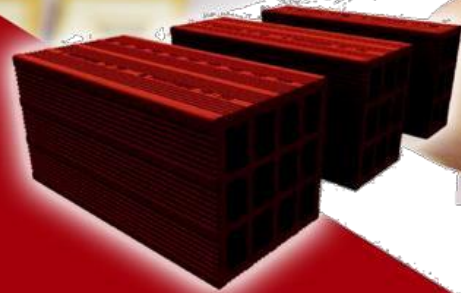


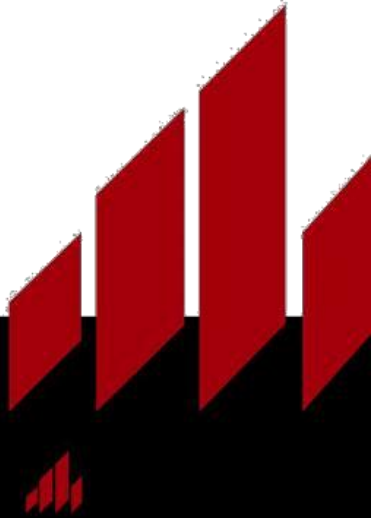


 **Porotherm**

Smart Bricks for Smart Homes



Handbook



About Wienerberger

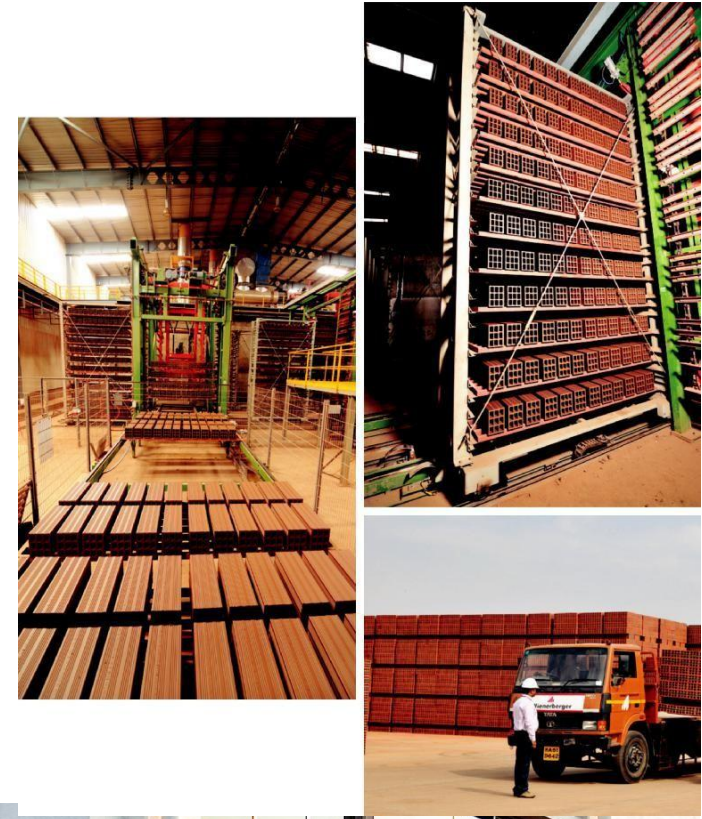
World leader in building material solutions

Founded in 1819 in Vienna, Austria, Wienerberger is the World's No.1 Brick Manufacturer and a world leader in producing clay based building materials in the areas of wall, roof, facade, and landscaping solutions for nearly 200 years. Driven by a culture of excellence, Wienerberger is constantly engaged in leveraging technology and innovation to provide world class building material solutions.

