# POROTHERM BEST PRACTICE GUIDE

Wienerberger

# INTRODUCTION

A modern construction method with the reassuringly traditional values of clay. The Porotherm System gives you the ability to construct a water-tight structure by taking the external leaf off critical path, where appropriately designed.

This guide has been designed and prepared to provide all the information required to assist your Porotherm build. The aim is to illustrate the ‘Do’s and Don’ts’ from all aspects of the build.

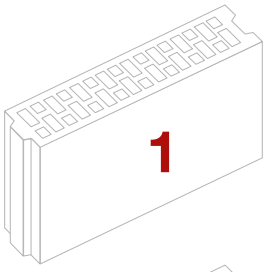
Porotherm blocks are a multi-cellular clay block measuring 224mm in height for cavity construction and when ZeroPlus mortar is applied with the roller at 1mm thick it achieves a coursing height of 225mm, coursing in with three courses of brickwork. Zero Plus mortar comes as a bag dry mixed. When mixed with water on site in accordance with the instructions it will lay one entire pack of blocks.

For all details of the Porotherm system please visit **www.wienerberger.co.uk/walls**
Contact Technical & Design Services at **0161 491 8200** or **Porotherm@wienerberger.com**

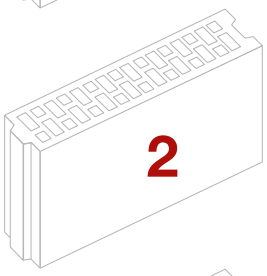
# CONTENTS

# BUILDING WITH POROTHERM

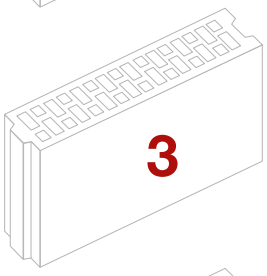
The build process consists of the following steps:



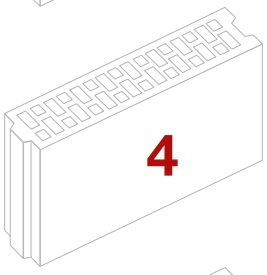

Completed slab including internal and external splash course



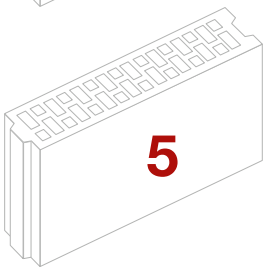

Scaffolding erected & maintained minimum of 1 storey ahead of construction




Base course

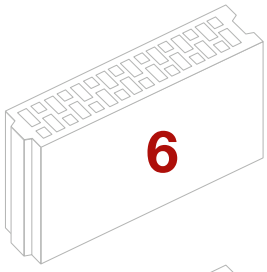



Block work to first floor level

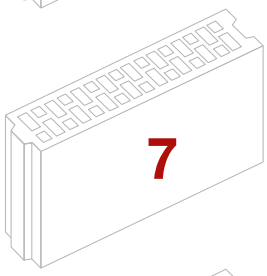



Install floor. Timber floor / concrete plank

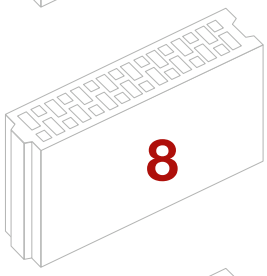
Please refer to concrete plank section, when applying this to multi-storey developments.



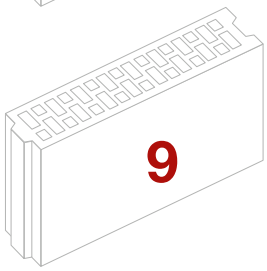

Beam fill / reset base course and commence next lift




Repeat to wall plate height




Install roof




Parge coat and begin internal fit out

# GUIDANCE NOTES

You are about to undertake a project using the Porotherm system. The following points offer some simple guidance notes to ensure your Porotherm build is completed in a way that is beneficial.

## Porotherm build tips

- Scaffold should be erected with Porotherm loaded out onto the slab prior to commencement of block work.
- If using tube and fitting scaffold, a minimum two inside board system should be considered along with telescopic transoms.
- Scaffolding should be a design scaffold, set out top to bottom, top lift 450mm below eaves followed by two 2m or 2.1m lifts below that, with a possible need for a kicker lift at the base.
- When setting out the all-important base course, consider your storey heights. All floor types should sit on a full block, so any course height adjustment should be under taken here. For example:

  **2335mm** = 1 coursing brick followed by 10 block courses
  **2410mm** = 2 coursing bricks or a cut block and 10 block courses
  **2485mm** = exactly 11 courses of blocks

- Consider bay windows and walk in bays when scaffolding to allow windows and GRP's to be fitted while scaffold is still erected.
- Call off times are greatly reduced due to the speed of the Porotherm system, so orders for all related materials i.e. formers, lintels, joists, stairs, windows and trusses MUST be placed early. During an average Porotherm 2 storey house build you will require your lintels and window formers (ensure order notes for use with Porotherm) on day one of the build, joists and flooring on day 3, trusses day 5, stairs and first fix timbers day 7 and windows on day 8!
- When ordering lintels tell your supplier that you are building with Porotherm (this will ensure the appropriate lintels are supplied). Some manufacturers allow internal and external parts of the lintel system to be called off separately.
- Appointment of Scaffolding and Bricklaying contractors needs to be done early, as Bricklayers may need training if not familiar with the system, and scaffolding needs to be erected a storey ahead, minimum, prior to super structure commencing.
- Porotherm is inert. Keep any waste separate and crush it and utilise below hard landscaped areas.
- Instruct your carpenter to provide a split price for the roof, main roof and roof final. With the external skin off the critical path, ensure the soffit is detailed to allow for installation after the external skin is constructed.
- Ask your brickwork subcontractor to price to carry out the parge coating. Instructional videos for this, and many other Porotherm related activities can be found at **www.wienerberger.co.uk/walls**
- Parge coat can replace the need for mastic around joist ends, if applied around built in joists with a paint brush!
- When bringing up the facework to the gable end, you will need a "Cullen FT 75, 100 or 125 tie" fitted to the face of the timber end panel for tying, if you are using a gable end panel.
- First and second fix fixings are widely available (see Fixings, page 27), and are not a costly item that would affect pricing from a subcontractor point of view.
- Consider how you are going to finish your roof. There are several options that can be employed. See roofing section (page 24) or contact the technical team at **porotherm@wienerberger.com** for product specific advice.
- Drilling into Porotherm couldn't be easier, simply use a masonry bit as you would expect, but without hammer action.

# SCAFFOLDING

Ensure your scaffolding allows you to make the most out of the Porotherm system, on your specific project. Both a system scaffold or tube and fitting can be employed. Please speak to your scaffolding company for the options to suit your build design.

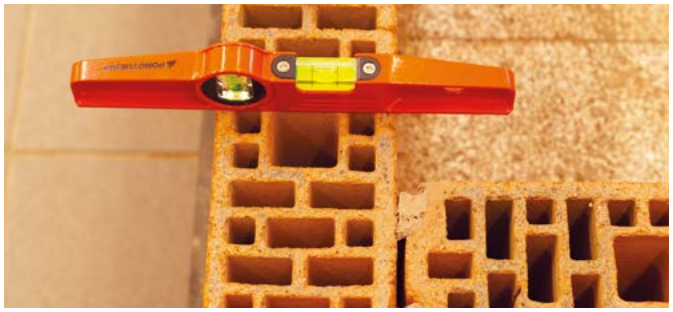
# SCAFFOLDING CONSIDERATIONS

**To gain the most from the Porotherm system, the following considerations should be made when considering tube & fitting scaffolding.**

- Use a design scaffold where possible
- As with any scaffolding, a good solid base must be achieved before the scaffold is erected
- Scaffold should be erected prior to the commencement of blockwork
- A minimum of a 2 inside board system should be employed
- Considerations for the fitting of doors, bay windows and walk in bays should be made as & where if applicable
- Lifts should be calculated from the top down. Start with a lift 450mm below eaves, then set out minimum 2m lifts below that
- A “scaff step” can be utilised to split a lift when bringing up face brickwork
- Any timber joists & floors that will become a working platform should be propped and braced from below
- Erect the loading towers as high as is practicable. With two storey housing, this can be all the way up, where as low rise multi storey may want to remain within one lift ahead. Then simply move the gates as and when required

# THE METHOD

This page shows the overall method of laying Porotherm, the independent components of the system will be explained in greater detail over the next few pages.



**1.** Lay the first course on a traditional sand-cement mortar bed.

**2.** Ensure the first blocks are level across both planes. This is the most crucial stage of the process, as it determines the levelness of each of the subsequent build courses.


**3.** Mix ZeroPlus in strict accordance with instructions. NOTE: It is essential to give the mortar a five minute standing time.

**4.** Apply ZeroPlus to the blocks with a Porotherm roller.

**5.** Repeat until a precision wall is complete.

**6.** Wall ties are installed (should be wiped and turned to ensure both sides are covered).

**7.** Insulation can then be installed.


**8.** Block-cutting is straightforward.

# BASE COURSE

The base course is the most crucial part of the system, and it is laid on traditional mortar, ensuring the following points are followed precisely.

You **MUST ENSURE** your base course is in-line and level across both planes of the block with **NO** steps or staggers across the top.

