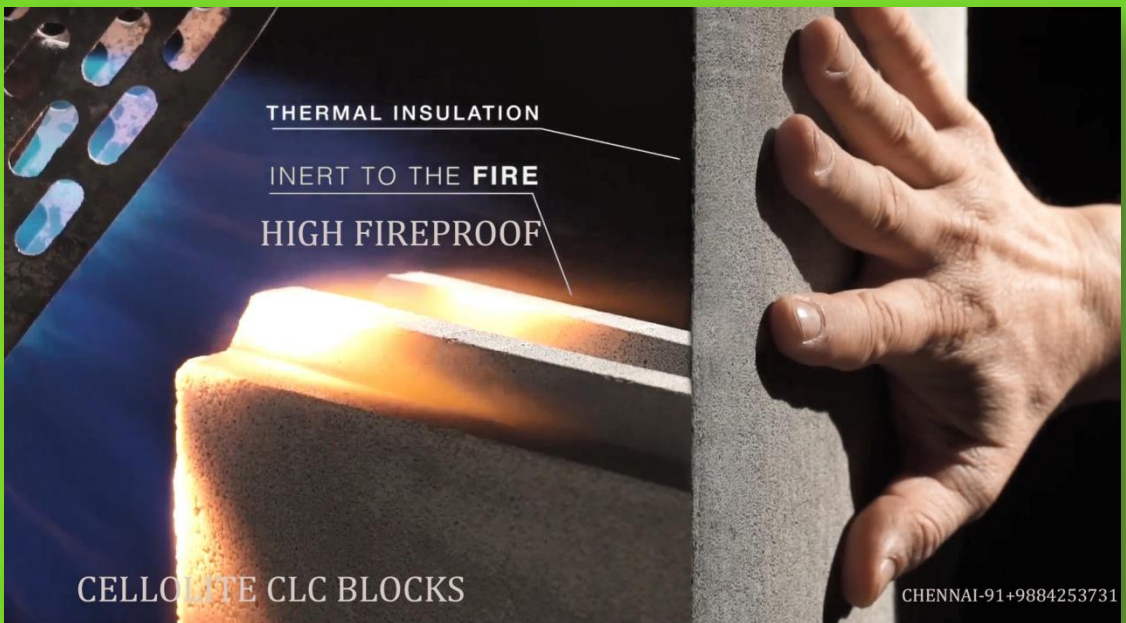


CELLOLITE BLOCKS
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Advantages Of Cellolite Cellular Lightweight Concrete