- Expanding the business, in India, Wienerberger set up its state-of-the-art production unit with a capacity of manufacturing over 70,000 brick units per day, at Kunigal, near Bangalore in 2009, establishing a strong market presence. Currently, Porotherm is the choice for walling material for quality conscious builders across South India with over 30,000 apartments and over 1000 individual homes completed successfully since its inception in India. With plans currently in place to establish a factory in Chennai, Wienerberger aims to further strengthen its presence in India as being:
- The expert...trusted by building professionals world over
- Enabling builders to follow ethical business practices by way of using natural, eco-friendly building material of international quality standards
- Providing energy-efficient and sustainable building materials

195 years 221 plants 30 countries

Wienerberger manufacturing unit in Kunigal is one of South East Asia's most advanced automated factories producing up to 70,000 branded bricks per day.



About Porotherm

Porotherm Clay Bricks are the flagship product of Wienerberger in India. It is a technologically advanced smart clay brick or walling material designed for all building formats (multistoried buildings, individual houses, large apartments, villas, educational institutions, hospitals, hotels, commercial complexes). It is an innovative product specially created keeping in mind the changing climatic conditions, keeping homes naturally cool & comfortable throughout the year for generations. Porotherm bricks are environment-friendly, cost-effective and easy to handle. It is not just a brick but a **smart clay brick!**



Key Advantages



Natural and Green

The clay used for production is sourced from de-silting of dead water tanks and only natural additives like coal ash, rice husk and saw dust are used. Listed by IGBC (Indian Green Building Council) in the 'Green Product Category' under energy efficient product, material with recycled content & use of regional material.

Porotherm is also rated by GRIHA, Green Rating for Integrated Habitat Assessment.



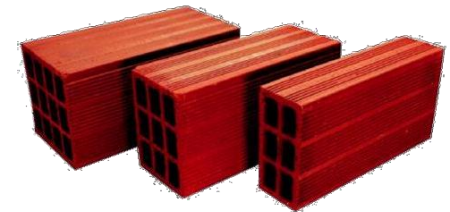
Comfortable and healthy living

Porotherm HP provides excellent thermal insulation that is 45% higher than conventional walling material. This leads to direct savings in energy consumed through air conditioning and heating devices.



Unlimited life and maximum fire protection

Porotherm HP has an exceptionally long life. It is naturally fire-resistant as it is fired at 1000 degrees and has a fire rating of F240 for 240 minutes for HP 200.



Better Thermal
& sound
insulation
Reduced
energy
consumption

Porotherm - Product Parameters

Name	Length	Width	Height	Weight	Density	Compressive Strength*	Water Absorption	Efflorescence*	U-Value	Sound	Fire Resistance
	MM	MM	MM	Kg	Kg/m ²	N/mm ²	%		W/m ² K	Rw (db)	Min
Porotherm HP 200	400	200	200	11.1	694	≥3.5	-15	Slight	1.0	46	240
Porotherm HP 150	400	150	200	8.8	733				1.2	43	120
Porotherm HP 100	400	100	200	6.3	788				1.7	40	90
Porotherm HP (H)	200	200	200	5.8	Same as full bricks	Same as full bricks	Same as full bricks	Same as full bricks	Same as full bricks	Same as full bricks	Same as full bricks
Porotherm HP (H)	200	150	200	4.2							
Porotherm HP (H)	200	100	200	3.1							

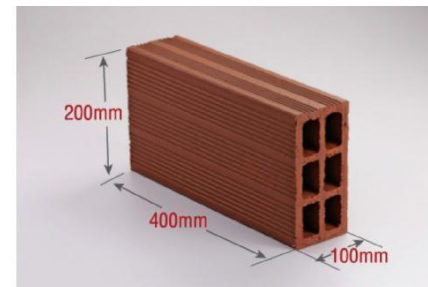
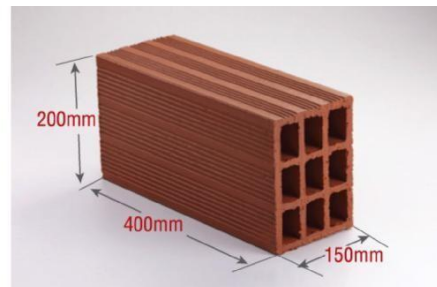
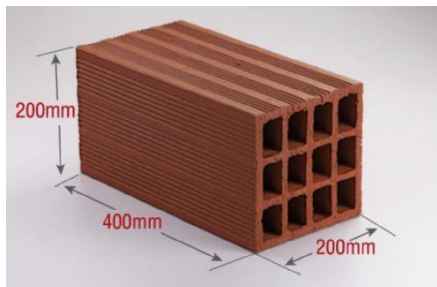
*As per IS3952 Standards