Don't try plumbing up the face of the blockwork at base course, simply rely on a boat level as shown in the images.

All coursing heights should be accounted for in the base course, including any coursing bricks or cut blocks to ensure you finish on a full block.

The use of traditional mortar and the coursing being taken into account at the base, is very useful when overcoming the camber in concrete planks. Porotherm should only ever be laid above ground, and above DPC.

For video tutorials please visit:
**wienerberger.co.uk/resources/technical-videos-blocks**

Please refer to the specific technical information on bonding and note that it is relevant to the size of the block being used. The UK core range of 100mm, 140mm & 190mm only require a minimum of 100mm bond.

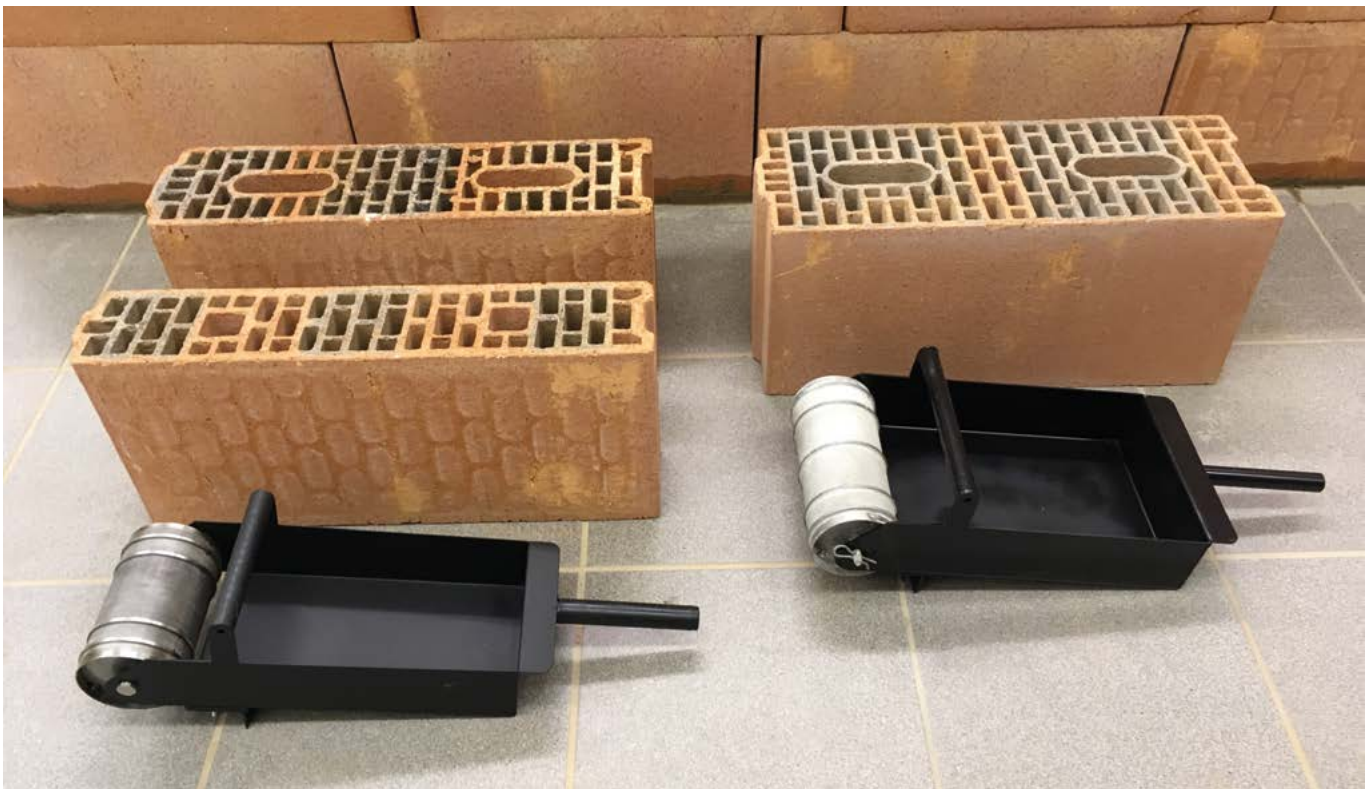
All detail images are produced to provide guidance on Porotherm and are not indicative of site builds which will include external leaves and insulation etc.

# BONDING IN

Please refer to the series of images below, when bonding in two different sizes of Porotherm block. Please note, all cuts should be a minimum of 100mm to ensure bond is maintained.

# THE BASICS

**The images below, show some of the basic Porotherm tools.**

# THE BASICS


1. When applying a traditional mortar course to Porotherm i.e. wall plates or joists, it is best practice to install a DPC bedded on ZeroPlus mortar.*


2. When drilling into Porotherm, simply use a traditional masonry bit, but please ensure that there is no percussion employed. Percussion and or hammer action simply isn't required and the results without, far exceed traditional methods.

*Not for NHBC sites

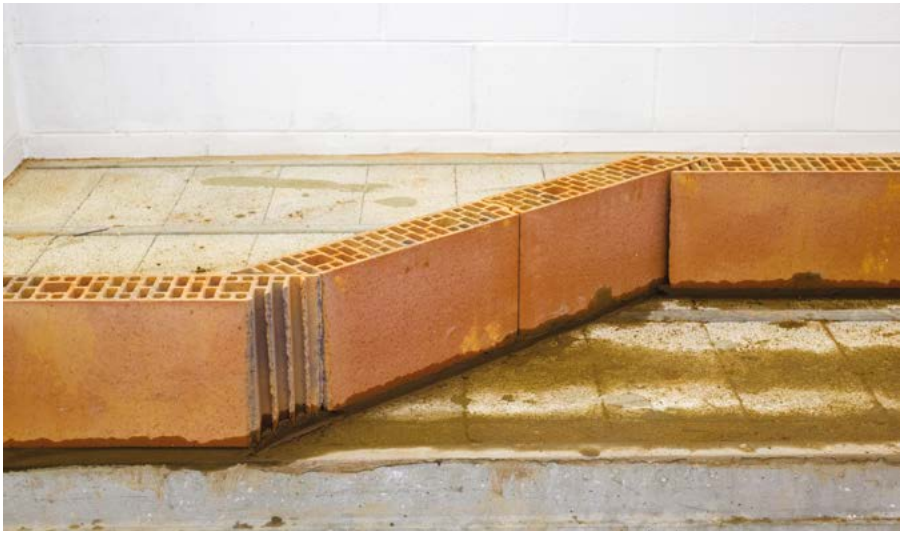
# BLOCKWORK STANDARDS

- A minimum bond of 100mm MUST be achieved in all areas (applies to 100mm / 140mm / 190mm).
- Porotherm should be closely abutted using the interlock system with cut blocks. The optimum joint when using cut blocks should be 10 to 15mm.
- If ZeroPlus is mixed and applied correctly, there should be no excessive mortar runs on the face of the block.

# LINES, PINS AND PROFILES

The image to the right shows how to use your lines and pins, when constructing in Porotherm.

# ANGLE SETTING OUT

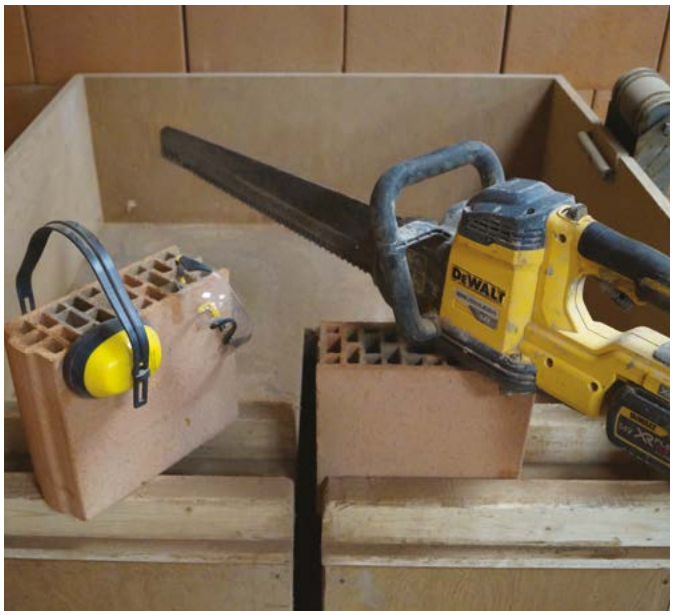


The setting out of any angle can be achieved if you follow the series of images to the left to create bond.

To be filled with Wienerberger Porofill or traditional mortar.

# CUTTING

The images below show the effectiveness of cutting Porotherm with an Alligator, or Reciprocating saw on all sizes of blocks. Please refer to the cutting instructional videos for more information on methods of cutting.



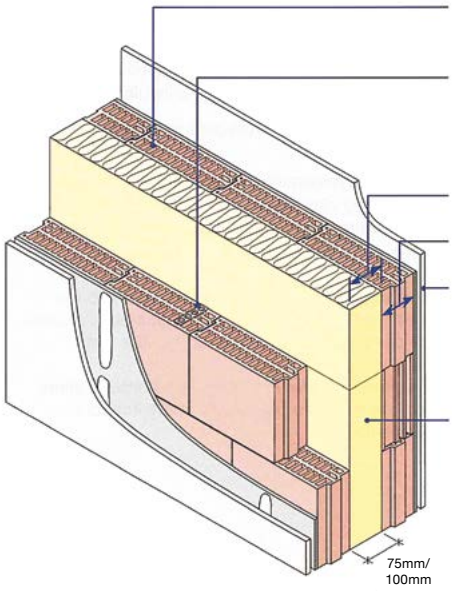

Please ensure you adhere to site Health and Safety rules and regulations when cutting any material. Dust suppression can be easily achieved by plunging the block into a bucket of water prior to cutting it.