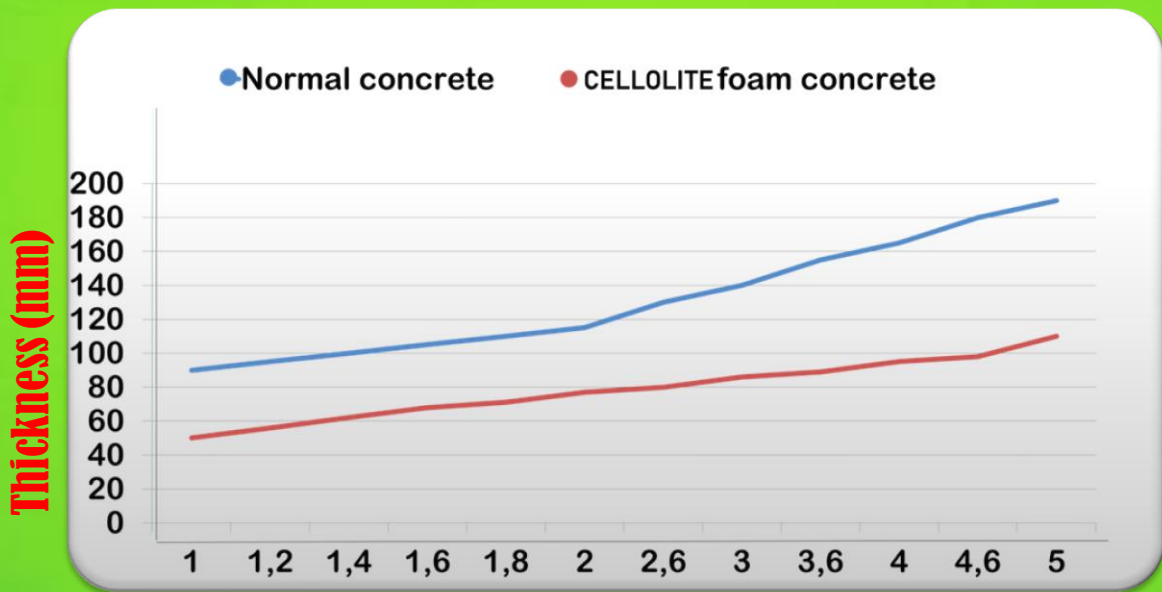
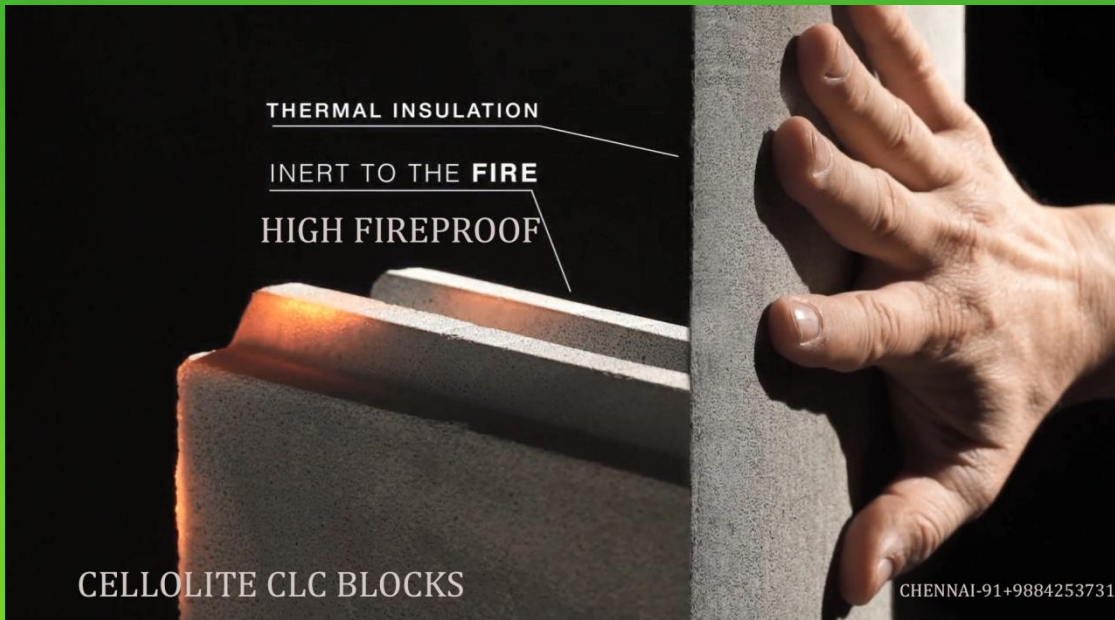


CELLOLITE Foam Concrete is an inorganic material and therefore **incombustible**. Including tests to ASTM standards, show that a load bearing foam concrete slab wall, **15 cm thick**, has a fire resistance exceeding **7 hours**.



Foam concrete is extremely **Fire Resistant** and well suited to applications where fire is a risk. Test have shown that in addition to prolonged fire protection, the application of intense heat, such as a high energy flame held close to the surface, does not cause the concrete to spall or explode as is the case with normal dense weight concrete.

CLC USED FOR HEAT AND FIRE INSULATIONS



Fire resistance time (hours)

FIRE SAFETY

- Foam concrete produce protect from fire spread and correspond to the first degree of refractoriness, which is proved by tests.
- Thus, it is can be used in **fire-proof** constructions. Under the impact of intensive heat, like blow lamp, on the surface of foam concrete, it does not split or blow, as it happens with heavy concrete.



