एक मजबूत कदम
भविष्य निर्माण की ओर

JINDAL AiR™
AAC BLOCK

JINDAL AIR ENVIRONMENT
FRIENDLY BLOCKS

Factory at a glance

Our Mission

Future Ecocrete Pvt. Ltd. is a strong and quality conscious corporate having sound foundation in the area of infrastructure development and providing quality sustainable green building product along with value pricing.

Our Vision

Future Ecocrete Pvt. Ltd. our clear vision help us to make "JINDAL AIR" AAC Blocks the most preferred & reliable green building product. We believe in making innovations for a better life. Our core value "Environment comes first" is close to our hearts.

JINDAL AIR™
AAC BLOCK

JINDAL AiR™
AAC BLOCK

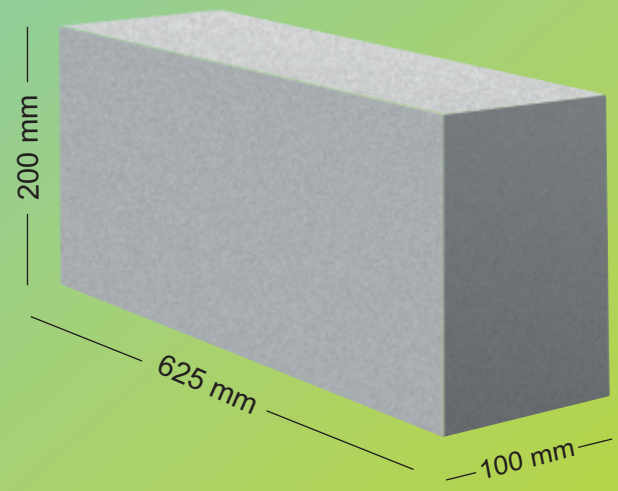
AAC BLOCKS

AAC BLOCKS

AAC is a light weight, certified green material for both load bearing and non load bearing walls of all kinds. It's various qualities make it an excellent replacement as building material for the current era. AAC blocks are manufactured across more than 70 countries. It's is a preferred building material in Europe, UK, USA, Israel, China, Bahrain and many others. The demand for these blocks have risen by 10 folds in last 5 years in India. AAC has proven to be stronger, lightweight, more eco friendly and withstands extreme heat in comparison to red bricks.

History

AAC also known as ACC and ALC is a lightweight is a lightweight concrete building material that was invented in the mid 1920s. If provides structure, insulation, fire, mold resistance and is environment friendly as it is made up of 65-75% of sand or fly ash. AAC is highly popular in northern, western and southern India with almost 80 replacement of clay bricks. AAC was perfected in mid 1920s by Swedish architect Dr. Johan Axel Eriksson along with Prof. Henri Kreguer and was patented in 1924. Yxhults Anghardade Gabestong started its production in 1929 and made the first building material brand: Ytong. Ytong originally autoclaved aerated concrete in Sweden using alum shale and was highly acclaimed for its combustible carbon content. Unfortunately the slate deposits used for Ytong were found to contain very low amount of uranium that releases radioactive gases in the building. It was then modified in 1975 using new recipe that contained quartz, sand/ flyash, calcined gypsum, lime, cement, water and aluminium powder. This state art of technology production recipe is now used by Jindal and other producers all over the world.



JINDAL AiR™
AAC BLOCK

Advantages

JINDAL AIR AAC Blocks is a viable replacement for conventional red clay bricks, which we normally use for our building construction. Red clay bricks are used for load bearing as well as forfillerwalls of RCC frames in high rise structures. There is considerable difficulty, of late in getting good quality bricks. In addition manufacture of bricks cause depletion of top soil and is considered environmentally unfriendly. Therefore we have recently looked for viable alternatives. The alternative that we propose should be durable and have properties similar or Better than conventional bricks. The JINDAL AIR Autoclaved Aerated Concrete (AAC) block is a very timely introduction to the building industry, which fulfils the need for walls in buildings. The adoption of JINDAL AIR AAC block in building construction will lead to the following advantages :

Less Load

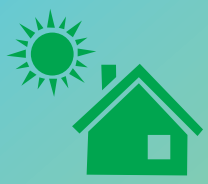
It reduces the load on the foundation and other structural components in a structure due to its self weight of 550 to 650 kg/cum, as compared with the self weight of brick masonry of 1400-1600 kg/cum. One of the biggest features of AAC blocks is its light weight. These blocks possess a cellular structure created during manufacturing process. Millions of tiny air cells impart AAC blocks very light weight structure. Density of these lightweight blocks usually ranges between 550 - 650 kg/m3.