# PARTY WALL CONSTRUCTION ROBUST DETAIL

Porotherm party wall performance far exceeds the requirements of Approved Document E of the Building Regulations when pre-completion tests are utilised, or Robust Details **E-WM-25** or **E-WM-29** can be used.

Please note, there is no mixture of materials and block work should be bonded, not straight jointed. Only the following wall ties may be used in this separating wall:
* Ancon Building Products CCBA.

- Porotherm blocks - thin joint
- Insulated Cavity
- Parge coat and Gypsum based board




| | |
|---|---|
| **Block** | Minimum 100mm Porotherm perforated clay blocks |
| **Wall Ties** | Wall ties, as approved list (above)* and installed at no more then 2.5 ties per square metre |
| **Cavity width** | 75mm (E-WM-29) / 100mm (E-WM-25) |
| **Block thickness** | 100mm (min), each leaf |
| **Wall finish** | Gypsum-based board (nominal 8 kg/m$^2$) mounted on dabs on Eco-parge coat (nominal 4mm, minimum 3mm) |
| **Insulation** | Mineral wool rolls or batts, maximum 20 kg/m$^3$ |
| **External** | Porotherm inner leaf and masonry outer leaf with 50mm (min) cavity - clear, fully filled or partially filled with insulation |

# WALL TIES

## For use with Cellular Clay Blockwork

Ancon has developed an innovative range of wall ties for use with cellular clay blockwork, where the horizontal bed joints are just 1mm. The range includes ties for internal wall junctions and internal/external cavity walls. They are manufactured from corrosion-resistant stainless steel and are suitable for use in housing and commercial applications.

### Brick-to-Block Cavity Walls

**Ancon CCB4**

Two-part wall ties to connect external brick to internal cellular clay block.

Installation is phased which eliminates any danger of injury from wall ties projecting from a part built cavity wall. For complete information on tie types refer to PD6697 or contact Ancon.

Cavity: 100-150mm

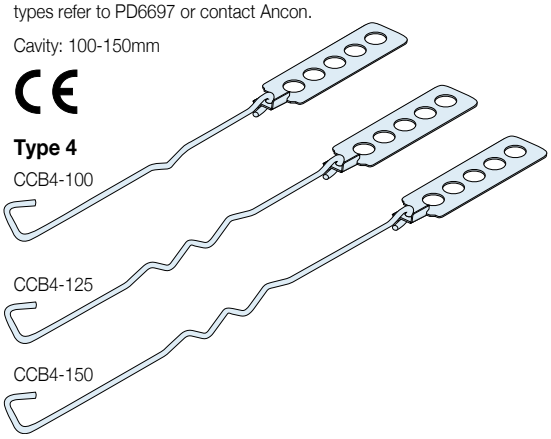
CE

**Type 4**

CCB4-100

CCB4-125

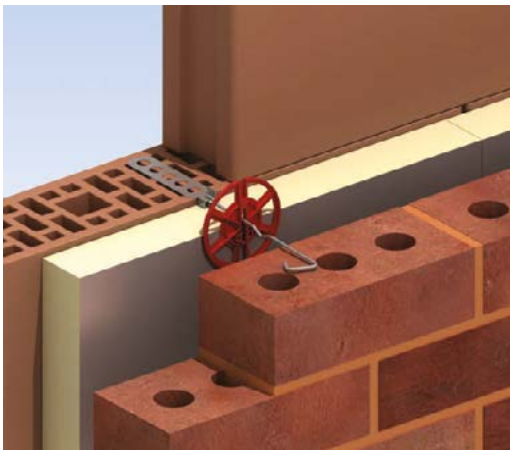
CCB4-150



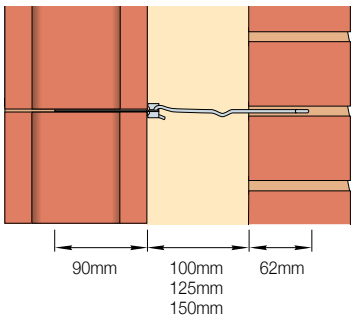
**Cellular Clay Block to Traditional Masonry**

| Product Reference | Cavity Width (mm) | Type 4 Performance | Type 3 Performance | Type 2 Performance |
|---|---|---|---|---|
| | | | Horizontal x Vertical Spacings (mm) | |
| CCB4-100 | 100 | 900 x 450 | 600 x 450 | 450 x 450 |
| CCB4-125 | 125 | 900 x 450 | 600 x 450 | 375 x 400 |
| CCB4-150 | 150 | 900 x 450 | 450 x 450 | - |

***Notes:*** At vertical edges of an opening, unreturned or unbonded edges, additional ties should be used at a rate of one per 300mm height, located not more than 225mm from the edge. For complete information on tie types refer to PD6697.



**CCB4 Wall Ties**




### Cellular Clay Block Cavity Walls

**Ancon CCB-JJ for External Walls**

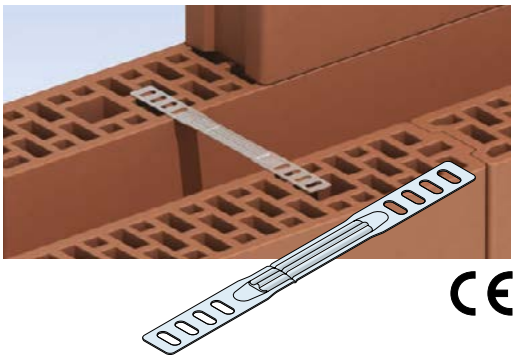
One-part wall tie for use in external walls where both leaves are constructed from cellular clay block. Suitable for use with Ancon TJ Insulation Retaining Clip.

Cavity: 50-200mm

**Available in three lengths**

Type 3: 210, 260mm

Type 4: 360mm

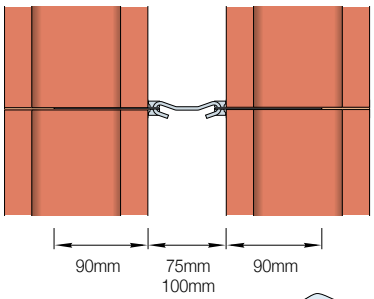


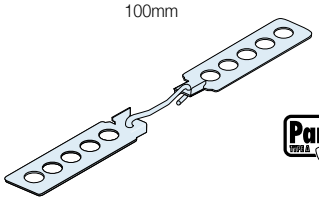
CE

**Ancon CCBA for Internal Walls**

Three-part wall tie for use in internal separating (party) walls where both leaves are constructed from cellular clay block.

Cavity: 75mm, 100mm



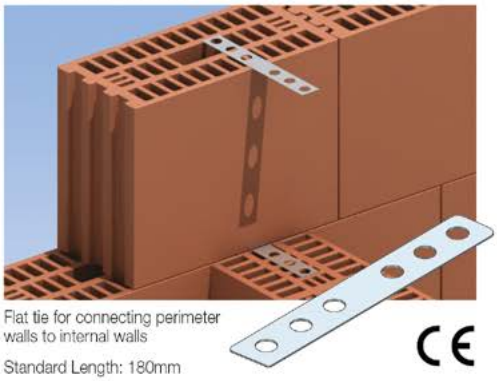



Part E CE

# WALL TIES

## Internal Wall Junctions

### Ancon CCB-IWJ-180

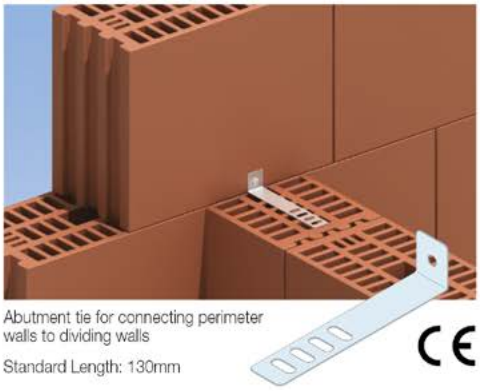


Flat tie for connecting perimeter walls to internal walls

Standard Length: 180mm

*Note: For block widths greater than 140mm, two ties should be used per course*

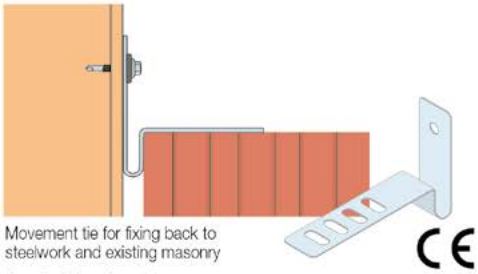
### Ancon CCB-L200



Abutment tie for connecting perimeter walls to dividing walls

Standard Length: 130mm

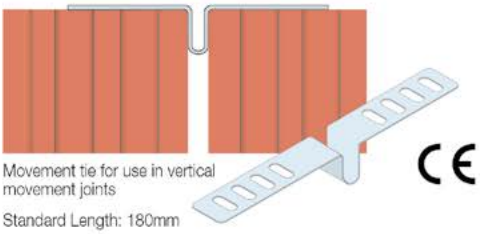
### Ancon CCB-SMJ-200



Movement tie for fixing back to steelwork and existing masonry

Standard Length: 110mm

### Ancon CCB-TMJ-200



Movement tie for use in vertical movement joints

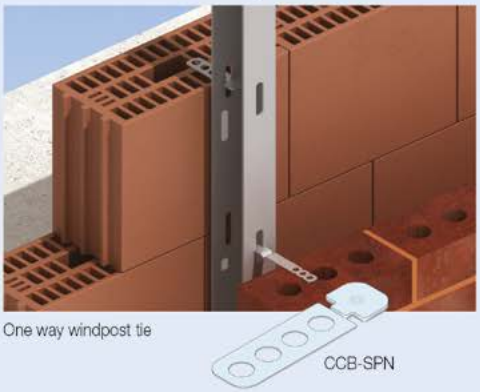
Standard Length: 180mm

## Windposts for Cellular Clay Blockwork

Ancon Windposts are designed to span vertically between floors to provide lateral support for panels of brickwork. A range of wall ties is available to suit Ancon windposts when used with an inner leaf of cellular clay blocks.

