IS 2185 PART-3:1984

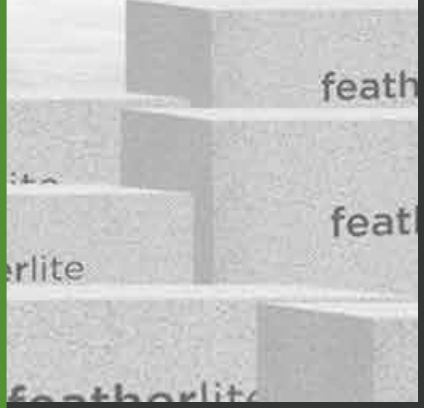
CM/L - 5300044990

featherlite®

Premium Quality

Fly Ash Blocks

Processed Under AAC Technology



BHAROSE KI DEEWAREIN

A BRIEF INTRODUCTION

WHAT IS FEATHERLITE BLOCKS?

(PROCESSED UNDER AUTOCLAVED AERATED CONCRETE TECHNOLOGY)

Aerated Autoclaved Concrete is a technology developed in the mid-1920s by the Sweden. Featherlite Fly Ash Blocks consist of around 60% air, this aerated materials processed through autoclaving which entails high pressurised curing of aerated materials formed in cellular shapes, which are known as AAC elements.

These elements can be further classified into blocks, wall/floor/roof panel and lintels. The Featherlite blocks are used as a substitute for the conventional building masonry and have been widely accepted globally because of their benefits such as light weight, thermal and sound insulation, mould resistance and other benefits which ease the process of construction.

ENVIRONMENTAL ATTRIBUTES

- Recognized “Green Building” product
- Aids in IGBC - LEED, TERI - GRIHA Design
- Mold resistant - inorganic and breathable
- No toxic releases or off-gassing
- Promotes healthy Indoor Air Quality
- Resource efficient

B.I.S.CODES APPLICABLE TO FEATHERLITE BLOCKS

BIS 2185(Part-III) Specification of material

BIS 6041 Construction of AAC masonry

BIS 6441 (Part I-IX) Testing Procedure.

BIS 6072,6073 Autoclaved Reinforced panels

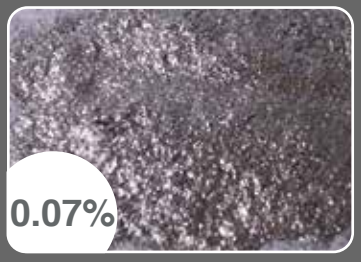
Composition of Featherlite Blocks

Fly Ash / Sand

Cement OPC

Quick Lime

Gypsum



Aluminium Powder

Additives

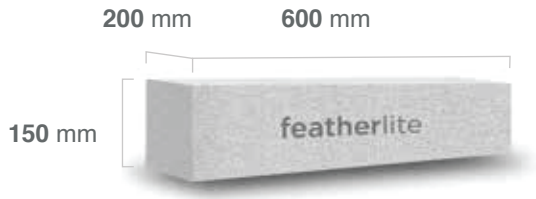
FEATHERLITE **BLOCK**
Arithmetic

SIZE DETAILS:

24”x8”x4”
600 mm x **200** mm x **100 mm**
SINGLE BLOCK CBM: **0.012 m³**
PER CBM, NO. OF QTY: **83.3 Pcs**
AVERAGE WEIGHT OF BLOCK: **9.6 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED **: 77.46**
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED **: 833.33**
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 0.93

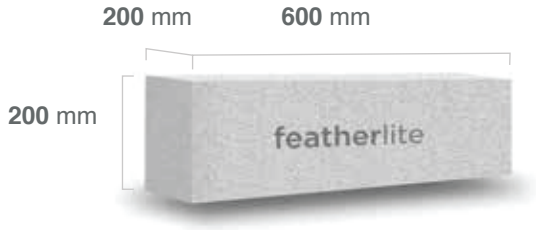
SIZE DETAILS:

