NEW AGE BRICK FOR YOUR DREAM CONSTRUCTION

- HIGHER STRENGTH
- FIRE RESISTANT
- HIGH THERMAL INSULATION
- LIGHT WEIGHT
- COST EFFECTIVE
- HIGH SOUND INSULATION
- PEST RESISTANT
- ECO FRIENDLY
Vision

To make BRIKOLITE replace all types of concrete blocks and conventional clay bricks in the construction industry by offering innovative, eco-friendly, and new age technology along with our unmatched customer service.

Mission

We aim to become a leading manufacturer of AAC Blocks in North East India, and to stay committed to offering a complete building solution & a system backed up by skilled technical support and excellent customer service. We believe in delivering high quality and cost effective products which adds value to our customers. We act with integrity and respect. We are continuously driven by our commitment to improving our environmental footprint and creating greener and more sustainable planet.

Company Profile

Lohia Group, the promoters of M/s KD Infra, has been one of the most reputed business houses of the North Eastern Region. The group has commanded consistent growth and performance over the last few decades. The group holds manufacturing interests in varied construction related industries like cement, GP/GC sheets, TMT Bars, AAC Blocks, wire rods, ferro alloys etc. thus controlling a substantial portion of the market in construction materials, here in the NER.

Know your Brikolite AAC Blocks

The BRIKOLITE AAC Block is a lightweight material produced by mixing silica rich material (sand or fly ash/pond ash), cement, lime, gypsum, aluminium powder/paste and water. Aluminium acts as a catalyst. It generates hydrogen gas upon reacting with cement and lime during the AAC manufacturing process. Hydrogen gas escapes from the concrete mix imparting a porous structure to AAC blocks.

BRIKOLITE AAC Blocks are so lightweight that it weighs only 1/5th of weight of the standard concrete, which results in lower transportation costs, faster work-flow, lower material handling costs etc. The BRIKOLITE AAC Block is a ‘ready to build’ material, requiring no onsite curing time. It has unparalleled workability because it can be cut, drilled, nailed, screwed and milled with common hand tools. We aim to deliver excellence with integrity and respect.
AAC Blocks History

Autoclaved Aerated Concrete (AAC), also known as Autoclaved Cellular Concrete (ACC), and Autoclaved Lightweight Concrete (ALC) is a lightweight, precast, foam concrete building material invented in the mid-1920s that simultaneously provides structure, insulation, fire and mold resistance and various other advantages. It is also an environmentally friendly product, as it is manufactured using 65-75% of sand / fly ash (by weight). Due to its many desirable attributes, AAC Blocks have gained massive popularity in Northern, Western and Southern India with almost 80 percent of the constructions using AAC Blocks as a replacement of the traditional clay bricks. In the North Eastern region, it is gaining popularity since 2012 and is looking to replace the use of traditional clay bricks completely.

AAC was perfected in the mid-1920s by the Swedish architect and inventor Dr. Johan Axel Eriksson working with Professor Henrik Kreuger at the Royal Institutes of Technology. The process was patented in 1924. In 1929, production started in Sweden at the city of Yxhult. From “Yxhult’s Anghardade Gasbetong” later became the first registered building materials brand in the world: Ytong. The second major international cellular concrete Hebel brand goes back to company founder and technicians Josef Hebel from Memmingen. In 1943, the first Hebel-Plant was opened in Germany.

Originally Ytong autoclaved aerated concrete in Sweden was produced with alum shale, whose combustible carbon content made it beneficial to use in the production process. Unfortunately, the slate deposits used for Ytong in Sweden also contained a very low level of natural occurring uranium, which causes the material to release radioactive radon gas in the building. By using new recipes, containing only Quartz sand/Flyash, calcined gypsum, lime (mineral), cement, water and Aluminium powder, after 1975, Ytong produced a new type of aerated concrete block which doesn’t contain alum slate anymore and thus the problem of radon exposure from this raw material was eliminated. The resulting process of producing white autoclaved aerated concrete is state of the art of technology, used by Brikolite and other producers all over the world.

Composition of AAC Blocks

- Gypsum, 3.5%
- Lime, 14%
- Cement, 14%
- Other, 0.5%
- 80% Air & 20% Solid Matter
- Fly Ash, 68%
**Brikolite Benefits**

**Structural Saving**
BRIKOLITE is extremely light weight which reduces its dead weight leading to reduced consumption of steel in the construction of a building. This offers excellent savings. Apart from this the use of plaster and mortar is also reduced.