The CCB-SPN connects channel profile posts to the inner cellular clay block leaf and CCB-SNS ties are used across angle shaped posts installed in the inner leaf.

### Ancon WP1/3 Channel Windpost



One way windpost tie

CCB-SPN

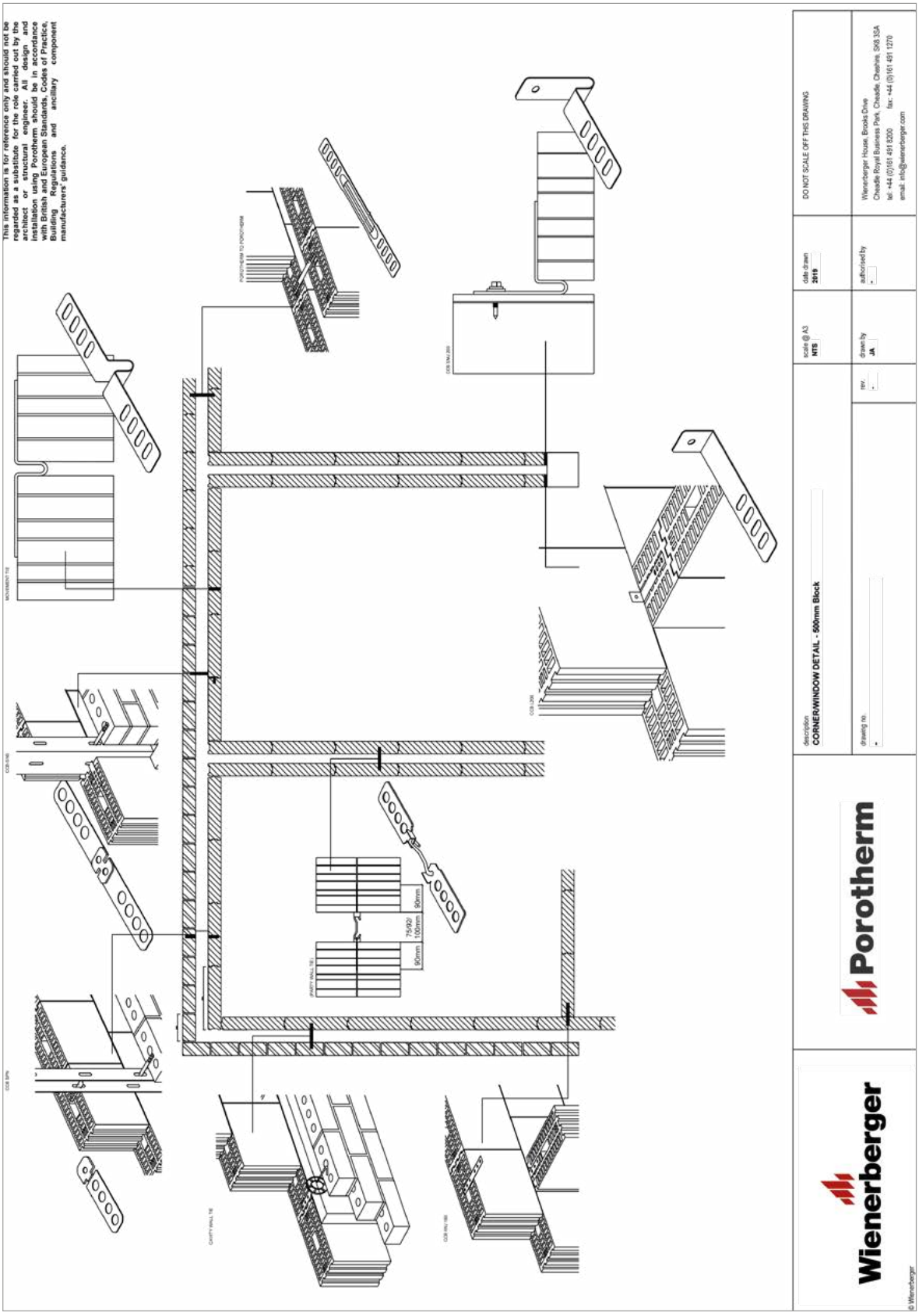
### Ancon WP2 Angle Windpost

Two way windpost tie

CCB-SNS

Ancon BUILDING PRODUCTS

# WALL TIES


This information is for reference only and should not be regarded as a substitute for the role carried out by the architect or structural engineer. All design and installation using Porotherm should be in accordance with British and European Standards, Codes of Practice, Building Regulations and ancillary component manufacturers' guidance.
description
CORNER/WINDOW DETAIL - 500mm Block
drawing no.
-
rev.
-
scale @ A3
NTS
drawn by
JA
date drawn
2019
authorised by
-
DO NOT SCALE OFF THIS DRAWING
Wienerberger House, Brooks Drive
Cheadle Royal Business Park, Cheadle, Cheshire, SK8 3SA
tel: +44 (0)161 491 8200 fax: +44 (0)161 491 1270
email: info@wienerberger.com
Porotherm
Wienerberger
© Wienerberger
75/90 100mm
90mm

# LINTELS, TRAYS & MEMBRANES

Porotherm lintels are designed as a two part system, a box lintel to build into the Porotherm, and an external leaf that clips in as the outer skin is constructed. Lintels are bedded on with traditional mortar, while your tray will bed on with ZeroPlus. When constructing out of two skins of Porotherm traditional style lintels can be employed.

If your build includes a Radon barrier, this will always be bedded into traditional mortar, as it will not sit within a 1mm bed joint.

Birtley catnic A Tata Steel Enterprise Keystone LINTELS

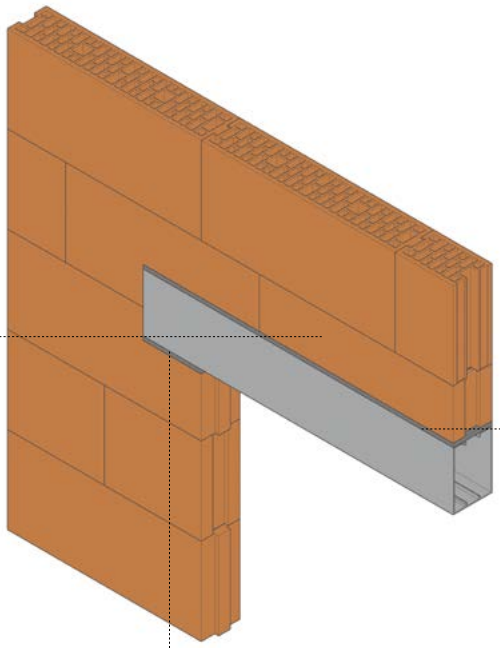
Where possible it is best practice to use a boat cut block for Lintel bearings and then cut the Porotherm blocks above the Lintels.

# LINTELS & REVEAL DETAILS

## Installation of lintels in Porotherm block walls

Where lintel heights do not course in with block heights it is considered best practice to use a boot cut block for the lintel bearing.

Cut coursing blocks over lintels should be laid on a bed of traditional mortar cut side down, ensuring they are in line and level across both planes with no steps or staggers across the top



10 mm traditional mortar joint

10 mm mortar joint on top of DPC bonded to block with Zero Plus mortar

1. A piece of DPC should be laid on the bearings using Zero + mortar.

2. The lintels are installed using traditional mortar on the bearings.

3. The lintel can then be built in using traditional mortar and again using boots cuts where possible.

# LINTELS & REVEAL DETAILS

When terminating block work into reveals any of the following methods shown in the imagery of this page can be considered to best minimise wastage.

Image 4 (last image) shows a closed cavity utilising Porotherm blocks.

It is strongly recommended that your chosen option is approved/agreed with building control and warranty provider.