24”x8”x5”
600 mm x **200** mm x **125 mm**
SINGLE BLOCK CBM: **0.015 m³**
PER CBM, NO. OF QTY: **66.7 Pcs**
AVERAGE WEIGHT OF BLOCK: **12.0 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED **: 77.46**
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED **: 833.33**
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 1.16



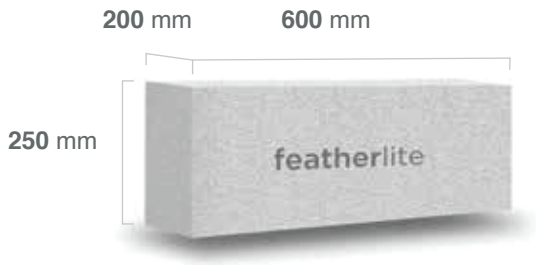
SIZE DETAILS:

24”x8”x6”
600 mm x **200** mm x **150 mm**
SINGLE BLOCK CBM: **0.018 m³**
PER CBM, NO. OF QTY: **55.6 Pcs**
AVERAGE WEIGHT OF BLOCK: **14.4 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED **: 77.46**
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED **: 833.33**
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 1.39



SIZE DETAILS:

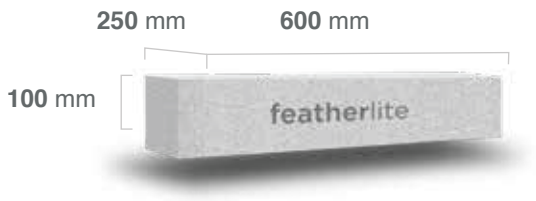
24”x8”x8”
600 mm x **200** mm x **200 mm**
SINGLE BLOCK CBM: **0.024 m³**
PER CBM, NO. OF QTY: **41.7 Pcs**
AVERAGE WEIGHT OF BLOCK: **19.2 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED **: 77.46**
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED **: 833.33**
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 1.86



SIZE DETAILS:

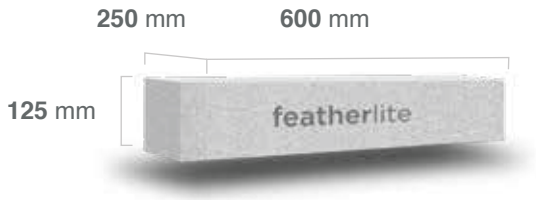
24”x8”x10”
600 mm x **200** mm x **250 mm**
SINGLE BLOCK CBM: **0.030 m³**
PER CBM, NO. OF QTY: **33.3 Pcs**
AVERAGE WEIGHT OF BLOCK: **24.0 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED **: 77.46**
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED **: 833.33**
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 2.32

FEATHERLITE **BLOCK**
Arithmetic



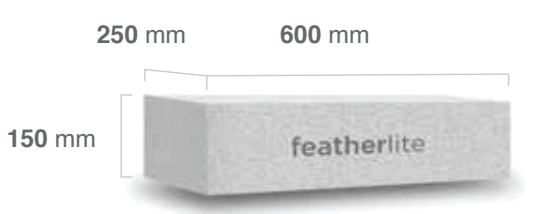
SIZE DETAILS:

24"x10"x4"
600 mm x **250** mm x **100** mm
SINGLE BLOCK CBM: **0.015 m³**
PER CBM, NO. OF QTY: **66.7 Pcs**
AVERAGE WEIGHT OF BLOCK: **12.0 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED : 61.97
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED : 666.67
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 0.93



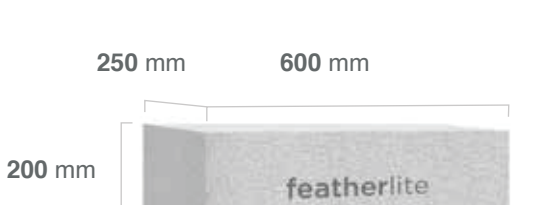
SIZE DETAILS:

24"x10"x5"
600 mm x **250** mm x **125** mm
SINGLE BLOCK CBM: **0.019 m³**
PER CBM, NO. OF QTY: **53.3 Pcs**
AVERAGE WEIGHT OF BLOCK: **15.0 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED : 61.97
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED : 666.67
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 1.16