Earthquake Resistant

Because of reduction in self weight, AAC block construction attracts, Less earthquake load. The light weight property of the AAC blocks results into higher steadiness of the AAC blocks in the structure of the buildings. As the impact of the earthquake is directly proportional to the weight of the building, the building constructed using AAC blocks are more reliable and safer.

Fast Construction

The output of the masonry will increase because of less number of joints. As the AAC block is very easy to handle, manipulate and use ordinary tools for cutting the wood such as the drill, band saws, etc. could be easily used to cut and align the AAC. Moreover, the AAC blocks come with larger sizes and fewer joints. This ultimately results in faster construction work as the installation time is significantly reduced due to fewer amounts of blocks and the masonry amount involved is also lowered resulting into reduced time-to-finish.



Thermal Conductivity

The AAC block is thermally better and hence when adopted leads to less energy for air-conditioning. AAC block has exceptional thermal insulating qualities. The thermal conductivity of the AAC blocks helps maintaining the inner temperature to be warm during the winters and cool during the summers which ultimately leads to savings in air conditioning load and consequently enhanced energy efficiency.

Sound Insulation

The AAC Block has better sound insulation properties, Due to its air voids presence.The porous structure of the AAC blocks results into enhanced sound absorption. The Sound Transmission Class (STC) rating of the AAC blocks up to 45 db. Thus, AAC blocks have been the most ideal material forthe construction of walls inauditorium, hotels, hospitals, studios, etc.

Better Alignment

The AAC block is dimensionally more accurate as it is produced with wire cut technology in a certified factory. The process of manufacturing AAC Blocks ensures constant and consistent dimensions. Factory finished blocks provide a uniform base for economical application of a variety of finishing systems. Internal walls can be finished by direct P.O.P., thus eliminating the need of plastering.

Easy Application

The normal brick wall has considerably more joints, Due to small wall size of brick. On the other hand, Due to longer size, AAC block has less joints and Hence less mortar consumption. AAC Blocks have an attractive appearance and is readily adaptable to any style of architecture. Almost any design can be achieved with AAC.

JINDAL AIR™
AAC BLOCK

Non Toxic

Autoclaved Aerated Concrete products do not contain any toxic gas substances. The product does not harbor or encourage vermin.

Cost effective

The AAC Block, When built has both faces as fair faces, Unlike brick work, Which has only one face as a fair face? Hence if plastered, The thickness of PlasterforAAC block is much less compared to conventional bricks. AAC block weighs almost around 80% less as compared to the conventional red brick ultimately resulting into great reduction of deadweight. Further, the reduced deadweight results into reduction of the use of cement and steel which helps great in cost savings.

Fire resistant

The AAC block is light, has air voids and hence has better fire resisting properties compared to red clay bricks. Depending upon the thickness of the AAC blocks, they offer fire resistance from 2 hours up to 6 hours. These blocks are highly suitable for the areas where fire safety is of great priority.

Termite Prooff

AAC blocks consist of the inorganic material in its constitution that helps preventing/avoiding termites, damages or losses.

High compressive strength

The block has an average compressive strength of (3-4) N/mm' which is superior to most types of light weight blocks, 25% stronger than other products of the same density.

Durability

The product being produced in a factory, has uniform quality and hence is more durable. AAC blocks are highly superior in terms of the strength. Higher level of strength of these blocks gives higher stability to the structure of the building. AAC is manufactured from non-biodegradable materials, which neither rot nor attract mould, keeping interiors clean and durable

Eco Friendly

The raw materials used for the production, Has been found to be eco — friendly. The use of fly ash in this venture, makes us to utilize a waste material from thermal plants.AAC is a non-toxic product which does not pollute the air, land or water. During the manufacturing process, waste from the cutting process is recycled back with raw materials and used again. During construction, there is virtually no waste generated. The energy consumed in the production process is only a fraction compared to the production of other materials. The manufacturing process emits no pollutants and creates no by-products or toxic waste products. AAC is manufactured from natural raw materials. The finished product is thrice the volume of the raw materials used, making it extremely resource-efficient and environmentally friendly.

High resistance to water penetration

The AAC products, because of their cellular and discontinuous micro structure are superiorto the normal clay brick in resistance of water penetrability and thus the external surface of AAC walls provides superior resistance to moisture penetration than the traditional clay bricks.

Moisture Resistance

Moisture from both external and internal sources can cause damage to buildings; therefore, moisture protection is a primary consideration. External moisture sources include rain and water from the soil. Internal moisture, usually in the form of humidity, can cause condensation on the surface of the walls as well as condensation inside the wall itself. AAC has a very porous structure which is characterized by "macro" pores. Macro pores are small air bubbles evenly distributed throughout the material. Therefore, absorption of water into the AAC material is minimal.