1

2

3

4

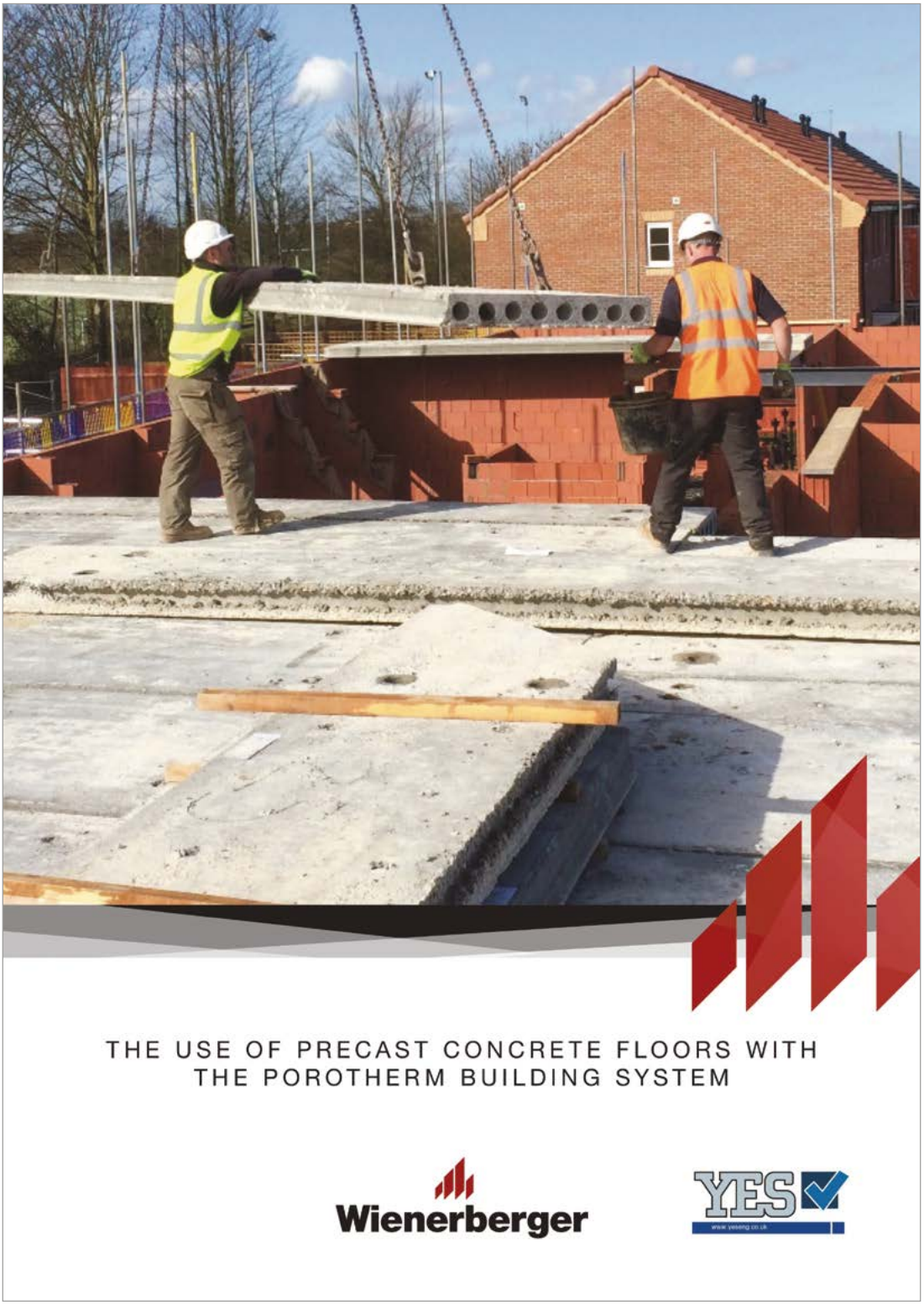
# JOISTS & FLOORS

Any joists should always be positioned on a full block, so therefore any modification to course height will need to be made below this course. Best practice is to have timber joists block ended, to enable them to course in with Porotherm, however if this is not possible then notch out the block above to sit over the top of the joist end.

When installing hangers, always ensure the hanger back flange is tight against the block. Hangers can be installed using a traditional 10mm mortar joint, or alternatively by notching the block above the hanger, thin jointing can continue, ensuring the notch is fully filled with traditional mortar. Please refer to hanger manufacturers guidelines when installing joists hangers before loading.

# CONCRETE PLANK PLACEMENT

Where appropriately designed the Porotherm Building System allows construction to proceed up to two storeys ahead of construction of the outer leaf. Specific guidance is provided within “The Use of Precast Concrete Floors with the Porotherm Building System” which has the approval of the technical committee of the Precast Flooring Federation.



# LAYING AT HEIGHT

Another benefit of building with Porotherm, is that there is no course limit to how high you can build, it simply comes down to health and safety and weather conditions. *Please ensure your methods of laying at height are approved by site.*

1. To lay at height, don't use the roller above your head.

2. Roll the blocks on the floor or across the top of the pallet.

3. Turn them over.

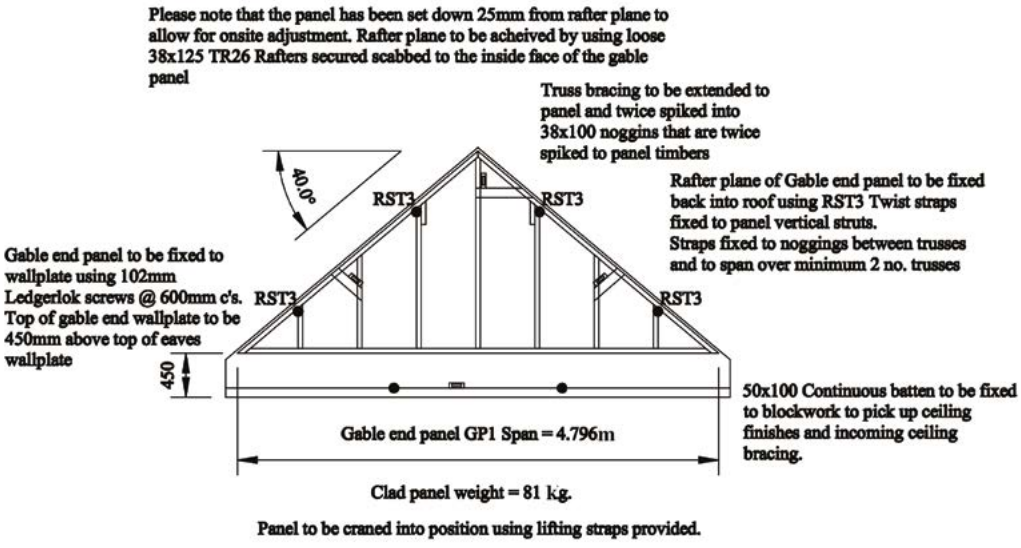
4. Lay them mortar side down.

# ROOFING

## Spandrel & Gable End

Gable end and Spandrel panels can offer speed and program benefits when used in conjunction with Porotherm. With no internal leaf required to gable ends, once the roof is weathered in, you can commence first fix internally, helping to achieve a more vertical program.