Porotherm Clay Brick is an innovative product especially developed for the changing climatic conditions, assisting in keeping indoors comfortable and pleasant always.

The product innovation takes into account essential, positive deliverables for walling material:

- A natural product providing quality construction
- Light weight
- Excellent thermal insulation
- Ease of handling
- High strength
- Easy installation of appliances & fixtures

Dimension of Bricks



Frequently Asked Questions

Quality of your home

How does Porotherm improve the quality of my home?

Your home is your sanctuary, a place of comfort and security, a place for privacy and relaxation. It is the haven that you come to, leaving behind the toils of the day's work at office, where your children sleep peacefully in a comfortable environment... hence the atmosphere inside your home becomes a very important factor to consider while choosing an apartment or a house. The material with which the walls of your home are constructed can go a long way in creating the right comfort and ambience for you and your family.

Porotherm clay bricks have perforations as an integral design component to allow better thermal insulation, keeping your home naturally cooler than homes made from other conventional walling materials. These specialized bricks

External walls are one of the main contributors of increased indoor temperature. Porotherm is a breathable, natural material which helps maintain a healthy indoor environment

safeguard you from the noise and dust outside, making your home a quieter and cleaner place to live in while at the same time helping you conserve energy.

Does Porotherm increase the life span of my home?

Porotherm bricks are naturally strong; they provide exceptionally long life with Zero maintenance, retaining their quality for generations.

Is Porotherm a safe building material?

Porotherm bricks are 100% natural, made of clay, the brick is environment friendly and absolutely safe for you and your family. The inherent strength of the Porotherm bricks makes the



product fire resistant – which means it does not burn, as it is already fired at 1000 degrees Centigrade and has a fire rating of F240 (240 minutes) for 200 mm thickness.

These bricks are ergonomically designed, with superior engineering and stringent quality control, adhering to international standards.

How do you benefit from having Porotherm walls?

Cool Brick – Give your family cool and comfortable in-door climate throughout the year irrespective of the weather outside. Porotherm, with its webbed/perforated design gives you better thermal insulation (lower U-Value) lowering the inside temperatures of your home considerably. You can feel the difference the minute you walk into your home from outside. Feel refreshed and comforted with the natural cooling wall – Porotherm.

Green Brick – A 100% natural product providing quality construction – Safe & Healthy.

Cool & comfortable indoor climate
Safe & 100% natural
Conserves energy

Frequently Asked Questions

Rated by both Indian Green Building Council (IGBC) & GRIHA, the top most authorities on Green Buildings in India, Porotherm bricks are known for the environment friendly manufacturing process using clay from de-silting tanks and mixing by-products of other industries like coal ash, granite slurry and rice husk. This makes Porotherm the only brick in India with Green Building certifications. Being a natural product devoid of any chemical usage, Porotherm contributes to a healthier indoor environment.

Light Weight Brick – Being almost 60% less weight than concrete blocks, Porotherm improves speed of construction without compromising on quality and safety. The light weight gives Porotherm the added advantage of improving the speed of construction, thereby ensuring faster project completion and handover. The bricks are cost-effective as well, since one Porotherm brick is equal to the space occupied by nine small ordinary bricks, leading to less mortar usage, making Porotherm a favorite with builders and architects alike.

