

Bricklaying & Cleaning

Best practice guide



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Good workmanship and correct storage of bricks during construction will ensure that a number of potential stains are avoided. In addition, the use of the correct cleaning methods will prevent further problems arising.

Pre-construction Check List

Ensure that:

- ☒ Materials and components are clean and not damaged.
- ☒ Sand and cement are from a single source – Sands and cement supplied from different sources can give rise to colour variations in the mortar.
- ☒ The colour and texture of bricks match the agreed reference panels.
- ☒ Sand is visually clean.
- ☒ There is continuity in the supply of materials and components.

Site Storage

- Protect brick packs from rain and from soiling from the ground.
- Ensure bricks are stored appropriately (either on pallets or on plastic sheet) to prevent bricks absorbing ground moisture.
- Cover the brickwork at the end of each day, especially when rain is expected.

NOTE: If bricks are too wet, they can be difficult to lay and efflorescence or stains on the finished brickwork can occur.



Preparation of Mortar Mixes

1.

Some admixtures may reduce bonding strength and cause permanent mortar stains when used in incorrect proportions.
2.

Inclusion of hydrated lime in mortar mixes is strongly recommended. Lime improves the workability of mortar and it also increases the durability.
3.

Unless otherwise specified, do not use more than 10 % pigment of the cement mass, in coloured mortar mixes.
4.

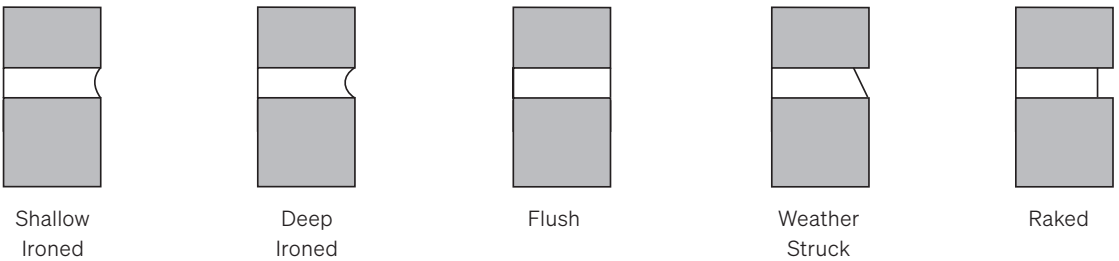
Gauging volumes by the shovelful cannot be relied upon to give sufficiently accurate mix proportions. Batching should always be carried out using buckets.
5.

Composition of the standard M3 mortar is 1:1:6 (Cement:Lime:Sand). M4 mortar (1:0:4, 1:0.25:3 or 1:0.5:4.5 of Cement:Lime Sand ratio or pre-mixed mortar such as Mortex) must be used for 'Severe Marine' environments.

Mortar joints

Flush or Ironed/Tooled joints are best for improved durability in a salt atmosphere and good fire resistance.

Raked or recessed joints are not allowed in 'Severe Marine' environment.