INDICATIVE ONLY

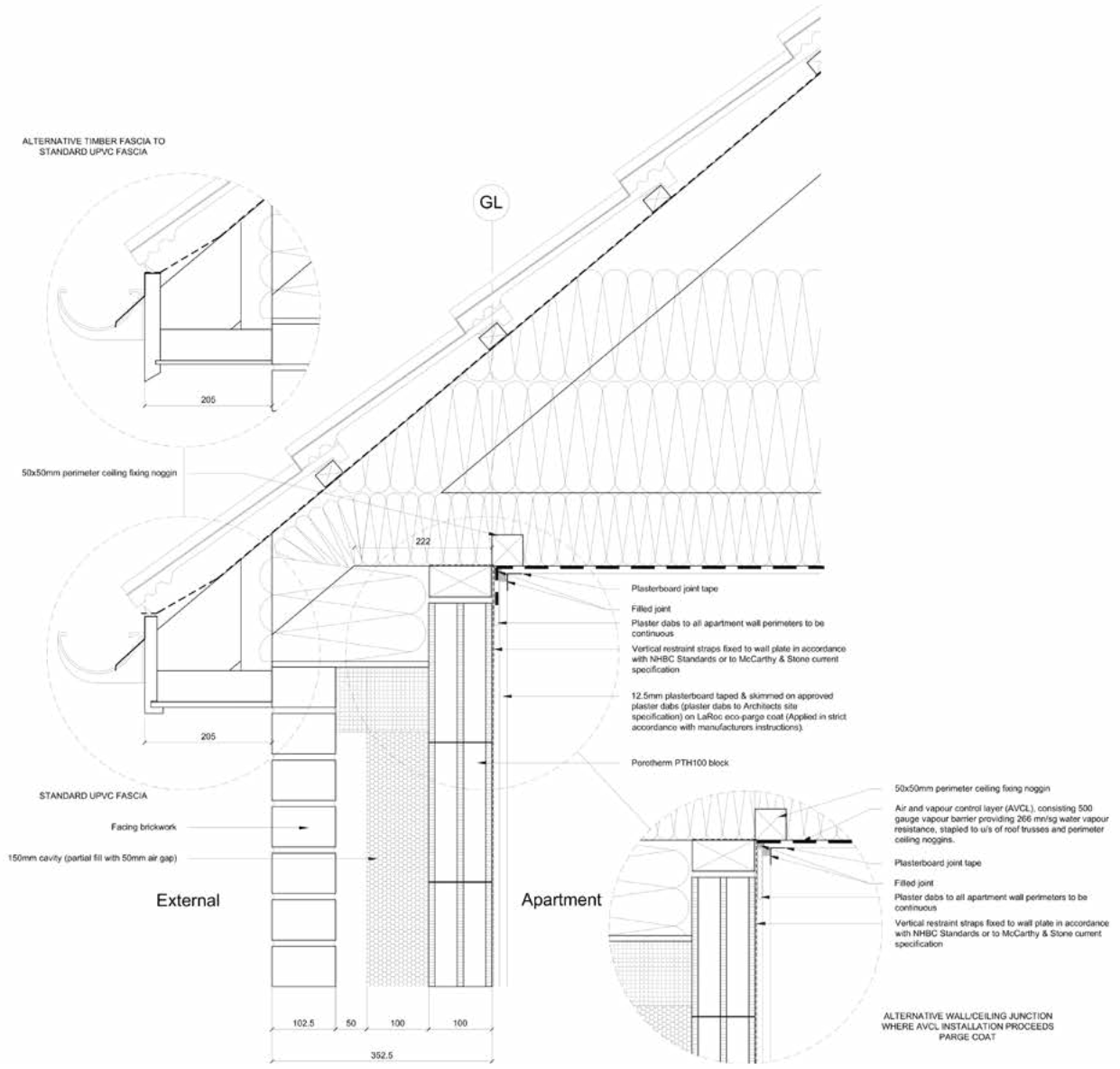


# WEATHERING IN

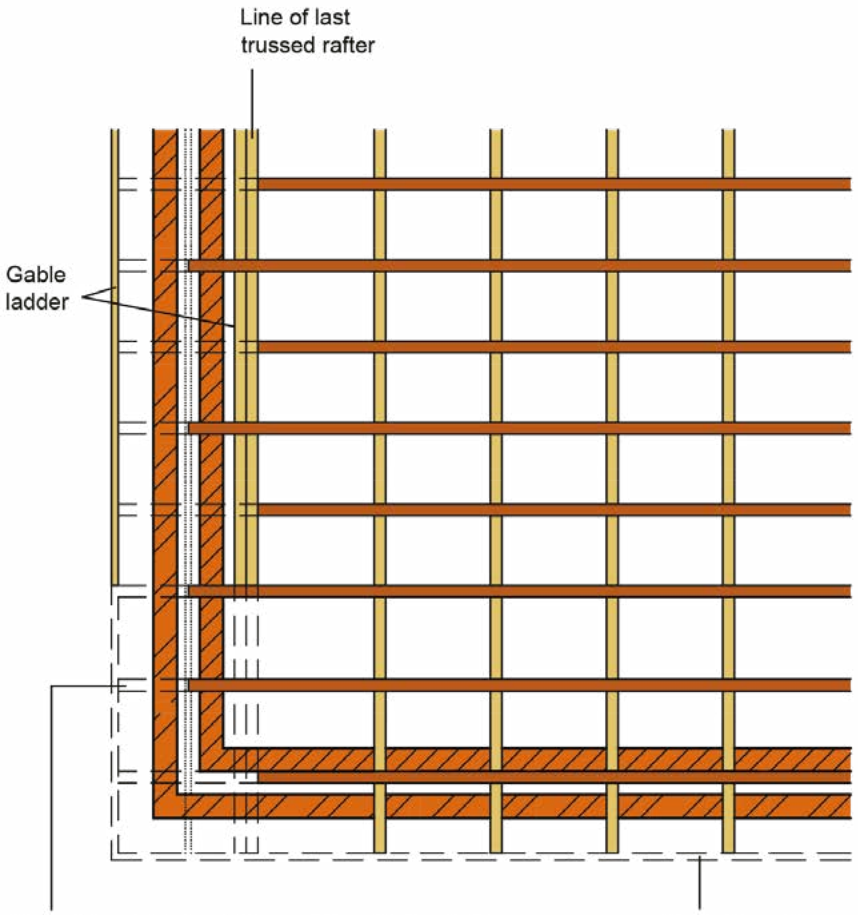
There aren't any hard and fast rules when it comes to roof covering when building using the Porotherm system, where fascia/soffit details are appropriately designed, fascia and rainwater goods can be installed, allowing tiling to be completed, with soffit being installed after the external skin is completed.

Please take a look through the following diagrams, to illustrate the different options when weathering in.

## Typical Porotherm Eaves Detail



## Porotherm Gable Ladder Detail



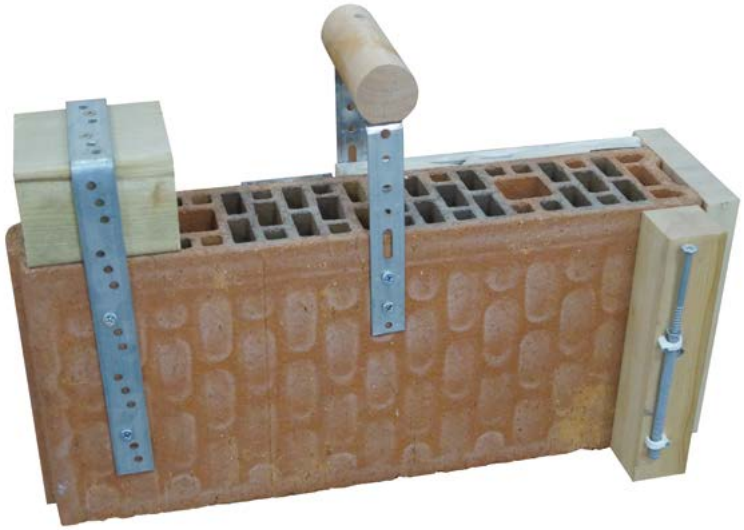

Dotted line indicates 50mm x 25mm timber battens fixed onto specified roofing felt and fixed to trusses and gable ladder.

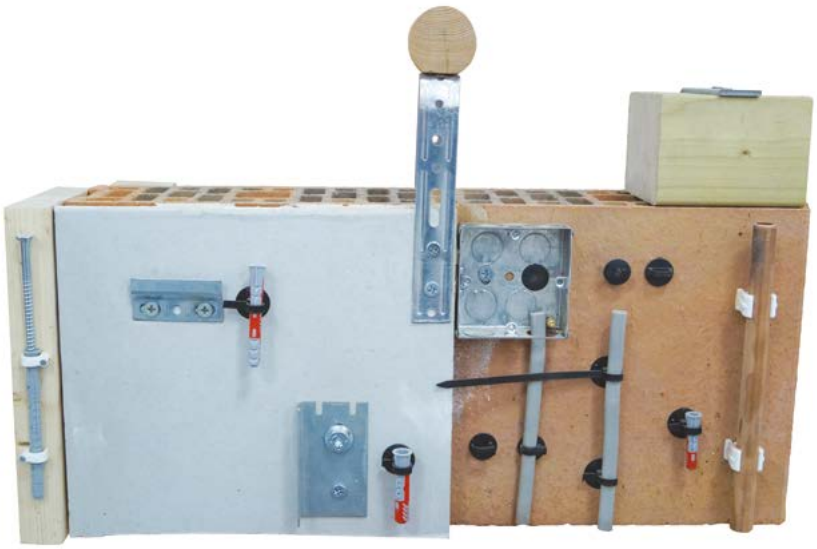
Note:
To facilitate the completion of the external brickwork the battens need to be cut short as indicated. The first batten to be cut at the centre rafter of the gable ladder with the next row at the first truss. Then alternating up to the ridge.

Once the brickwork is complete the cut battens are to be reinstated prior to completion of the roof.

# FIXINGS

When fixing into Porotherm, ensure the fixings you are using are suitable for multi cellular clay blocks. Please contact your Porotherm distributor for more information on fixings including DUOPOWER.





When drilling into Porotherm blocks, use a rotary drill without hammer action.

Heavy duty fixings are available, and if required, technical guidance should be sought from the manufacturer.

# WINDOW INSTALLATION & SUPPORT

Windows are installed in exactly the same way as you would expect. Where the window installation happens before the external skin is brought up, use two screws when strap fixing, to reduce the risk of the window dropping in the opening. Please discuss this with your window company/installer before your project commences.

If it is deemed that the window needs further support in the opening, prior to the external leaf being constructed, this can be achieved in a number of ways. The images here show an angle bracket in use, but a timber support could also be employed in its place.

When placing your order for cavity closers, please ensure that you get the relevant thin joint ties at approximately 0.7mm thick, and not the standard plastic type.

# PARGE COATING

Porotherm is a dry perpend system, so something is required to seal the vertical joints for air-tightness, and that is the job of Wienerbeger parge coats. It comes as a bagged dry powder and is mechanically mixed with water in accordance with instructions. Wienerberger parge coats have an expansive quality as it dries to assist with the filling of the joints. If applied correctly around built in joists, it can reduce the need for mastic pointing.

When applying parge coat to the 1st floor walls, extend the parge coat a minimum of 300mm into the roof space. For further information refer to the technical data sheet.

# PROTECTION OF WORKS

The use of ZeroPlus mortar means that the usual issues with working in the cold and wet present less of a challenge.

**Please consider the following when laying in inclement weather:**

- U shaped foam protector (as shown in the image to the right) is ultimately the most effective method. However, more traditional methods can be used as an alternative. It is important to protect blocks from freezing and never lay a frozen block.
- A scaffold board
- Hessian

Please consider temporary conditions when constructing in a single leaf, and the use of buttress walls and/or temporary props as a solution.