Easy Brick – It is very simple to install appliances & fixtures on to the Porotherm walls with minimal effort. The only recommendation is to use a drilling machine as opposed to a hammer while making a hole onto the wall. The most effective techniques

for fixing different types of loads ranging from LCD TVs to Kitchen cabinets to water Geysers in the bath room, have been described in detail in the following section. Over 30,000 apartment buildings constructed across South India.

Strong Brick – Extremely good compressive strength makes the brick robust and long lasting. The strength of the Porotherm bricks is comparable and, in many cases, better than the conventional walling materials, making the brick a very safe and quality product for your walls.

Quality Brick – Wienerberger follows stringent quality testing processes for each batch of Porotherm bricks manufactured on a daily basis at the hi-tech one-of-a kind laboratory at our Kunigal



manufacturing unit, 70 Kms from Bangalore. In India, this is the only brick manufacturing facility having such an in-house laboratory and the only brand which gives the date and batch number on each and every individual brick. The company maintains records of all bricks manufactured and any irregularity in the product could be traced back to its manufacturing batch. Such careful quality control practices are rarely practiced by any other brick manufacturer or other conventional walling products. Moreover, Porotherm Clay Bricks are regularly tested from reputed external laboratories as third party testing procedure, thus ensuring you the finest quality, matching global standards.

Frequently Asked Questions



Wienerberger Testing Laboratory@Kunigal

What is U-value? Why does Porotherm Clay Brick have lower U-value?

A U-value is a measure of heat ingress. It is expressed in W/m^2k , and shows the amount of heat lost in watts (W) per square meter of material (for example wall, roof, floor etc.) The lower the U-value, the better the insulation provided by the material.

Porotherm has hollow voids which reduce heat transfer, thus act as insulators, lowering the U-value of the product. Also, the intrinsic qualities of the clay contribute to Porotherm's cooling effect.

Would there be water seepage from the voids?

There will be absolutely no water seepage or leaking from the voids or the bricks; in fact Porotherm absorbs far less water compared to conventional walling materials. The perforations in the bricks are designed scientifically for a specific

purpose... to improve the thermal insulation of the walls giving you a cooler indoor temperature. The bricks are produced with state-of-the-art technology, involving best construction practices, adhering to international standards. The plumbing procedures for Porotherm walls are no different from any other walling material; hence even in bathrooms the possibility of water seepage owing to the perforations in the bricks is nil.

Natural, Green Building material

I am environment-conscious. Why should I use Porotherm? How does it help?

Porotherm is a natural, Green Building material. It is sourced through de-silting of dead water tanks with the use of only natural additives such as coal ash, rice husk and saw dust.

Credited by Indian Green Building Council, Porotherm provides excellent sound insulation and reduced noise pollution. Also, unlike most brick manufacturing units, Wienerberger does not use soil from agricultural land.

Porotherm bricks have also received certification from GRIHA. GRIHA Green Rating for Integrated Habitat Assessment is a rating system developed considering Indian Climate Zones and inhabitants' requirements indigenously. It is developed to rate

commercial, institutional and residential buildings in India, emphasizing national environment concerns, regional climatic conditions and locally available solutions.

Modern building material

Are clay bricks used by modern architects? Are they suitable for contemporary architectural design?

Clay bricks have been the most preferred building material since ancient times, right from Mohenjo-daro & Harappa, to the majestic Roman Empire. Clay as a natural building material has proved its worth since centuries and even today,

Being a European company Wienerberger takes Quality very seriously and ensures that you get the very best... Made of Clay, combined with these features, make Porotherm Clay brick an ideal walling material to promote comfortable indoor temperature in the house. The Product has also been rated by IGBC – The Indian Green Building Council & GRIHA (Green Rating for Integrated Habitat Assessment) and used by many.

Frequently Asked Questions

quality conscious and environmentally responsible builders and architects select clay bricks for their projects. They also enhance the aesthetics of the project, providing natural and healthy living spaces.