SIZE DETAILS:

24"x10"x6"
600 mm x **250** mm x **150** mm
SINGLE BLOCK CBM: **0.023 m³**
PER CBM, NO. OF QTY: **44.4 Pcs**
AVERAGE WEIGHT OF BLOCK: **18.0 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED : 61.97
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED : 666.67
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 1.39



SIZE DETAILS:

24"x10"x8"
600 mm x **250** mm x **200** mm
SINGLE BLOCK CBM: **0.030 m³**
PER CBM, NO. OF QTY: **33.3 Pcs**
AVERAGE WEIGHT OF BLOCK: **24.0 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED : 61.97
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED : 666.67
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 1.86

SIZE DETAILS:

24"x10"x10"
600 mm x **250** mm x **250** mm
SINGLE BLOCK CBM: **0.038 m³**
PER CBM, NO. OF QTY: **26.7 Pcs**
AVERAGE WEIGHT OF BLOCK: **30.0 Kg**
FOR 100 SQ. FT. NO. OF FLY ASH BLOCKS REQUIRED : 61.97
FOR 100 SQ. MT. NO. OF FLY ASH BLOCKS REQUIRED : 666.67
REQUIRED CBM TO ERECT 100 SQ. FT. WALL OF FLY ASH BLOCK : 2.32

FEATURES & BENEFITS

COST SAVING:

- Featherlite blocks are X9 the size of clay bricks, reducing the need for mortar joints by over 66%.
- Lightweight properties lead to a lighter dead load on the building structure.
- Due to surface accuracy of the blocks, the need for plaster on Featherlite blocks is less.
- High insulation properties result in saving of energy costs.

ENERGY EFFICIENT:

Thermal insulation is one of the greatest benefits of using Featherlite blocks, as the Featherlite block wall helps maintain distinct internal and external temperatures, saving energy costs.

FIRE RESISTANT:

Featherlite blocks are suitable for use in areas where fire safety is recommended, as these blocks are fire resistant for about 2 to 6 hours depending on the thickness of the wall.

PEST RESISTANT:

The pest resistant properties (as the blocks are made of inorganic materials) of Featherlite Blocks keeps termites away, avoiding damages and losses.

MINIMUM WASTAGE:

Breakage of Featherlite blocks is negligible, less than 2%, which increases the utilisation of the blocks.

FEATURES & BENEFITS

SOUND INSULATION:

Having a commendable STC (Sound Transmission Class), Featherlite blocks elements are appropriate material for wall construction.

EARTHQUAKE RESISTANT:

The manufacturing process gives the blocks commendable strength, maintaining its light weight property due to which the steadiness of these blocks in buildings is more reliable, making it earthquake resistant.

WATER SAVER:

For the curing process of Featherlite block walls, there is no need to water the blocks, only the conventional mortar joints need to be cured with water saving on water consumption.

MINIMUM STORAGE:

Supplies are available in round the year so that Featherlite block buyers do not need to maintain large storage areas for blocks

TIME SAVING:

Time consumed in building walls decreases due to light weight of the product and its size over conventional clay bricks, decreasing lead time as well as installation time.

EASY APPLICATION:

Being light in weight and larger in size, Featherlite Blocks are easy to apply and facilitate ease of work to the mason, especially in highrise projects.

SOUND INSULATION

Featherlite blocks have excellent sound insulation properties due to their lightweight and porous nature, which absorbs and blocks sound effectively. They are made of a mixture of cement, fly ash, and lightweight materials resulting in a lower density than traditional concrete blocks. The blocks' porous structure, containing numerous small air pockets, acts as a barrier to sound waves, reducing the amount of sound passing through.

THERMAL INSULATION

Energy savings in the operation of buildings are of particular importance as the cost of energy for heating and air conditioning in most cases represent the major cost factor in the operating cost of a building.

The entrained air in the cellular structure of Featherlite Block system gives the product excellent thermal insulation properties, as well as good heat retention characteristics. These characteristics contribute significantly to the energy saving performance of the building.