- AS a result, armature is longer protected from heating. Tests show that foam concrete 150 mm wide can protect from fire for 4 hours. During tests carried out in Australia, an outer side of a foam concrete panel 150 mm wide was exposed to temperatures up to 1200C.
- **CLC Bricks offer great fire protection. With a just 100mm. thickness of wall 1000 kg/m³, CLC block offers fire endurance for heat transmission for 4 hours without releasing any toxic fumes during.**



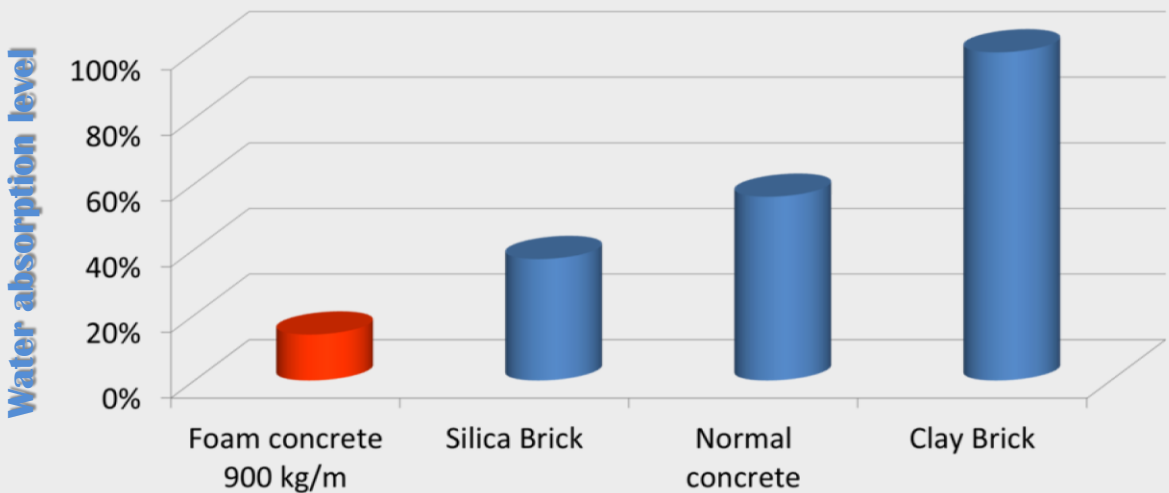
Water Absorption



Due to the cellular structure of foam concrete water absorption of this material is much lesser than normal dense concrete.



■ Foam concrete 900 kg/m ■ Silica Brick ■ Normal concrete ■ Clay Brick



Comparing Bricks

900 kg/m foam concrete silica brick concrete clay brick

CELLOLITE CLC BLOCKS LOW WATER ABSORPTION



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WATER ABSORPTION STUDY SAYS :-

Pore System and Permeability of Concrete

Generally, quality of concrete with respect to durability is related to its characteristics of pore system which measured in term of permeability. due to the dependence on material porosity and permeability, the cementitious material gives a important pore structure characteristic since it affects durability and strength properties. The more porous the concrete, the material is more susceptible to degradation mechanism caused by penetrating substances for example, water. The penetration is aided by the internal transport of agents by diffusion due to internal gradients of moisture and temperature and by osmosis. Concrete with low porosity and permeability will resist undesirable phenomena.