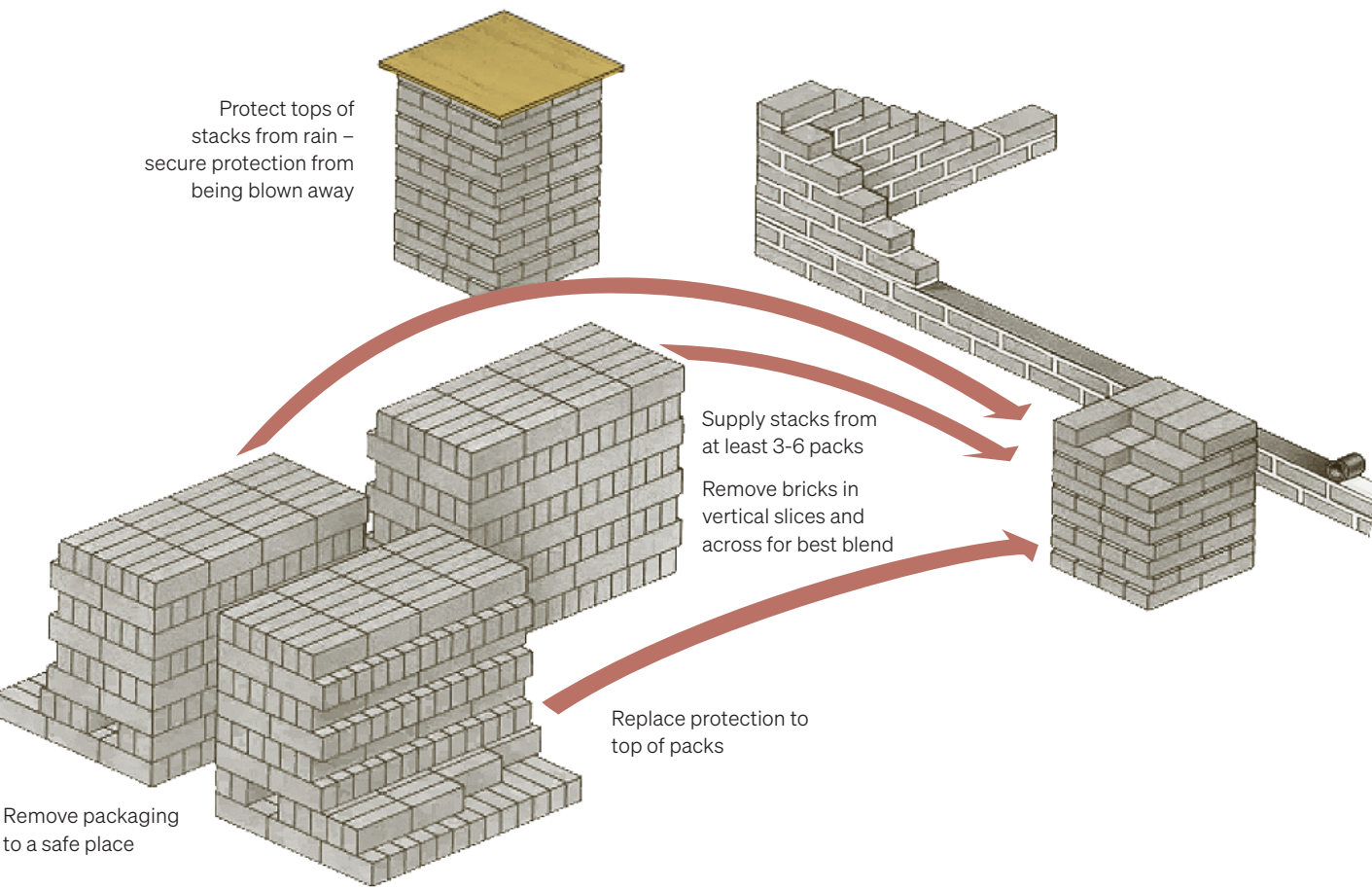


Blending

Bricks are to be blended from 3-6 packs, down and across.

There are two or three usable sides - one or two headers and one stretcher.

Correct Blending Technique



Cutting

Clean water is to be used for all brick cutting. If the water is not clean, the dark water will be absorbed into the brick and cause it to discolour.



Darker banding across the slab sections due to cutting with dirty water.

Scaffolding

Scaffolding boards should be laid at least 150 mm clear of the wall, allowing mortar droppings to fall clear instead of building up on the plank and disfiguring the wall. At the end of each day's work – or when rain interrupts work – the plank nearest to the wall should be propped on edge to prevent mortar which may have collected on it being splashed onto the wall. The example at right shows a poorly protected sill area. Note the mortar residue on the window frame and brickwork which can mean a poor-quality final product if not properly managed.

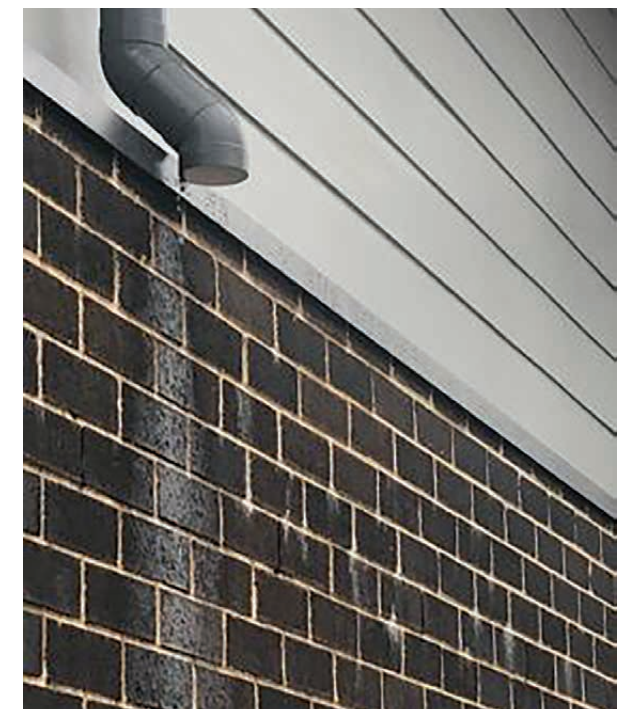


Brick laying

- Check the brick size.
- Care should be taken to help keep the wall free of mortar dags and smears. These should be cut off with a trowel during laying.
- All mortar dags should be removed using either a trowel or metal/wooden scraper. This should be done within 24-36 hours after completion of the brickwork.
- Do not wet sponge the joints – this may create permanent stains.
- For multiple deliveries, ensure the bricks are consistent with the previous deliveries and what have been laid.
- Clean the brickwork as you go.
- It is important that garden beds, paved, concrete or tiled areas are below the level of the installed DPC and that they do not cover the weepholes.
- Building any form of structure over weepholes can restrict the drainage of moisture that penetrates through the brickwork. Allowing moisture to enter the brickwork may result in efflorescence or stain issues.
- It is important to cover brickwork at the end of each day, especially when rain is expected. Allowing moisture to enter brickwork may result in efflorescence or stain issues.
- It is important to manage down pipes to keep brickwork as dry as possible. Excessive moisture in brickwork may result in efflorescence or stain issues.