Porotherm bricks are light weight, easy to use, designed for modern homes. They are comfortably used in combination with wood, stone or glass and are easy to handle. The new age webbed design of the brick makes Porotherm a very modern, intelligent walling material.

Advantages in construction

Do professional builders choose Porotherm? For what reasons?

Porotherm has been used by numerous well known and quality conscious builders and developers across South India (Total Environment, Nitesh Estates, Sattava Salarpuriya, Godrej Properties, Ramanyam, Arun Exello and more). The light weight property of Porotherm enables faster construction and timely completion of projects, thus increasing productivity and revenue. Home owners appreciate timely completion of the building, which yields faster ROI.

Builders also endeavour to provide the best facilities and amenities to their customers and using Porotherm Clay walls assist the builders in this initiative.

Strength and ease of use

Are these bricks strong enough to bear heavy load?

Porotherm bricks have very high compressive strength of $\geq 35\text{kg/cm}^2$.

Porotherm Horizontally Perforated bricks are ideal for non-load bearing constructions – well suited for multistoried apartments/buildings as well as individual homes. The Porotherm walls are functionally better than any other walling material.

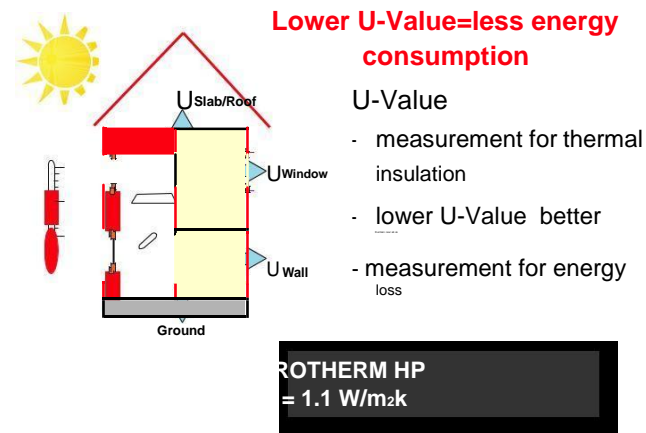
If the perforation is chased, will the brick lose some of its compressive strength?

No, as the chases will be back filled and plastered.

Porotherm walls are easy to chase and chisel for electric and plumbing conduits, which also ensures less disturbance or vibrations to the wall during chasing or conduiting making it easy to install all types of concealed or exposed fixtures including LCD TVs, air conditioners, geysers, cabinets, shelves, kitchen cabinets, water filters etc.

Comparison with other walling materials How is Porotherm better than other building materials?

Porotherm is 100% natural with no chemical additives, making it safe for indoor application. Porotherm is much lighter than conventional bricks, thus easy to use, enabling faster



U-Value (200mm thick wall)

- Porotherm HP : 1.1 W/m²k
- Solid Concrete Block : 2.0 W/m²k
- Clay Brick : 1.7 W/m²k



* Reduction of running cost of the building

Reduction of Energy Consumption

construction. Being light weight, it is ideal for non-load bearing construction / multistoried buildings and individual houses.

Wall made of Porotherm Bricks

Is there any difference in serviceability/application aspect of Porotherm when compared to other walling material?

There is absolutely no difference from serviceability or application point of view when it comes to Porotherm walls. One could fix or hang

Frequently Asked Questions

Inclusion in Following Criteria's	
Criteria 14	Optimize energy performance of the building within specified comfort limits
Criteria 15	Utilization of flyash, or equivalent industrial/agricultural waste as recommended by BIS in building structure
Criteria 16	Reduce volume, weight and time of construction by adopting efficient technologies
Criteria 29	Acceptable outdoor and indoor noise levels
SVAGRIHA - For individual residences	
Criteria 5	Design of building envelope to reduce overall heat gain
Criteria 11	Reduce the embodied energy of building

all required fixtures or gadgets on the wall like air conditioners, geysers, photo frames, LCD TV, etc. Details on the methods are elaborated below.