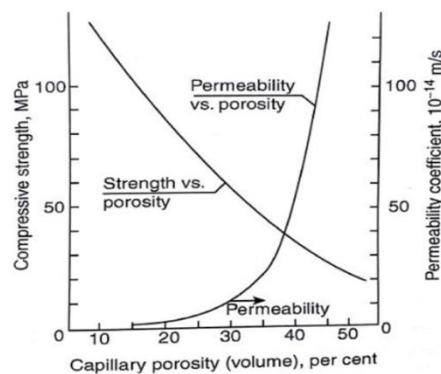
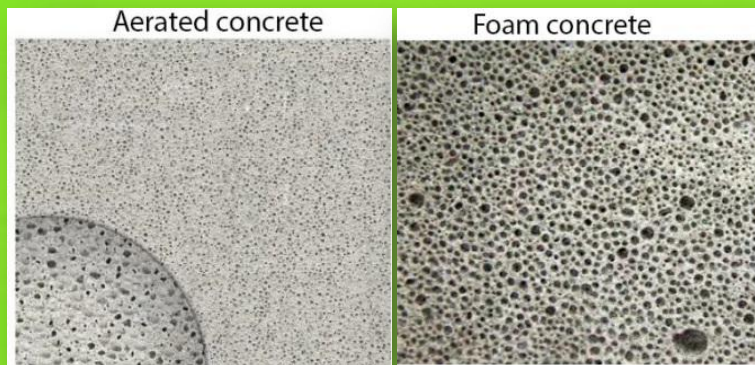
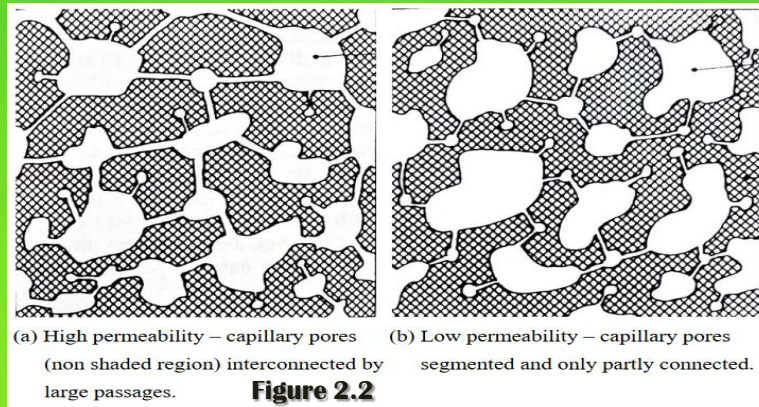


Figure 2.1: The Relationship between Compressive Strength and Porosity; & Permeability and Porosity

The pores in cement paste consist of gel pores and capillary pores. Due to the capillary pores are larger in size than gel pores, the permeability of cement paste is governed by the capillary porosity as shown in Figure 2.1



In another view, permeability is not a simple function of porosity. It is possible for two porous concrete to have same porosity but different permeability as shown in Figure 2.2.

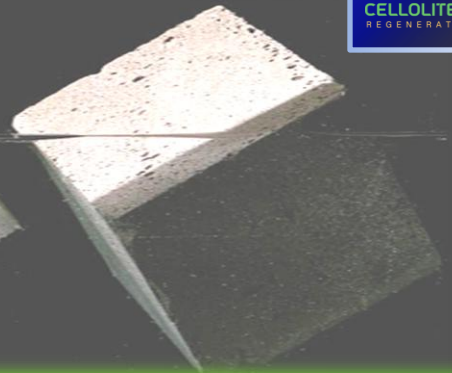
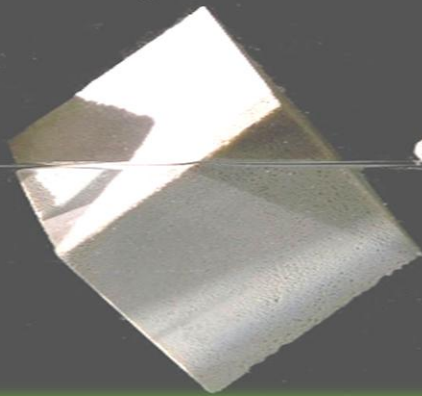
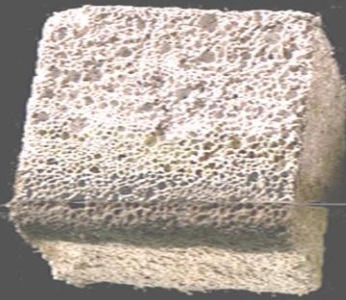
The segmenting of capillaries is influenced largely on its permeability. If the large capillary pores are interconnected, then it will result in high permeability. The research showed that the result from

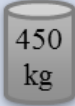
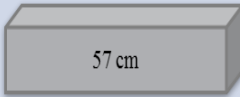
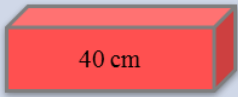
water absorption test gives an estimation of the total pore volume of the concrete, but the concrete permeability cannot be indicated. The water absorption of foamed concrete is mainly affected by paste phase but not entrained pores which are not interconnected.