**Acoustic Insulation**
BRIKOLITE offers unmatched acoustic insulation. Boast high sound absorption and are the obvious choice, especially in noisy areas, can also be used as sound barriers.

**Lightweight**
BRIKOLITE is 3 times lighter than traditional bricks, making it easier to transport and reducing construction time. Apart from that, labour time is greatly reduced ensuring cost effectiveness.

**Water Proof**
BRIKOLITE has a microscopic cellular structure of aerated pores, which makes buildings built with BRIKOLITE almost 80% water resistant. This property can be further enhanced by use of silicone additives.

**Work ability & flexibility**
BRIKOLITE can be easily cut / drilled / nailed / grooved to fit custom needs. This allows the installation of electrical and sanitary fittings even after structure construction is complete.

**Eco Friendly**
BRIKOLITE made out of flyash, an industrial waste via a non polluting process of steam curing comprising of non-toxic elements, AAC Blocks are the most eco friendly product for construction.

**High Strength**
Steam Curing at high pressure during the autoclaving process gives BRIKOLITE AAC Blocks unprecedented strength to weight ratio surpassing concrete and exceeds the Indian Building code requirement.

**Earthquake Resistant**
The effect of an earthquake is proportional to the weight of the structure. BRIKOLITE AAC Blocks being light weight subdue any damage by quakes or high winds largely.

**Fire Resistant**
Owing to the unique cellular - bee-hive like structure the fire resistance quotient of BRIKOLITE AAC Blocks is very high, It can withstand temperatures upto 1400°C and has a fire rating of 4-5 hours.

**Pest Resistant**
With the precision ratio of BRIKOLITE AAC Blocks being very high, results in smooth finishing preventing pests. The use of inorganic material also inherently prevents mold and fungi growth.

**Faster Construction**
BRIKOLITE AAC Blocks cut down on construction time by over 25%. Being lighter in weight building time is reduced and it also sets and hardens quickly.
## Brikolite Sizes

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Dimension of AAC Blocks (L x H x B)</th>
<th>Cubic Meter of a AAC Block</th>
<th>No. of AAC Blocks in 1 Cubic Meter</th>
<th>Weight of a AAC Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>600<em>200</em>075 MM</td>
<td>0.00900</td>
<td>111 Pcs (Approx)</td>
<td>6/7 KGS (Approx)</td>
</tr>
<tr>
<td>2</td>
<td>600<em>200</em>100 MM</td>
<td>0.01200</td>
<td>083 Pcs (Approx)</td>
<td>8/9 KGS (Approx)</td>
</tr>
<tr>
<td>3</td>
<td>600<em>200</em>125 MM</td>
<td>0.01500</td>
<td>066 Pcs (Approx)</td>
<td>10/11 KGS (Approx)</td>
</tr>
<tr>
<td>4</td>
<td>600<em>200</em>150 MM</td>
<td>0.01500</td>
<td>055 Pcs (Approx)</td>
<td>12/13 KGS (Approx)</td>
</tr>
<tr>
<td>5</td>
<td>600<em>200</em>175 MM</td>
<td>0.02100</td>
<td>047 Pcs (Approx)</td>
<td>14/15 KGS (Approx)</td>
</tr>
<tr>
<td>6</td>
<td>600<em>200</em>200 MM</td>
<td>0.02400</td>
<td>041 Pcs (Approx)</td>
<td>16/17 KGS (Approx)</td>
</tr>
<tr>
<td>7</td>
<td>600<em>200</em>225 MM</td>
<td>0.02700</td>
<td>037 Pcs (Approx)</td>
<td>18/19 KGS (Approx)</td>
</tr>
<tr>
<td>8</td>
<td>600<em>200</em>250 MM</td>
<td>0.03000</td>
<td>033 Pcs (Approx)</td>
<td>20/21 KGS (Approx)</td>
</tr>
</tbody>
</table>

## Brikolite Specifications

<table>
<thead>
<tr>
<th>Product Specification</th>
<th>Units</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>mm</td>
<td>600</td>
</tr>
<tr>
<td>Height</td>
<td>mm</td>
<td>200</td>
</tr>
<tr>
<td>Thickness</td>
<td>mm</td>
<td>75,100, 125, 150, 200, 225, 250</td>
</tr>
<tr>
<td>Compression Strength</td>
<td>N/mm²</td>
<td>&gt;4 (As per IS : 2185 Part III)</td>
</tr>
<tr>
<td>Normal Dry Density</td>
<td>Kg/m³</td>
<td>550-650</td>
</tr>
<tr>
<td>Thermal Conductivity</td>
<td>W/mk</td>
<td>0.24</td>
</tr>
<tr>
<td>Sound Reduction</td>
<td>Db</td>
<td>Upto 42</td>
</tr>
<tr>
<td>Fire Resistance</td>
<td>Hrs</td>
<td>*4</td>
</tr>
<tr>
<td>Dry Shrinkage</td>
<td>%</td>
<td>0.04</td>
</tr>
</tbody>
</table>