What kind of appliances can be fixed to a Porotherm wall? Only light weight?

You can fix anything to a Porotherm wall – pictures, mirrors, wall decorations, lights, cupboards/closets, geysers, air conditioners etc.

What are the recommended methods for fixing light, medium or heavy load fixtures?

For Light loads / items:

- Drill a hole using drill machine (anywhere you wish to hang/fasten the equipment or frame etc.)

- Insert a wooden peg or a plastic sleeve (commonly used these days).
- Fix a nail or a screw on to the wooden peg / plastic sleeve
- Just fix or hang the light load
- Infact it is so easy that one can do it himself / herself – no need of involving an expert

For Heavier loads/items: Use plastic sleeve anchors or rack bolt:

For plastic anchor

- Drill a hole of the size of the anchor
- Insert the plastic sleeve
- Install the screw using torque in position (Recommend not to use hammer)



Porotherm Wall with plumbing conduiting before plastering

For rack bolt

- Make a hole in the wall using chisel hammer – recommend; use sharp chisel for clean and convenient hole making
- Stuff the hole with cement mortar (add little quantity of 10mm aggregates)
- Install the rack bolt in position
- Let it gain strength for 24 hours
- One can now install the intended load on the rack bolt – one can hang medium to heavy loads comfortably

Recommended tools/accessories

Load Fixing Details on Porotherm Walls

Categorization of loads based on their weights

1. Light Loads	- Up to 20 Kgs
2. Medium Loads	- Up to 70 Kgs
3. Heavy Loads	- Greater than 70 Kgs

Light loads

Required accessories for fastening Light loads:
Light loads – Wooden pegs or Plastic sleeves

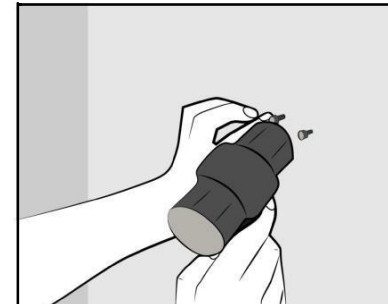


Application procedures

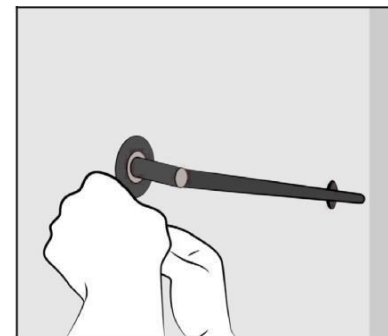
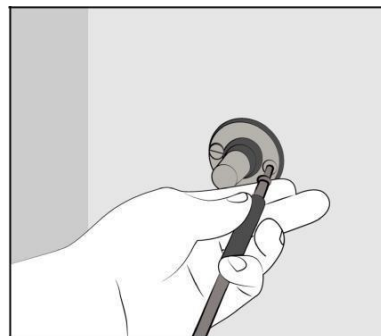
Step 1 : Drill a hole of required size



Step 2 : Insert plastic sleeve or wooden peg of 100 mm length



Step 3 : Fasten the fixture with a screw of appropriate size



Some common examples for different loads

Light load fixtures

- Towel Holder
- Soap tray
- Mirrors
- Photo frames
- Light fittings



Medium load fixtures

- Door and window frame fixing
- Wall mount TV – LCD/LED
- Kitchen chimney
- Wardrobes and kitchen cabinets
- Wash basin
- Geyser



Heavy load fixtures

- EWC wall mount / Western style commode



Recommended tools/accessories

Medium loads

Required accessories for fastening Medium loads:
Medium loads – Plastic sleeve anchors or Rack bolts