Ultralight
100 kg/m³

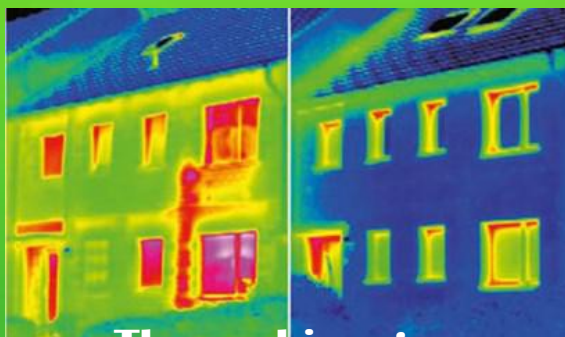
Medium
650 kg/m³

High
850 kg/m³



Parameters	CLC Blocks	Concrete Blocks	Red Clay Bricks
Density	450-1800 kgs/m ³ light-weight 	2400-2800 kgs/m ³ very heavy 	1600-2000 kgs/m ³ very heavy 
Compressive Strengths	7-175 kgs/cm ²	40-60 kgs/cm ²	20-30 kgs/cm ²
Thermal insulation values	 10 cm	 57 cm	 40 cm

Normal
Concrete
Blocks or Clay
Bricks



Thermal image



Insulated
with
CLC Blocks

The GREEN CREDENTIALS OF CLC

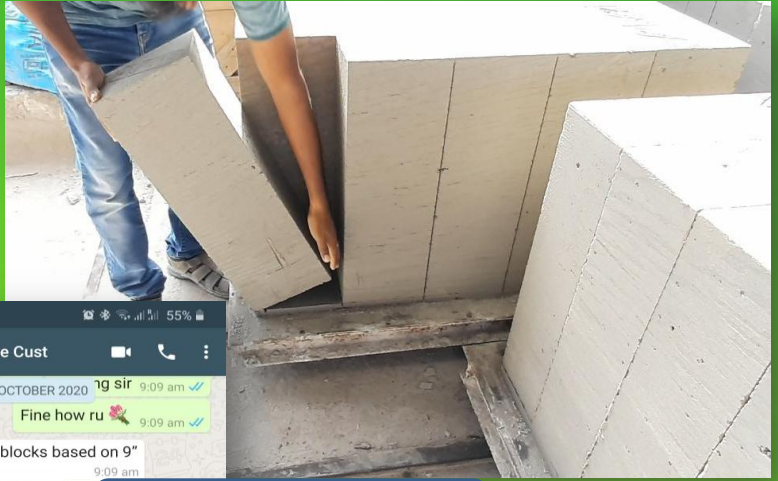
- As a building material, cellular light-weight concrete (CLC) (known also as aerated or foamed concrete) delivers a more complete sustainable solution by significantly reducing the amount of raw material needed and the energy required to mold it into a shape for construction.
- A reduction in material usage is achieved while also providing outstanding energy efficiency and, thanks to the absence of toxic materials or volatile organic compounds (VOCs), excellent air quality. A variety of building products can be produced with CLC including building blocks, panels, and decorative precast fences.
- ✓ Durable, long lasting material resulting in less waste and less energy cost to society
 - Energy efficient with high equivalent R-values and smaller A/C systems typical
- ✓ Low density (as low as 1/4 that of regular concrete) means significantly less sand and cement consumed contributing to a lower embodied energy than common building materials
- ✓ Does not rot, is not attacked by termites, does not absorb moisture into its core and is mold and mildew resistant resulting in less maintenance and less waste generated through maintenance
- ✓ Contains no VOCs or toxic substances. No ozone depleting or hazardous chemicals required for manufacture
- ✓ Breathable material that removes toxins from the air and naturally maintains a low relative humidity
- ✓ Can be recycled at the end of its life
- ✓ Its lightweight means lower freight loads and less energy consumption and pollution during transportation
- ✓ Sound absorbing properties lead to significantly reduced indoor noise
- ✓ The outstanding balance of source reduction, energy efficiency, low embodied energy, absence of toxins and ozone depleting substances, and noise