FIRE RESISTANCE

Featherlite Block is non-combustible. It has one of the highest hourly fire resistance ratings per millimetre of any building material. This makes it an ideal choice for fire protection around steel columns and steel beams, and in the construction of shaft walls, stairwells, corridors and firewalls. A 100mm and a 200 mm non-load bearing wall shall have fire resistance of 2 hours and 6 hours respectively.

EARTHQUAKE RESISTANCE

Featherlite Blocks has been used in areas subject to seismic zone. Building which consist fully or partly of Featherlite Blocks have in general terms shown good resistance to earthquake forces in practice. The light weight of Featherlite Blocks reduces the seismic forces in common with some other materials.

The low weight of Featherlite Blocks in relation to its strength is an intrinsic advantage for earthquake design. Featherlite Blocks permits the designer to reduce the mass of the structure, limiting the impact of accelerations introduced in seismic situation.

ADVANCED TECHNOLOGY

Featherlite has the most advanced manufacturing unit which uses ultra-modern technologies and imported machineries.

QUALITY CONTROL

We have the finest laboratory to check raw materials and finished goods, ensuring that each block passing out of our manufacturing facility adheres to global standards of quality and performance, while also ensuring less wastage for smart construction.
All batches of finished goods are checked properly with all lab equipment supplied by Aimil Ltd.

FILTERED WATER

We use Reverse Osmosis (RO) water for manufacturing blocks which is free from all impurities in water.
This reduces chance of efflorescence and neutralise organic particles in finished product.

PROCESSED SAND

We are proud to say that we are the one and only manufacturing unit in PAN India which have installed imported machines from Ireland (CDE Global) for processing sand which is free from all impurities to get high silica content and using processed sand from sand washing unit results in highly superior quality products that are wellrecognised for their excellent strength and durability.

MONITORING

Our Blocks have consistent quality, since all the raw materials go through proper testing and production process is maintained at equal parameters.
The autoclaving which plays a major role in quality of blocks are very minutely monitored.

TESTING

All finished goods are checked as per defined ISI Standards. The finish goods are kept for 96 hours before dispatch so that all chemical reactions get completed and the blocks are free from moisture. We keep a close check on the physical properties of Featherlite blocks such as its compressive strength and density.

CONSISTENT SUPPLY

Having the biggest storage capacity to stock finish goods with covered area of 40,000 sq. ft. we can supply blocks throughout the year irrespective of any weather condition.

PROMPT SERVICE

We take all measures to deliver the material within 24 hrs including in Nepal and Bhutan since we have in-house logistic arrangement.

FEEDBACK

By using sand as prime raw material with fly ash, we have overcome the major problem with using AAC blocks i.e. it's drying shrinkage property and feel immense proud in informing you that till date we have not received a single complain regarding cracks after installation of our blocks from any of our dealers & consumers.

TECHNICAL SUPPORT

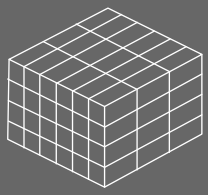
Our company has a 'customer first' approach, and therefore we make sure to provide the best after sale service to them, by ensuring that our technical team visits all sites after supplying the material to check and train the masons for installation of blocks. Regular site visit and discussionwith the site Engineers are followed for correct installation of blocks.

CHANNEL OF COMMUNICATION

The Company's Technical Team provides construction solutions to its customers & carries out regular & innovative contact programmes with Individual House Builders, Masons and other Business Associates to keep in tune with their needs and requirements. There are various channels that we use to reach out to our customers including, phone calls, social media, direct site visits by our technical team, with architects, masons and other influencers

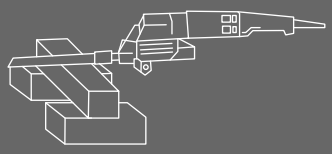
PREPARATION & APPLICATION

Stacking



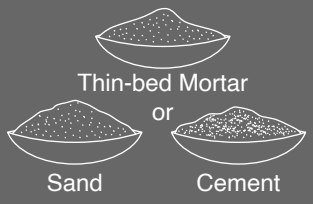
Stack on dry and even surface to avoid damage and contact with moisture