JINDAL AiR™
AAC BLOCK

JINDAL AIR AAC SIZES

Sl. No.	Dimension of AAC Blocks (L x H x B)	Wall Area Per Meter Cube	No. of AAC Blocks in 1 Cubic Meter
1.	625 x 250 x 100	$10m^2$	64
2.	625 x 250 x 125	$8m^2$	51.2
3.	625 x 250 x 150	$6.6m^2$	42.6
4.	625 x 250 x 200	$5m^2$	32
5.	625 x 250 x 225	$4.4m^2$	28.44
6.	625 x 200 x 100	$10m^2$	80
7.	625 x 200 x 150	$6.6m^2$	53.3
8.	625 x 200 x 200	$5m^2$	40

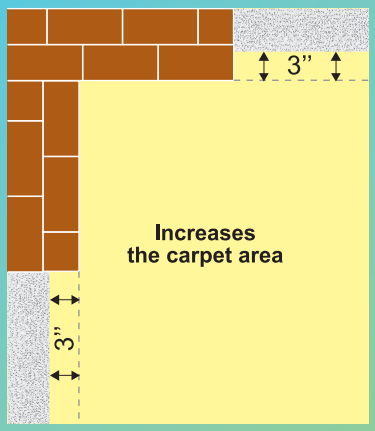
JINDAL AIR AAC SPECIFICATION

Parameters	Unit	Value
Desnity (Oven dry)	kg/m2	551-650
Compressive Strength	(MPa)	>4N/mm2
Shear Strength		0.6
Modulus of Elasticity	Mps	2040
Water Absorption (at equilibrium)	kg/m2 x h 0.5	4-6
Thermal Conductivity	w/mk	0.16
Thermal Resistance ® Value)	K/w	0.46m
Drying Shrinkage	mm /m	max 0.20 (0.04%)
Fire Resistance	Hrs	4 (for 200 mm wall)
Sound Transmission Class Rating	db	44

JINDAL AIR™
AAC BLOCK

Clay Brick Wall Width	AAC Block Wall Width in MM (Block width + 20 mm) 95mm	120m	145mm	170m	220m
One Brick Wall (brick width + 40) (115 mm)	3	2	-	-	-
Two Brick Wall (brick width + 50) (230 mm)	-	-	7	6	3

Sample calculation for a 15' x 12' = 180 sq. ft. room assuming both side plaster thickness 20 mm in case of conventional clay brick and 10 mm in case of AAC



Comparative Study of AAC Blocks, CLC Blocks & Clay Bricks

S. No.	PARAMETERS	AUTOCLAVED AERATED CONCRETE BLOCK	CELLULAR LIGHT WEIGHT CONCRETE BLOCKS	BURNT CLAY BRICKS
1.	Raw materials	Cement, Fly Ash, High Quality Lime, Gypsum, Water & Alluminium as aerating Compound	Cement, Aggregate, Fly Ash, Water & Foam chemical Compound	Top Soil & Energy
2.	Dry Density kg/m^3	550 650	750 — 800	1500
3	Compressive strength in kg/cm^2	30 40	25-30	40-75
4	Thermal Conductivity (W/m.k)	0132-0151 for 600 kg/m3	0.132-0.151 for 800 kg/m3	0.184
5.	Sound Insulation	Superior that burnt clay & hollow concrete	Superior than burnt clay & hollow concrete	Normal
6.	Ease of working	Can be cut natled & drilled	Can be cut, nailed & drilled	Normal
7.	Pre-cast Brick Size	625 x 240 x 100/150/200 mm	600 X 200 X 100/150/200 mm	230x 100x 70 mm
8.	Pre-cast elements	Any size of elements	Any size of elements	Not feasible
9.	Water Absorption % by weight	Less than 20% by volume	12% for 800 kg/m3 density (by volume)	20% by volume
10	Drying shrinkage mm/meter	Shrinkage after maturing 0.011 (for 600 kg/m3) 0.058 (for kg/m3)	0.1	No shrinkage
11	Productivity	Output 100% more than brick work	Output 100% more than brick work	Normal
12	Eco Friendliness	Pollution free, normal energy requirement, open process uses fly ash or sand-lime	Pollution free, Least energy requirement, Can consume fly ash around 33%	Creates smoke, Uses high energy, Wastes agricultural land
13	Structural saving due to dead weight reduction	55% reduction in weight of walls. tremendous structural saving for high rise building in Earthquake / Poor soil area	55% reduction in weight of walls. Tremendous structural saving for high risebuildings in Earthquake / Poor soil area	No additional saving
14	Delivery	Pre-Cured and ready for delivery	Conventional curing required. Not ready for delivery in post production.	Seasonal.