## Brikolite Cost Effectiveness

<table>
<thead>
<tr>
<th>Cost Component</th>
<th>Saving in Component</th>
<th>Estimated Impact on Project Cost</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortar Material</td>
<td>60%</td>
<td>2%</td>
<td>Brikolite AAC Blocks are 7 times the size of conventional bricks, resulting in 1/3&quot; the number of joints. Thus an overall mortar savings up to 60%</td>
</tr>
<tr>
<td>Plastering Material</td>
<td>35%</td>
<td>2%</td>
<td>Exceptional dimensional accuracy &amp; smooth surfaces eliminates need of three coat plaster walls &amp; allows for a final 6 mm skin coat (putty/gypsum plaster)</td>
</tr>
<tr>
<td>Wastage</td>
<td>10%</td>
<td>0.5%</td>
<td>Breakage in Bricks might be as high as 15% which in case of AAC Blocks is less than 5%</td>
</tr>
<tr>
<td>Structural Material (Steel &amp; Concrete)</td>
<td>20%</td>
<td>8%</td>
<td>Being lightweight, 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 20%)</td>
</tr>
<tr>
<td>Increase in floor space Area</td>
<td>2%</td>
<td>2%</td>
<td>Being to exceptional thermal insulation &amp; weather barrier properties, its possible to use thinner blocks, which results in increase of carpet area.</td>
</tr>
<tr>
<td>Savings in Capex for HVAC Systems</td>
<td>30%</td>
<td>0.5%</td>
<td>AAC Blocks have excellent insulation properties, which results in saving in capex &amp; opex of HVAC Systems.</td>
</tr>
<tr>
<td>Total Impact on Project Cost</td>
<td>15.00%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Brikolite User 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
- Sand
- Cement
- Thin-bed Mortar or cement: sand (1:6)

Wetting of Block before application
- Moisten the top and the sides of the blocks slightly

Mortar Thickness
- Conventional: 10-12mm
- Premix Thin-Bed: 3-4 mm

Bond Pattern
- 100 mm
- 100 mm or more

Coping Beam
- 1.2 mts.
- Coping beam with 2 nos 6mm 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

Beam & Column Junctions
- Beam
- Wire Mesh
- Wire Mesh & Chemical grout to be provided