Cutting of Block



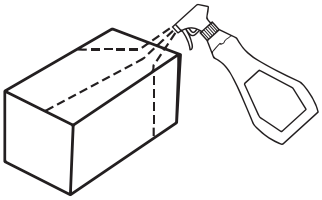
Use tool like hacksaw or rotary cutter

Mortar for masonry



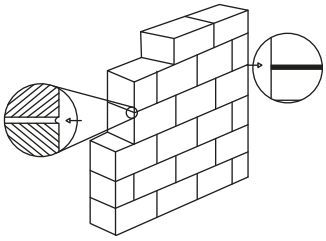
Thin-bed Mortar or cement: sand (1:5)

Moistened of Block before application



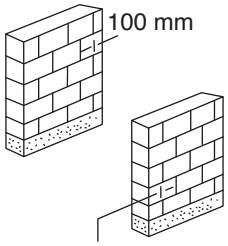
Moisturize the surface where adhesive is applied

Mortar Thickness



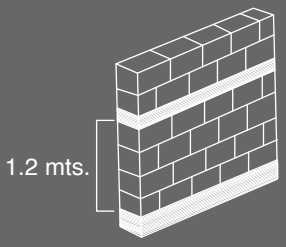
-> Conventional : 10-12 mm
-> Premix Thin-Bed : 2-3 mm

Bond Pattern



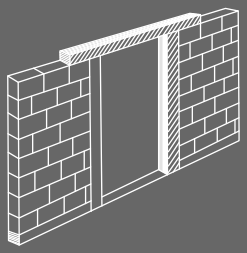
100 mm or more

Coping Beam



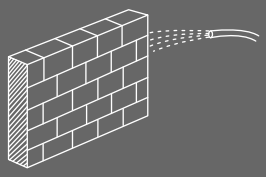
Coping beam with 2 nos 8 mm reinforcement after 1.2 mts. height

Lintel Support



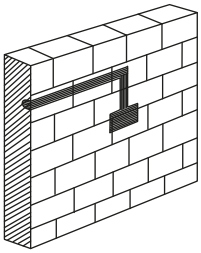
Lintel support on full block

Curing of Masonry Wall



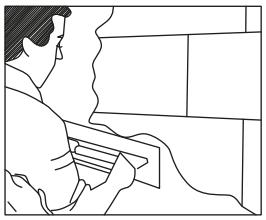
Curing required only for mortar joint when conventional mortar used

Electric & Sanitary Chases



Chases to be de-grooved before plaster of wall

Plaster



Thickness of Plaster as per given recommendation.

TOOLS & CUTTERS FOR MASONRY

TECHNICAL SPECIFICATIONS

Particulars	Units	Values#	Requirement as per IS -2185 Part -3
Size (Length x Height)	mm	600 x 250 / 600 x 200*	NA
Size (Width)	mm	75, 100, 125, 150, 200, 225, 250, 300	NA
Size Tolerance (Maximum)	mm	± 1	L: ± 5 mm, H & W : ± 3 mm.
Compressive Strength	N/mm2	> 4.5+	> 3 (density range 551-650 Gr-1)
Oven Dry Density	Kg/m3	551-650	551-650
Fire Resistance	Hrs	4 (for 200 mm thick wall)	Min 2 hrs is desirable.
Thermal Conductivity (K Value)	W/mk	0.16-0.21	0.24 Max
Sound Reduction	dB	37-42	NA
Modulus of Elasticity	Mpa	2040	NA
Thermal Resistance (R Value)	m2.K/W	0.95 (200 mm Width) @ K=0.21W/mK	Max Value is desirable.
Thermal Conductance (U Value)	W/m2K	1.05 (200 mm Width) @ K= 0.21W/mK	Minimum Value is desirable
Drying Shrinkage (Maximum)	%	0.02	0.1 for Gr-2 & 0.05 for Gr -1
Sound Transmission Class Rating	dB	44	NA
Capillary Water Absorption	gm/dm2	180	210 @24 Hrs (as per NFP 14306)