# ROLLER MAINTENANCE

1. Maintenance of the Porotherm rollers is simple.

2. When you're done with the roller, simply remove the split pin & spindle to release the drum.

3. Wash clean.

4. Remove any remaining ZeroPlus mortar from the trough before thoroughly washing that out also.

5. Replace the drum and spindle once clean and retain back in place with the split pin.

6. You're ready to go again.

Porotherm

## Example of Checklist

| | | | |
|---|---|---|---|
| Site: | | Date: | |
| Site Manager: | | Completed by: | |
| Sub Contractor: | | Weather conditions: | |

| Items to be reviewed | Y/N | Action points: |
|---|---|---|
| Quality of base course acceptable | | |
| Minimum bond achieved | | |
| Has a good overall standard of blockwork been achieved | | |
| Are wall ties correctly installed with wings against block face. | | |
| Has party wall detail been constructed correctly | | |
| Has scaffold been erected prior to commencement of Porotherm | | |
| Are joists, whether built in or on hangers installed to best practice | | |
| Porotherm roller in use | | |
| Are mortar runs visible to face of block | | |
| If any small areas dipped, are there any signs of excessive dipping | | |
| Is application method & quality of parge coat acceptable | | |
| Are female ends being presented to external openings | | |
| Is cutting method employed on site satisfactory | | |
| Are spread & cut perp end widths acceptable & neatly & fully pointed | | |
| Are spread & cut perp ends neatly & fully pointed | | |
| Is storage of blocks, mortar & parge acceptable | | |
| Is protection of works evident on site | | |
| Are spandrel & gable end panels being employed on site | | |
| Are ancillary items evident on site. Joists, window formers, lintels etc. | | |
| Is 1st fix being carried out effectively | | |
| Are correct fixing being utilised, and correctly installed by follow on trades. | | |
| What is the general sub-contract attitude | | |
| Is external leaf of external walls maintained within two stories of Porotherm | | |
| Is general progress of Porotherm at an acceptable rate | | |
| Any requirements for further training | | |

Wienerberger technical staff will observe and comment on general assembly issues on site to assist the construction team and designers achieve the best results from the Porotherm system.
They will not check, inspect or approve the works - that is the design and/or the construction team's responsibility.

Porotherm

## Example of Checklist For Multi-Storey

| | | | |
|---|---|---|---|
| Site: | | Date: | |
| Site Manager: | | Completed by: | |
| Sub Contractor: | | Weather conditions: | |

| Items to be reviewed | Y/N | Action points: |
|---|---|---|
| Is current weather conditions causing issues on site | | |
| Quality of base course acceptable | | |
| Minimum bond achieved | | |
| Has a good overall standard of blockwork been achieved | | |
| Are wall ties correctly installed with wings against block face. | | |
| Has party wall detail been constructed correctly | | |
| Has scaffold been erected prior to commencement of Porotherm | | |
| Are temp braces evident prior to placement of planks - where specified | | |
| Porotherm roller in use | | |
| Are mortar runs visible to face of block | | |
| If any small areas dipped, are there any signs of excessive dipping | | |
| Is application method & quality of parge coat acceptable | | |
| Are female ends being presented to external openings | | |
| Is cutting method employed on site satisfactory | | |
| Are spread & cut perp end widths acceptable & neatly & fully pointed | | |
| Is storage of blocks, mortar & parge acceptable | | |
| Is protection of works evident on site | | |
| Are spandrel & gable end panels being employed on site | | |
| Are ancillary items evident on site | | |
| Is 1st fix being carried out effectively | | |
| Are correct fixing being utilised, and correctly installed by follow on trades | | |
| What is the general sub-contract attitude | | |
| Has brickwork commenced prior to placement of 3rd floor planks | | |
| Is external leaf of external walls maintained within two stories of Porotherm | | |
| Planks placed on full block with cuts/coursing at base | | |
| Any requirements for further training | | |
| Is general progress on site acceptable | | |

Wienerberger technical staff will observe and comment on general assembly issues on site to assist the construction team and designers achieve the best results from the Porotherm system.
They will not check, inspect or approve the works - that is the design and/or the construction team's responsibility.

# HEALTH & SAFETY NOTES

## The Safe Use of Porotherm Clay Products (1)

The Health and Safety at Work Consumer Protection Act and other legislation requires us to provide relevant information with regard to our products in respect of handling, processing, storage, transportation and disposal without causing risk to health.

## Handling

Porotherm blocks are vertically perforated clay masonry units. They are manufactured from natural materials and are considered to be an inert substance, which presents no risk to safety and health through handling or use, subject to good practice being followed. The use of Personal Protective Equipment (PPE), such as hats, safety footwear and gloves is strongly recommended where practicable, to reduce the risks from sharp edges and falling objects.

Clay blocks should not be hit with a trowel, chisel or hammer as this may result in flying sharp fragments that may cause injury and result in damage to the external and internal structure of the products. Where cutting or shaping of blocks is required, it is recommended that suitable cutting equipment is used, according to the manufacturer's guidance. Suitable eye protection and Respiratory Protective Equipment (RPE), e.g. goggles, dust masks and ear protection, should be worn when cutting Porotherm blocks. When drilling Porotherm blocks, only rotary drilling is required.


Porotherm clay blocks are packed on a pallet, banded and shrink-wrapped to maintain the integrity and stability of the pack and for the protection of the products from the elements. Packs are heavy and great care should be taken when handling and transporting. The appropriate equipment suitable for the lifting task should always be used and the safe working load (SWL) of the lifting equipment should always be above the weights of the pack being lifted.

# HEALTH & SAFETY NOTES

## The Safe Use of Porotherm Clay Products (2)

All personnel should be made aware that products are not secured to the palette with straps. When handling the packs, this should always be done using forks i.e. pallet truck or forklift truck/cranes with suitable fork attachments.

**Avoid:**
- Abnormal shocks to packs
- Sliding one pack against the face of another pack
- Stacking packs more than two pallets high

***Note:*** *Security of straps can deteriorate over time*
It is strongly recommended that packs should be placed wherever possible on dry, well-drained, flat, solid ground, suitable for the purpose. The multiple stacking of packs is inadvisable and potentially dangerous, but in no circumstances should this be more than three packs high. Minimising product movement around the site will contribute significantly to safety.

Only lift by inserting forks beneath the palette provided. It is recommended that lifting holes have a width of 90mm and a length of 1100mm. Under no circumstances should a 'wide grab' device be used to lift packs of Porotherm, as this can both damage the products and lead to the pack becoming unstable.

## Opening the packs for use

Packaging should be removed using appropriate tools. Straps should be cut out by wire cutters and not burst open by application of levered pressure. When cutting straps, the operative should stand to the side of the strap being cut and not in line with that strap. Highly tensioned straps can spring away from the package when tension is released. In accordance with the Personal Protective Equipment at Work Regulations 1992, persons cutting bands under tension MUST wear suitable eye protection.

The strapping around packs of Porotherm has sharp edges. Suitable gloves should be used when handling this material. When the straps are cut, care must be taken to protect operative from blocks that may fall from the pack - particularly when products may have moved during irregular transport or storage, causing them to be unstable. It is recommended that protective footwear and overalls are worn when carrying out this operation.

# HEALTH & SAFETY NOTES

## The Safe Use of Porotherm Clay Products (3)

## COSHH (Control of Substances Hazardous to Health)

In general, fired clay products typically contain between 50%-70% silica. If standard power tools (e.g. disc cutter) are used to cut this product, substantial levels of dust may be produced. This is significantly reduced when using an electric reciprocating saw. Depending on the environment and the method of cutting, it is possible that some respirable silica may be generated and released into the air.

The main effect in humans in the inhalation of respirable silica dust is silicosis. There is sufficient information to conclude that the relative lung cancer risk is increased in persons with silicosis.
Under the COSHH Regulations, the Workplace Exposure Limit (WEL) for respirable silica is 0.1mg/m$^3$ (from October 2006). The only reliable way to ascertain the levels of individual exposure is to carry out detailed personal monitoring. Persons carrying out dry cutting operations MUST wear suitable respiratory protection. A suitable respirator or disposable mask meeting BS EN 149 (specification for filtering masks to prevent inhalation of particulates), preferably class FFP3 is recommended. The use of suitable respiratory protection by those working near to the dry cutting operation should be considered. Our advice would be to avoid the dry cutting of blocks whenever possible. Wet cutting reduces the amount of dust generated. Cutting operations should always be carried out in well ventilated areas. Unless a reciprocating saw is available, or bench mounted wet saw, it is recommended that off site, specialist cutting services be used.

## Manual Handing

There is a large range of Porotherm products available and an individual block may weigh anywhere between 8kg - 19kg. This could present a risk of manual handling injury. We recommend that the HSE Information Sheet Guidelines (Construction Sheet No.37 - Handling Building Blocks) be followed.

It is the customer's responsibility to obtain technical data on all materials to be used with Porotherm Products.