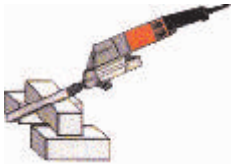
JINDAL AiR™
AAC BLOCK

Jindal Air AAC Users Guidelines

Stacking

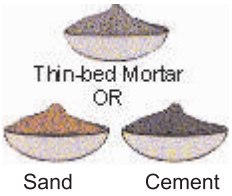
Stack on dry and even surface to avoid damage and contact with moisture

Cutting of Block



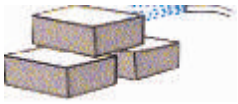
Use tool like hacksaw or rotary cutter

Mortar for Masonry



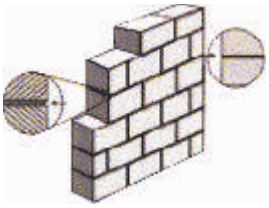
Thin-bed Mortar or cement: sand (1:6)

Wetting of Block before application



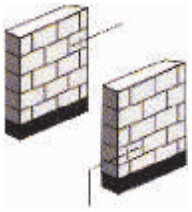
Moisten the top and the sides of the brick slightly to remove the dust particles

Mortar Thickness



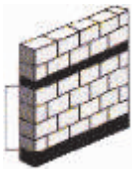
->Conventional : 10-12mm
-> Premix Thin-Bed : 3-4 mm

Bond Pattern



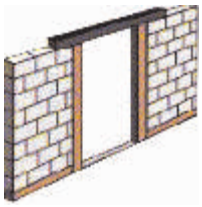
100 mm or more

Coping Beam



Coping beam with 2 nos 8mm reinforcement after 1.2 mts. height

Lintel Support



Lintel support on full block

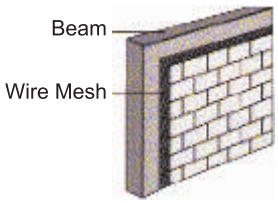
Curing of Masonry Wall

Curing required only for mortar joint when conventional mortar used

Electric & Sanitary Chases

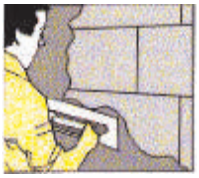
Chases to be de-grooved before plaster of wall. Avoid using hammer

Beam & Column Junctions



Wire Mesh & Chemical grout to be provided

Plaster



Thickness of Plaster as per given recommendation use Gypsum plaster on internal walls

JINDAL AIR™
AAC BLOCK

JINDAL BOND

'JINDAL BOND' Dry Mix Mortar is a construction materials mainly comprising of Cement, Sand and Chemical additives precisely weighed and mixed in a factory. This mix is termed as mortar and is packed in bags. Today where speed and time play an important part of any construction project DRY MIX MORTARS offer the perfect solution Advantages are consistent quality, controlled inventory, savings in time and labour costs. 'JINDAL BOND' manufactured by Future Ecocrete Pvt Ltd, is a multi purpose dry mortar mix simplifies the stock holding and management of wet trade requirements of any site. As a purpose designed multi use product, it avoids costly mistakes and resultant errors from choosing an incorrect product.

JINDAL BOND - Technical Specifications

Computer controlled mixing guarantees consistency Additives are blended in to ensure workability. The mortar is rated at 3.4 Mpa (as per ASTM-C1 660) i.e. the tensile Adhesive Strength.

JINDAL BOND - Highlights

- Easy to mix & use of dry mortar saves Water, Sand, Cement & Time with consistent strength.
- Joint thickness minimum 2/3 mm against l0mm to 25mm in other material.
- No curing required to the joints after installation in AAC Block Masonry against other conventional Cement mortar curing method.
- No wastage during use against conventional Cement mortar.
- Uniform quality Er strength due to quality control and produce under strict supenision in factory.
- Easy to handle, mix, transportation saves lot of energy which is required in conventional method.
- Available in convenient packing of 30 kg which are easy for transportation, handling Er use.
- No special / skill person requires? for joining of AAC Blocks masonary.
- Easy availability within 24 to 48 hours after placing orders.
- Reasonable pricing With good quality.




JINDAL AIR™ AAC BLOCK

our valuable client

LARSEN & TOUBRO

DLF
BUILDING INDIA

Indiabulls

M3M
Our Expertise. Your Joy.

Ahluwalia Contracts (India) Ltd.