Plaster
- Thickness of Plaster as per given recommendation
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Brikolite AAC Block</th>
<th>Red Clay Bricks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Density kg/m³</td>
<td>550-650 kg/m³ (dry oven) IS-2185 (PT-3)</td>
<td>1900 kg/m³</td>
</tr>
<tr>
<td>Compressive Strength in kg/cm²</td>
<td>30-45 kg/cm², IS-2185 (PT-4)</td>
<td>40-75 kg/cm²</td>
</tr>
<tr>
<td>Aging</td>
<td>Gains in strength with age</td>
<td>No gain in strength with age</td>
</tr>
<tr>
<td>Thermal Conductivity (W/m.K.)</td>
<td>0.24 W/m.K. (for 551 - 650 kg/m³)</td>
<td>0.81 W/m.K.</td>
</tr>
<tr>
<td>Sound Insulation</td>
<td>Superior than burnt clay &amp; hollow concrete</td>
<td>Normal</td>
</tr>
<tr>
<td>Ease of Working</td>
<td>Can be cut, nailed &amp; drilled</td>
<td>Normal</td>
</tr>
<tr>
<td>Fire Resistance</td>
<td>4 to 6 Hours (depending on thickness)</td>
<td>2 Hours</td>
</tr>
<tr>
<td>Sound Reducing Index</td>
<td>45 db for 200mm thick wall</td>
<td>50db for 230mm thick wall, for the frequency ranging from 200 to 2000 Hz</td>
</tr>
<tr>
<td>Pest &amp; Rodent Resistance</td>
<td>No fungus &amp; algae germination due to non organic properties</td>
<td>Algae Susceptible</td>
</tr>
<tr>
<td>Process</td>
<td>Casting-rising-Precuring-IS-456, IS-2185 (PT-4)</td>
<td>Moulding heat treatment</td>
</tr>
<tr>
<td>Pre-cast Brick size</td>
<td>600x200x75 To 300mm-IS-2185 (PT-3,4)</td>
<td>230x100x70 mm</td>
</tr>
<tr>
<td>Pre cast elements</td>
<td>Any size of elements</td>
<td>Not feasible</td>
</tr>
<tr>
<td>Water Absorption % by weight</td>
<td>Less than 20% by volume -IS-2185 (PT-3)</td>
<td>20% by volume</td>
</tr>
<tr>
<td>Drying Shrinkage mm/meter</td>
<td>Shrinkage after maturing 0.011 (for 600 kg/m³ ) IS-2815 (PT-3)</td>
<td>No shrinkage</td>
</tr>
<tr>
<td>Productivity</td>
<td>Output 100% more than brick work</td>
<td>Normal</td>
</tr>
<tr>
<td>Eco Friendliness</td>
<td>Pollution free, normal energy requirement, open process uses fly ash or sand lime</td>
<td>Creates smoke, uses high energy, wastes agricultural land</td>
</tr>
<tr>
<td>Structural saving due to dead weight reduction</td>
<td>55% reduction in weight of walls-Tremendous structural saving for high rise buildings in earthquake / poor soil area</td>
<td>No additional saving</td>
</tr>
<tr>
<td>Delivery</td>
<td>Pre-Cured and ready for delivery-IS-456</td>
<td>Seasonal</td>
</tr>
<tr>
<td>Automation</td>
<td>Automated manufacturing process-accurate design mix</td>
<td>Manual</td>
</tr>
<tr>
<td>Labour involvement for 10x10 ft wall</td>
<td>1 Labour</td>
<td>2 Labours</td>
</tr>
<tr>
<td>Construction Speed</td>
<td>Very high due to bigger size, light weight</td>
<td>Comparatively lower</td>
</tr>
<tr>
<td>Quality</td>
<td>Uniform and finished</td>
<td>Normally varies</td>
</tr>
</tbody>
</table>
BrikoLite FAQ

- How BRIKOLITE AAC Blocks should be stacked?
  AAC Blocks stacking should be preferably done on Pallet to protect the bottom blocks from dampness. Ground should be clean and leveled. Blocks should be kept on its height side as we construct the wall. Height of Stacking may be taken as 1200-1500 mm. Blocks should be kept lightly on stack to avoid any possible damage during stacking. Blocks must not be lifted or placed rubbing above one another. Blocks must be stacked in systematic arrangement so that counting of same may be easier.

- How to prevent cracks in AAC Block?
  Deflection of beam, soil settlement to one side, uneven placing of blocks during construction are some reasons of wall cracking. Structural Movements due to Thermal Expansion or change in moisture content or moisture movement can also be the reason. To overcome this, AAC block use must be delayed till equilibrium moisture content is reached. For this purpose AAC blocks must be stored 10-15 days prior to its application. Cracks appear in all types of concrete including clay brick. By using some construction techniques and proper workmanship we can minimize these cracks. Leveling of blocks should be accurate and must be checked using Spirit level preferably of 2 meter length. First Course of Blocks should be given sufficient time to set, at least 24 hours must be given. Framed Structure should be given enough time to set to cure and settle at least for 24 hours so that any change in structure due to structure movement can be noticed. Control Joint of 10 mm must be given after every 3 meter from bottom to top of wall. Control joint must be filled with some resilient material or backer-rod which are more easily compressed and sealed with caulking. Expansion Joint Tiles must be given after every 3rd course and placed between gaps of control joint. Bond beam must be given after every 1200 mm in height using reinforcement of two MS rods of 8 mm tied with 6-8 mm steel with a gap of 6"-9". Minimum thickness of bond beam must be taken 3” with concrete cover 15-20 mm on sides. Bond beam must be discontinuous at control joint. Steel rods must be embedded in column 5-6 times of its diameter and must be fixed using non shrinkable high strength grout. Mortar Mix for filling the bond beam can be taken as Cement : Sand in the ratio 1:4. Purpose of bond beam is to give stability and strength to the wall. After every 3rd course, Wall ties must be used between block and concrete column.

Due to excessive change in moisture content, all concrete including AAC exhibit change in volume. For this purpose it is recommended to delay use of AAC for construction by 10-15 days so that AAC blocks can achieve equilibrium moisture content.
● What are the Water Absorption Parameters?
Water Absorption Test @ 24 hour water immersion is not given in Standard of AAC Blocks IS-2185 Part-3. It is recommended to test thermal insulating wall elements like AAC for Capillary water absorption. AAC Block is superior for capillary water absorption in comparison to conventional brick. Like red clay brick, AAC is not recommended to use in foundations and damp environment, so water absorption test is not applicable for AAC.