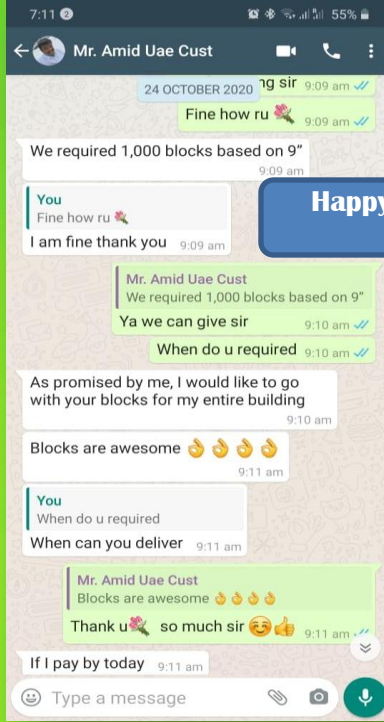
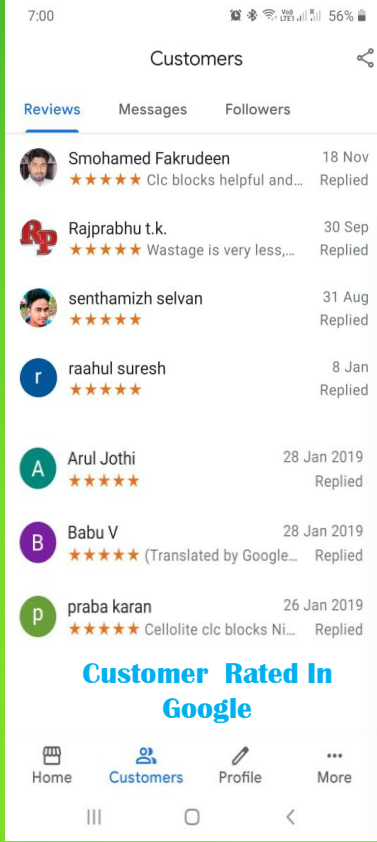
CELLOLITE BLOCKS
REGENERATING LIVES



Customer Satisfaction



Happy Customer From UAE



Cake Ready For Cutting Into Blocks



All benefits at a glance

- ✓ it reduces the dead load of a structure.
- ✓ it can be manufactured to precise specifications of strength and density.
- ✓ it needs minimum Handling.
- ✓ it reduces the transport cost.
- ✓ has excellent workability. Can be nailed, planed, drilled, sawn using conventional tools.
- ✓ is flow able and easy to place and finish.
- ✓ can be produced in large volume very quickly, (in factories as well as on building sites).
- ✓ provides excellent insulation against heat /cold and sound.
- ✓ will take all traditional surface finishes paint, tiles, bituminous membranes, carpet etc.
- ✓ it is an ideal floor topping to facilitate access to service insulation.
- ✓ it is ideal for roof screed and /or floor screed, where insulating, lightweight and mechanical strength is desirable.
- ✓ is vermin and rot proof.
- ✓ is resistant to moisture.
- ✓ is fire resistant.
- ✓ is frost resistant.



CELLOLITE BLOCKS
REGENERATING LIVES

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cellolite



 **100%**
recyclable

ZERO IMPACT
ON THE ENVIRONMENT
CELLOLITE CLC