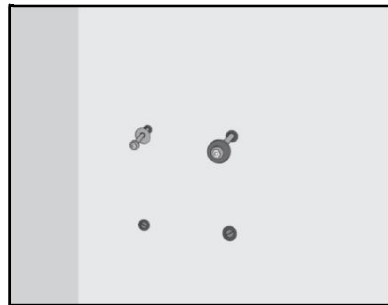


Application procedures

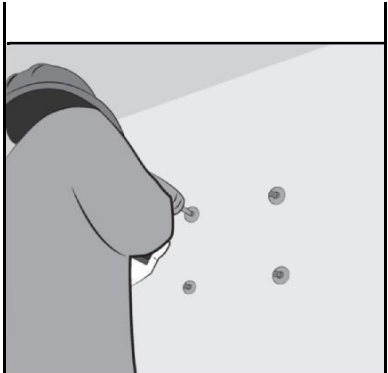
Step 1 : Drill a hole of required size



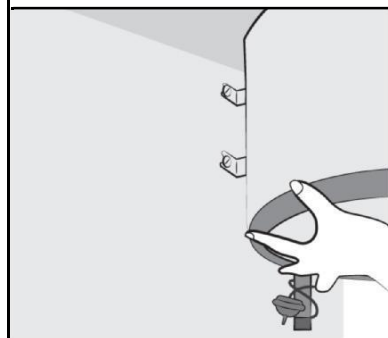
Step 2 : Fix/insert the anchor sleeve



Step 3 : Tighten the anchor



Step 4 : Hang or fasten the fixture



Note: Do not hammer to install anchors

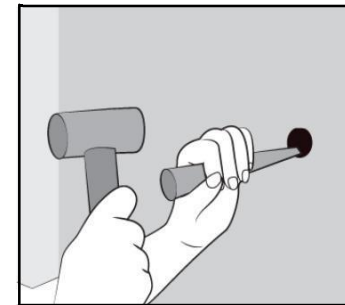
Heavy loads

Required accessories for fastening Heavy loads :
Heavy loads – Rack bolts (big)

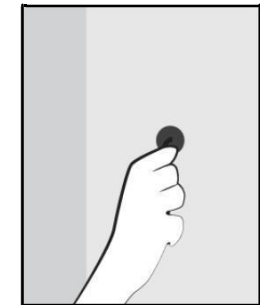


Application procedures

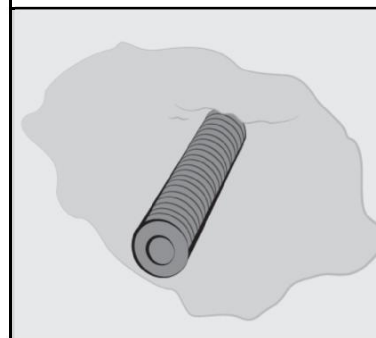
Step 1 : Drill hole with a chisel or drilling machine



Step 2 : Stuff the hole with concrete



Step 3 : Let it strengthen for 24 hours



Step 4 : Fix the unit after 24 hours of curing



Training for builders/home makers

Do you provide training for home builders/masons?

Porotherm is known for ease of use and easy maintenance. However, Wienerberger arranges training for builders/masons periodically.

Availability of stock

Will your building materials be available in bulk quantities at all times? What is the required lead time and what are the modalities for placing/receiving orders?

Wienerberger India has established its own factory at Kunigal near Bangalore, which is the largest and most advanced brick manufacturing facility in India. We are already supplying to major projects known for their reputation on quality construction in South India, but as our capacities are large and there is no dearth of raw materials – clay, we can further assure of speedy and consistent supplies to the construction sites.

Still have questions?

Bostik India Private Limited
An Arkema Company
www.bostik.com

Our Authorized Distributors



No 475-F2, Sourabha, Jawaharlal Nehru Road,
BEML 3rd Stage, Opp Sub Register Office, RR Nagar,
Bangalore, Karnataka, India – 560098

Landline : 080-28611303 / 28601393
Phone : +919538101456 / 9538501236

Mail : info@durgamba.co.in
Web: www.durgamba.co.in