● What is the reason for moisten of Block prior to its application?
When we apply mortar on blocks, AAC absorbs certain amount of water from mortar mix and mix may get crack so prior moisten of blocks is essential. For this purpose we sprinkle the block top and side surface with water for few seconds. Purpose is to wet the surface of blocks. Never do too much wetting of blocks.

● How is the Nailing & Electrical Chasing Work done?
Normal nails once fixed may come out. Use fasteners or screwed nail. Anchors made of plastic and nylon will work. Use power drill for anchoring. For electrical conducting (Jhari), preferably use electric chaser (Jhari making machine). It gives fine and accurate chasing and no impact on AAC wall. Manual chasing using normal chisel should be avoided.

● What type of Plaster to use?
Use any non-shrinkage mortar. First apply thin cement siurry on chase and fix fiber mesh then apply non shrinkable mortar.

● What should be the thickness of the Wall?
BRIKOLITE AAC Block recommends, wall can be constructed of minimum 125mm for internal wall purpose & 150mm for external wall purpose.

● How to check compressive strength of the Blocks?
A Low Capacity compression testing machine of 250 KN and cutting Machine is recommended for testing compressive strength of AAC blocks. High Capacity Machines of 2000-3000 KN are not recommended to use. Follow the testing guidelines as mentioned in IS-6441 Part-5. There is difference between immediate density and oven dry density. In normal condition, AAC blocks have certain moisture content so their density is observed higher but for testing purpose, we dry the sample at 105°C for 4-5 days till constant weight is achieved and then we obtain moisture free density or dry density. After this we can achieve the desired result. Refer IS-6441 Part-1 for testing the oven dry density.
List of Relevant Standards

<table>
<thead>
<tr>
<th>IS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1905</td>
<td>Code of practice for structural use of un-reinforcement masonry</td>
</tr>
<tr>
<td>2185</td>
<td>Specification for concrete masonry units (Autoclaved cellular concrete blocks)</td>
</tr>
<tr>
<td>Part 3</td>
<td></td>
</tr>
<tr>
<td>2250</td>
<td>Code of practice for preparation and use of masonry mortars</td>
</tr>
<tr>
<td>6041</td>
<td>Code of practice construction of autoclaved cellular concrete block masonry</td>
</tr>
<tr>
<td>5628</td>
<td>Code of practice for use of masonry</td>
</tr>
<tr>
<td>Part 1, 2 &amp; 3</td>
<td></td>
</tr>
</tbody>
</table>

List of Approval

- CPWD NE Region
- Assam PWD
- Meghalaya PWD
- IIT Guwahati
- IIIT Guwahati
- RITES
- Indian Oil Corporation
- Assam Electrical Grid Corporation Ltd.
- Assam Tourism
- National Institute of Technology
- National Health Mission Projects
- Mizoram PWD Projects
- Assam Rifles
- Engineering Projects India Limited
- FCI Projects
- ADB Funded Schools Projects
- Public Health Enterprise Projects
- Hindustan Pre Fab Ltd.
- NBCC (India Ltd.) Projects
- Power Grid Corporation Ltd. Projects

Certification

- B.I.S. 2185:1984 (Part-3)
- ISO 9001:2008
- ISO 14004:2004
- IGBC Approved & Certified
- Bhutan Standard Bureau
BRIK-O-LITE used at Projects

- PARK PANORAMA, GUWAHATI
- EXOTICA GREEN, JONALI, GUWAHATI
- ROYAL PARK, GUWAHATI
- NEW SECRETARIATE BUILDING, DISPUR
- PROJECTS OF ASSAM PWD
- ADB FUNDED SCHOOL, MEGHALAYA
- WALL GROOVING
- NIT, CHERRAPUNJEE
ITS ABOUT COMFORT

High thermal insulation of BRIKOLITE AAC Blocks do not allow outside heat flow inside through the wall.

Water seepage due to capillary action & higher proportion of water absorbing material.

Saves carpet area by 8 to 12 mm.

Disclaimer
Information on this brochure is to be treated as guideline for usage & understanding the product. Users may be advised to undertake a trial for product suitability prior to its full scale usage. There is no express or implied guaranty/warranty for the results. The company is not liable for any consequential damages.

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