Shapoorji Pallonji

TATA
TATA PROJECTS

इंडियनऑयल
IndianOil

The Thapar Group

JINDAL AiR™
AAC BLOCK

COST IMPACT ANALYSIS COMPARE TO BRICKS

Cost Component | Savings in Component | Estimated Impact on Project Cost

Mortal Material

60% | 1%

Clave Blocks are 9 times the size of conventional bricks, resulting in 1/3rd the number of joints. This is an overall 60% of mortar savings.

Plastering Material

35% | 1.5%

Exceptional dimensional accuracy & smooth surfaces eliminate the need of three-coat plaster walls and allows for a final 6mm skin coat (putty / gypsum plaster).

Structural Material (Steel & Concrete)

15% | 7%

Being light weight, AAC blocks drastically reduce the dead weight of the building. This translates to design of lighter structures leading to reduction in steel and concrete (up to 15%)

Wastage

12% | 1%

Breakage in bricks might be as high as 15% which in case of AAC blocks, is negligible.

Saving in Capex for HVAC Systems

35% | 1.5%

AAC blocks have excellent insulation properties, which results in saving in capex and opex of HVAC Systems.

Increase in Floor space are

2% | 4%

Due to exceptional thermal insulation & weather barrier properties, it's possible to use thinner blocks, which result in increased carpet areas.

Total Impact on Poject cost 15%

GENERAL ASPECTS

PARAMETER	AAC Block	Clay Brick
Structural Cost	Steel saving up to 15%	No such saving
Energy Saving	Aproximately 30% reduction in air-conditioned load for both heating and cooling	No such saving
Maintenance	Less due to its superior properties	comparatively high
Construction Speed	Speedy construction due to its big size, light weight and ease to cut in any size or shape	Comparatively low
Labour Output	Aproximately double of conventional bricks	Comparatively low
Efflorescence	No such chance, which improves the durability of wall along with plaster and paint in a long run	Most chances are there
Fitting and Chasing	All kkind of fitting and chasing possible (as per IS:1905)	All kind of fitting/chasing is possible
Carpet Area	More due to lesser thickness of the partition walls	comparatively low
Storage	Readily available at any time in any season on short notice, hence no storage required	Particularly in monsoon, on-site stock is required, which blocks larger working spaces
Water Required	Requires less water in wetting and curing, hence reducing electricity bills and labour costs.	Needs more curing resulting in higher amount of electricity bills and labour costs
Cement Mortar for Plaster and Mosonry	Requires less material due to flat, even surfaces and lesser number of joints	Requires more material due to irregular surface and greater number of joints
Breakage @ Utilization	Negligible breakage makes almost 100% utilization is possible	Average 10% to 12% breakage, making 100% utilization impossible

TECHNICAL SPECIFICATIONS

PARAMETER	AAC Block	Clay Brick
Size (LxHxB)	625mm x 240 mm x 75mm - 300 mm	230mm x 750mm x 115mm
Precision in Size	Variation 1.00 (+/-)	Variation 2.15 (+/-)
Compressive Strength	5 - 8.0 N/mm^2 (As per IS: 2185 part III)	2.5 - 3.0 N/mm^2
Dry Density	550-650 kg/m^3 (Oven dry)	1800 Kg/m^3
Labour Output	2 to 6 hours depending on thickness	2 hours
Efflorescence	45 for 200 mm thick wall	50 for 230 mm thick wall
Thermal Conductivity. (Kw-m/C)	0.16	0.81
Carpet Area	0.5 bag of Cement	1.35 bag of Cement
Storage	30 Sqm	20 Sqm
Chemical Composition	Fly ash used around 70% which reacts with binders (Lime and Cement) to form AAC	Soil is used which contains many inorganic impurities like sulfates etc. resulting in Efflorescence
Finishing	Can be directly cut or shaped/sculptured as required	Not possible
Contributions to carpet area	3 - 5%	No contribution

JINDAL AiR™ AAC BLOCK

FUTURE ECO
CRETE PVT. LTD.

Indian Green Building Council
MEMBER

Marketing by

Peeco Agencies Pvt. Ltd.

Corporate Office
F-56, Sushant Lok, Phase-2,
Near Hong Kong Bazar, Gurugram
Tel.:+91-9319084100
www.jindalairaac.com

Manufacturing by

FUTURE ECOCRETE PVT. LTD.

An ISO 9000:2008, 14001:2003, 18001:2007 Company

Works
Block #10 to 20, Israna Pardhana Road,
Village : Pardhana - 132107, Tehsil : Israna, PANIPAT (HARYANA)
E-mail: jindalairaac@gmail.com
Tel:+91 8710821010