# SAFETY DATA SHEET
# POROTHERM ZERO PLUS

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

| | |
|---|---|
| Product name | POROTHERM ZERO PLUS |

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| Identified uses | Mortar |
| Uses advised against | No specific uses advised against are identified. |

### 1.3. Details of the supplier of the safety data sheet

| | |
|---|---|
| Supplier | Wienerberger Ltd<br>Wienerberger House<br>Brooks Drive<br>Cheadle<br>Cheshire<br>SK8 3SA<br>0161 491 8200 |
| Contact Person | WBUKPorotherm@wienerberger.com |

### 1.4. Emergency telephone number

0161 491 8200 (9am-5pm)

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

| | |
|---|---|
| Physical and Chemical Hazards | Not classified. |
| Human health | Skin Irrit. 2 - H315;Eye Dam. 1 - H318;Skin Sens. 1 - H317;STOT SE 3 - H335 |
| Environment | Not classified. |

Classification (1999/45/EEC) Xi;R37/38, R41. R43.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Human health

When the cement based powder is mixed with water or admixture, a strongly alkaline paste is produced. Cement based products may, until set, cause both irritant and allergic contact dermatitis. Irritrant contact dermatitis is due to a combination of the wetness, alkalinity and abrasiveness of the constituent materials. Allergic contact dermatitis is caused mainly by the sensitivity of the individual's skin to hexavalent chromium salts. Corrosive. Prolonged contact causes serious eye and tissue damage.

Environment

The product is not expected to be hazardous to the environment.

### 2.2. Label elements

Contains ORDINARY PORTLAND CEMENT

Label In Accordance With (EC) No. 1272/2008

Signal Word Danger

Hazard Statements

| | |
|---|---|
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |

| | | |
|---|---|---|
| | H335 | May cause respiratory irritation. |
| Precautionary Statements | | |
| | P102 | Keep out of reach of children. |
| | P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| | P261 | Avoid breathing dust. |
| | P262 | Do not get in eyes, on skin, or on clothing. |
| | P305+351+338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| | P337+313 | If eye irritation persists: Get medical advice/attention. |
| | P501 | Dispose of contents/container in accordance with local regulations. |
| Supplementary Precautionary Statements | | |
| | P264 | Wash contaminated skin thoroughly after handling. |
| | P302+352 | IF ON SKIN: Wash with plenty of soap and water. |
| | P402 | Store in a dry place. |

### 2.3. Other hazards

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2. Mixtures

| | |
|---|---|
| ORDINARY PORTLAND CEMENT | 10-30% |
| CAS-No.: 65997-15-1 EC No.: 266-043-4 | |
| Classification (EC 1272/2008)<br>Skin Irrit. 2 - H315<br>Eye Dam. 1 - H318<br>Skin Sens. 1 - H317<br>STOT SE 3 - H335 | Classification (67/548/EEC)<br>Xi;R37/38,R41.<br>R43. |

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition Comments

This product contains a reducing agent to ensure that the CrVI content of the cement in the product remains below 2ppm during the defined shelf life of the product.

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

General information

Consult a physician for specific advice.

Inhalation

Move the exposed person to fresh air at once. Rinse nose and mouth with water. Get medical attention if any discomfort continues.

Ingestion

NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse mouth thoroughly. Get medical attention immediately!

Skin contact

Remove affected person from source of contamination. Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention if irritation persists after washing.

Eye contact

Remove victim immediately from source of exposure. Do not rub eye. Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Get medical attention immediately. Continue to rinse.

### 4.2. Most important symptoms and effects, both acute and delayed

Inhalation

Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

Ingestion

May cause chemical burns in mouth and throat.

Skin contact

May cause serious chemical burns to the skin.

Eye contact

May cause severe irritation to eyes. May cause blurred vision and serious eye damage.

### 4.3. Indication of any immediate medical attention and special treatment needed

No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

Extinguishing media

The product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

### 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products

During fire, toxic gases (CO, CO2) are formed.

Unusual Fire & Explosion Hazards

No unusual fire or explosion hazards noted.

Specific hazards

In case of fire, toxic gases may be formed.

### 5.3. Advice for firefighters

Special Fire Fighting Procedures

No specific fire fighting procedure given.

Protective equipment for fire-fighters

Wear full protective clothing.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

Wear protective clothing as described in Section 8 of this safety data sheet.

### 6.2. Environmental precautions

Do not discharge into drains, water courses or onto the ground.

### 6.3. Methods and material for containment and cleaning up

Avoid contact with skin or inhalation of spillage, dust or vapour. Dampen spillage with water. Absorb in vermiculite, dry sand or earth and place into containers. Do not contaminate water sources or sewer. Shovel into dry containers. Cover and move the containers. Flush the area with water.

### 6.4. Reference to other sections

Wear protective clothing as described in Section 8 of this safety data sheet.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Avoid spilling, skin and eye contact. Provide good ventilation. Avoid handling which leads to dust formation.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed original container in a dry, cool and well-ventilated place. Keep in original container.

### 7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

| Name | STD | TWA - 8 Hrs | | STEL - 15 Min | | Notes |
|---|---|---|---|---|---|---|
| ORDINARY PORTLAND CEMENT | WEL | | 4 mg/m3 | | | |

WEL = Workplace Exposure Limit.

Ingredient Comments

WEL = Workplace Exposure Limits

### 8.2. Exposure controls

Protective equipment

Process conditions

Provide eyewash station.

Engineering measures

Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours.

Respiratory equipment

If ventilation is insufficient, suitable respiratory protection must be provided. Dust mask/respirator.

Hand protection

Use suitable protective gloves if risk of skin contact.

Eye protection

Wear splash-proof eye goggles to prevent any possibility of eye contact.

Other Protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

| | |
|---|---|
| Appearance | Powder, dust |
| Solubility | Slightly soluble in water. |
| pH-Value, Conc. Solution | 12-13 |

### 9.2. Other information

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

No specific reactivity hazards associated with this product.

### 10.2. Chemical stability

Stable under normal temperature conditions.

### 10.3. Possibility of hazardous reactions

Not applicable.

### 10.4. Conditions to avoid

Avoid contact with acids. Water, moisture.

### 10.5. Incompatible materials

Materials To Avoid

Strong acids. Aluminium powder

### 10.6. Hazardous decomposition products

Fire creates: Carbon monoxide (CO). Carbon dioxide ($CO_2$).

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

Inhalation

May cause irritation to the respiratory system. May cause damage to mucous membranes in nose, throat, lungs and bronchial system. Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Ingestion

Ingestion may cause severe irritation of the mouth, the oesophagus and the gastrointestinal tract.

Skin contact

The product contains a small amount of sensitising substance which may provoke an allergic reaction among sensitive individuals after repeated contact.

Eye contact

Risk of serious damage to eyes. May cause chemical eye burns.

Health Warnings

Repeated exposure in excess of the WEL has been linked with rhinitis and coughing. Skin exposure has been linked to allergic chromium dermatitis.

## SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

### 12.1. Toxicity

The product is not expected to be hazardous to the environment (LC50 aquatic toxicity rating not determined). The addition of cement based product to water will, however, cause the pH to rise and may, therefore, be toxic to aquatic life in some circumstances.

### 12.2. Persistence and degradability

Not relevant. After hardening, cement presents no toxicity risks.

Degradability

There are no data on the degradability of this product.

### 12.3. Bioaccumulative potential

Bioaccumulative potential

No data available on bioaccumulation.

### 12.4. Mobility in soil

Mobility:

The product is non-volatile. The product is insoluble in water and will sediment in water systems.

### 12.5. Results of PBT and vPvB assessment

No information available.

### 12.6. Other adverse effects

None known.

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

Dispose of waste and residues in accordance with local authority requirements. Product that contains >2ppm CrVI should be disposed of according to local legislation or should be treated with a reducing agent before use. Product that is within shelf life may be hydrated with water and disposed of according to local legislation. The hydrated product is not hazardous.

## SECTION 14: TRANSPORT INFORMATION

| | |
|---|---|
| General | The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID). |
| Road Transport Notes | Not Classified |
| Rail Transport Notes | Not classified. |
| Sea Transport Notes | Not classified. |
| Air Transport Notes | Not classified. |

### 14.1. UN number

Not applicable.

### 14.2. UN proper shipping name

Not applicable.

### 14.3. Transport hazard class(es)

Not applicable.

Transport Labels

No transport warning sign required.

### 14.4. Packing group

Not applicable.

### 14.5. Environmental hazards

Environmentally Hazardous Substance/Marine Pollutant

No.

### 14.6. Special precautions for user

Not applicable.

### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

## SECTION 15: REGULATORY INFORMATION

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Statutory Instruments

The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716).

Approved Code Of Practice

Safety Data Sheets for Substances and Preparations. Classification and Labelling of Substances and Preparations Dangerous for Supply.

Guidance Notes

Workplace Exposure Limits EH40. CHIP for everyone HSG(108).

### 15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

## SECTION 16: OTHER INFORMATION

| | |
|---|---|
| Revision Comments | |
| 1 | |
| Issued By | Technical Manager |
| Revision Date | 30.09.16 |
| Date | . |
| Risk Phrases In Full | |
| R37/38 | Irritating to respiratory system and skin. |
| R43 | May cause sensitisation by skin contact. |
| R41 | Risk of serious damage to eyes. |
| Hazard Statements In Full | |
| H318 | Causes serious eye damage. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H335 | May cause respiratory irritation. |

Wienerberger

Wall Solutions

- Terca
- Porotherm
- Corium
- SVK

Roof Solutions

- Sandtoft
- Koramic
- KEYMER

Landscaping Solutions

- Penter

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Wienerberger

PBPG01/20