DIFFERENCE BETWEEN
FEATHERLITE BLOCKS AND RED CLAY BRICKS

Sl.No	Parameter	Featherlite Blocks	Red Clay Bricks
1	Raw Materials	Cement, sand , water and air entraining agents	Locally available clay
2	Size	Length 600mm X Height 200mm/250 mm X thickness as per requirement with a difference of 25 mm 100mm/125mm/150mm/200mm	225mm X 75mm X 100/125mm
3	Variation Size	1.5 mm (+/-)	5 mm (+/-)
4	Compressive Strength (As per IS codes)	4 - 5 N/mm2	7 – 8 N/mm2
5	Dry Density (As per IS codes) 1800 kg/m3	550-650 kg/m3 Its one-third of the weight of clay brick which makes it easy to lift and transport	1800 kg/m3
6	Cost Benefit	For high rise buildings there will be reduction of dead weight which leads to saving in concrete and steel quantities.	Increase dead load of the building, So steel consumption becomes high. Also plaster & bricks joining cost high compared to Featherlite Blocks.
7	Fire Resistance (Heat Resistance) (on 8" Wall)	Up to 4 Hours	Around 1 Hour
8	Moisture Content	Gradualy decrease up to 4 to 6 % in 2 to 3 years	Never gets less than 10 to 13 %
9	Quality of End Product	Factory made product. So the quality of end product is consistent and good	Locally made product. Quality depends on various parameters like quality of soil used,process of manufacture etc.
10	Sound Insulation	High Sound absorption / insulation as compared to bricks	Normal
11	Energy Saving	Low thermal conductivity (0.24 Kw-M/C) helps in saving electricity costs 30% for heating and cooling of house.	High thermal conductivity (0.81 Kw-M/C). So no cost savings.
12	Environmental Friendliness	In the Manufacturing process of Featherlite Blocks only 50% of natural available material used & 50% air bubbles is present in it by it's mfg design.	One sq ft of carpet area with clay brick walling will consume 25.5 kg of top soil (approx). It actually damages environment
13	Internal and External Plaster	As these bricks have dimensional accuracy, the internal and external plaster thickness become very low	Requires thick plaster surface as there are variations in the dimensions and due to uneven surface.
14	Joining Process	Chemical mortars can be used for joining the blocks. This reduces the material consumption of cement and also avoids curing process	Traditional mortar needs to be used and the brick work should be cured at least for 7 days before plastering
15	Availability	Availability of material in all season with suitable prices.	No production in rainy season, so high price variation and unavailability during monsoon.
16	Thermal Insulator	Featherlite Blocks are very high thermal insulator, if cooling is a major component of any building then energy expenses will be saved for entire lifetime.(0.21 - 0.42 W/m K)	It has low thermal insulation as compare to Featherlite Block(0.6 - 1.0 W/m K)
17	Tax Contribution	Contributes to government taxes in form of GST	No tax contribution
18	Water Sustainability	Due to its closed matrix structure it allows water to penetrate the surface very slowly. (5.6- 7.2%)	Water absorption sustainability is very low. (13- 14%)
19	Range of Application	They are suitable for non load bearing or RCC structure in partition wall	They are useful in both load bearing and nonload bearing structure

CHASING ON THE BLOCKS

NAILABILITY IN THE BLOCK

DOOR FRAME FIXING

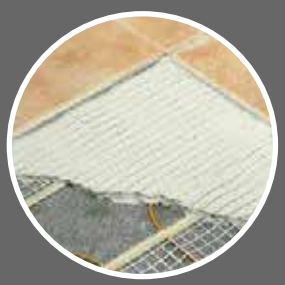
CONDUITING IN THE BLOCKS MASONRY

TYPICAL FEATHERLITE BLOCK USAGE

Hilly areas exposed to snow fall

High seismic zones

Desert areas exposed to Heat waves



Featherlite Blocks as Thermotile

featherlite®

IS 2185 PART-3:1984
CM/L - 5300044990

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