Example of wet sponged wall



Example of wet brickwork from a down pipe.

Cleaning

Preparation

- Protect adjacent materials and nearby plants. Mask or otherwise protect windows; doors; and materials such as sealants, metal, glass, wood, limestone, cast stone, concrete masonry and ornamental trim from cleaning solutions.
- Test a small unseen section prior to full- scale cleaning to ensure that the cleaning technique is correct and acceptable. Ensure to follow safety precautions and cleaning instructions suggested by the cleaning chemical supplier/manufacturer.

Pre-cleaning Soak

- The brickwork must be thoroughly wetted before any acid solution is applied to prevent the acid from being absorbed by the brickwork which can cause staining. Never let the wall dry out during cleaning; work on small areas. left on the surface for several days.

Acid Cleaning

- Work on a small area at a time and where possible and avoid cleaning in direct sunlight.
- Applying chemicals with high pressure cleaners is dangerous and is NOT recommended for safe and successful cleaning.
- Special care should be taken with window frames, aluminium dampcourses and gutters.
- The recommended strength is **1 part Hydrochloric acid to 20 parts water**. Under no circumstances should more than 1 part hydrochloric acid to 10 parts water be used. It is better to scrub more vigorously than to use more acid.
- Apply the acid solution and leave to stand on the wall to allow the chemical action to occur. This could take up to 3 to 6 minutes.
- It is extremely important to thoroughly hose off the wall as the work proceeds. If the acid is left on the wall too long it can be absorbed into the brickwork and may cause staining.
- Clean approximately 1m X 1m area at a time.

- **Low pressure - max 7000kPa (approx. 1000psi).**

- Use a wide fan spray nozzle (> 15°).

- **Distance of 500mm from the wall.**

- Use 'runs' of approximately 1m in width.

- Keep the gun moving constantly.

- Turbo head attachments **MUST NOT** be used.

- It is strongly recommended that a test area should be used to check the impact of high-pressure cleaning on the bricks and mortar. High pressure cleaning is **NOT** recommended for Bowral (Dry Pressed) bricks, San Selmo bricks and Sculptured Sands Opaque bricks. Extra care should be taken with slurry coated bricks.

Warning: If the mortar joints or brick surface are being damaged, the pressure is too high or the water jet nozzle is too close to the wall.

Neutralising

- It is recommended to neutralise the wall by applying a solution of 15 grams sodium bicarbonate per litre of water after the steps above.



Exposed Masonry

- Exposed masonry will be more susceptible to mould/organic growth or other moisture related issues such as efflorescence over time.
- Porous bricks such as Sandstock bricks (San Selmo, Governor and Sculptured Sands range) and Dry Pressed bricks (Bowral range) have higher water absorption and are more susceptible to mould/organic growth or stains over time due to retained moisture in the bricks.



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- Brickwork that allows water to pool on the surface (as shown below) will be more susceptible to mould/organic growth and staining over time.



- Although the retained moisture and mould/organic growth will not affect the structural integrity or durability of the brickwork, it will affect the appearance of the brickwork.
- Masonry that gets less solar exposure on south facing aspects or in shaded areas have increased susceptibility to mould/organic growth or stains.
- Exposed masonry should be capped as shown below or sealed with a penetrating and breathable sealer that is recommended for masonry.



Sealing

- Sealing of brickwork is not necessary and generally not required. However, for brickwork that is not protected with a roof, eave or coping, sealing brickwork is recommended to prevent potential discolouration, stains, efflorescence or mould/organic growth over time.
- Penetrating and breathable sealants are typically invisible, however it is always advisable to test the sealant on a small area prior to application.
- It is recommended to seal a whole panel but sealing the top exposed section will significantly reduce the likelihood of mould/organic issues.
- Sealing only part of a masonry wall will not be visibly obvious when the wall is dry but when it is wet, the sealed area will have a different appearance to the unsealed area of wall.

Removal of mould/organic growth

- Mould/Organic Growth can be removed by vigorous brushing with a bristle brush. For heavy growth, scraping and/or wire brushing (non-metal brush only) may be necessary.
- After this dry cleaning, apply a proprietary mould killer containing Sodium Hypochlorite and Sodium Hydroxide and it should be left on the surface for several days.

Removal of other stains caused by moisture

Please refer to Thinkbrick Manual 13 – Clay Masonry Cleaning Manual

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06/2022