


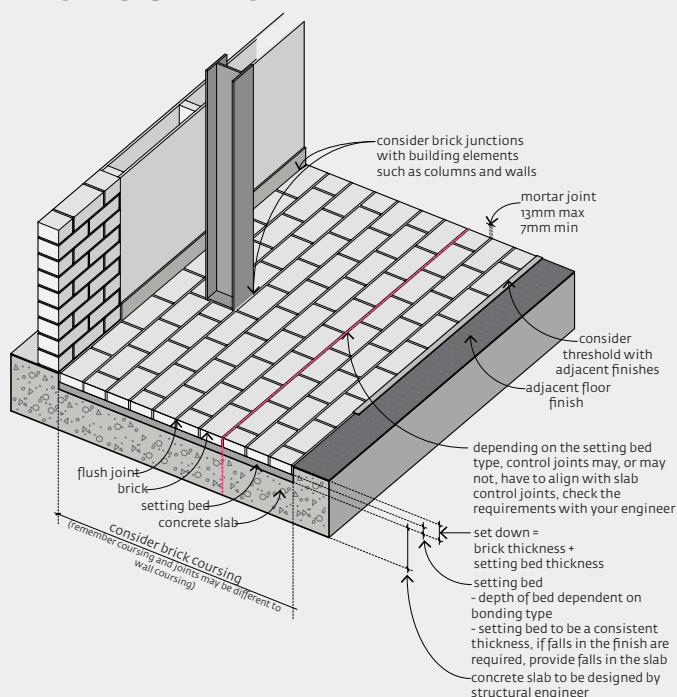
BRICK FLOORS

THERMAL MASS **NON-FLAMMABLE** **DURABLE**
CONTINUOUS INDOOR/OUTDOOR FLOOR FINISH

TRADE SKILL LEVEL: 



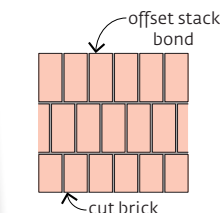
SOME RULES OF THUMB



SOME OTHER BRICK FLOORS WE LOVE



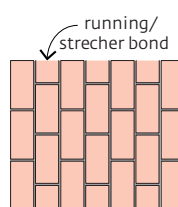
TRADE SKILL LEVEL: 



MRTN Architects
Carlton Cloister, Vic



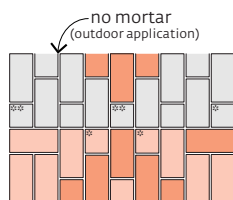
TRADE SKILL LEVEL: 



Genesis Studio
Antica Pizzeria e Cucina, SA



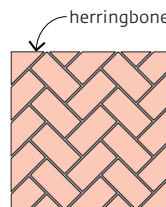
TRADE SKILL LEVEL: 



Plan E Landscape Architects
Northern Park at Reveley, WA



TRADE SKILL LEVEL: 



Walter Street Terrace,
David Boyle Architect, NSW

Seek advice and discuss the recommended bonding system with your Structural Engineer. The bonding system will impact the thickness of the mortar setting bed and the location of movement joints.

As a non-structural brick element, there are many different patterns that can be used including running bond, basket weave, herringbone or motifs.

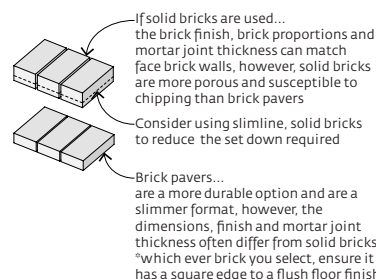
Consider using different brick colours and mortar colours for decorative effect.

As a heavy option for a floor finish, brick floors are generally used for ground floor levels only.

The final finish will be textured and hard compared with more conventional floor finishes. Brick is a timeless finish but is difficult to change in the future. Discuss these aspects as well as acoustics, maintenance and cleaning with your client and ensure the application is suitable for the building use.

Speak to your brick layer about sealing or applying a wax to the bricks prior to being laid. This can make it easier to clean mortar from the surface, achieving a neater finish. Even if bricks are pre-sealed, it is still recommended to seal the finished floor to avoid the brick and mortar staining from use.

Ensure the appropriate sealant is applied to avoid staining and moisture penetration while also achieving the appropriate slip resistance.



Brick floors are a unique design choice that gives an aesthetic appeal to any building.

This flyer raises some of the issues that an engineer may need to consider for the design of a brick floor.

DESIGNING A BRICK FLOOR

Brick Selection

Bricks used in flooring should be chosen on the basis of their hardness, durability and slip resistance.

This means they should be:

- able to cope with heavy objects and traffic loads – solid bricks are often the best choice in these cases, however cored bricks may be used if laid on their side
- resistant to wear and to chipping from sharp objects – apply a waterproofing sealant and ensure all bricks are laid to an equal level
- be slip resistant, with a mean coefficient of friction of not less than 0.4 when tested in accordance with AS/NZS 3661 *Slip resistance of pedestrian surfaces*, in order to minimise the chance of falls, particularly when wet

Weight

A brick floor is not a structural element, but it will add more weight to the concrete slab than other flooring materials. This weight will in turn be transferred and imposed on the supporting elements underneath.

This extra load will need to be taken in account in the structural design phase of the overall structure using the AS 1170 *Structural design actions* suite.

The additional capacity required by the supporting structural elements will dictate their design, and be derived using each elements appropriate material standard, i.e. AS 3600 *Concrete structures*, AS 3700 *Masonry structures*, AS 4100 *Steel structures*.

Some of the key considerations include:

- the load of the increased weight of brick floors on the structural supports beneath the slab
- the required compressive capacity of the structural supports
- the effect of any added eccentricity imposed by the increased weight
- any contribution the brick floor may add to inter-storey drift, calculated in guidance with AS 1170.4 *Structural design actions – Earthquake actions in Australia*

Detailing

To prevent bricks from butting against the first course of the walls, bricks should be integrated into the floor by being laid in a recess in the concrete slab.

The concrete slab is to be designed by a structural engineer.

The bricks will need to be detailed correctly. They should be:

- cut so that they fit around any obstructions such as columns correctly
- laid in such a way they are laterally restrained by the slab – there should be no gaps at the edges between the bricks and the concrete slab, providing stability to the floor

Movement

The inclusion of a control joints when a mortar/flexible setting bed is used should be considered in order to minimise movement of the slab relative to the brick floor.

Aligning the control joints of the brick floor and the concrete slab will allow the bedding to move in unison with the slab.

This will also cater for any expansion or shrinkage that occurs between the brick units and other materials.

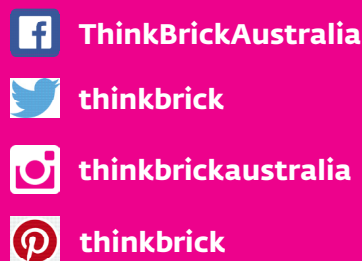
Water Ingress and Staining

The brick floor should be designed to prevent potential damage from water or other liquids.

Mortar or a flexible waterproof adhesive should be applied at the junctions to prevent water ingress and ensure it remains waterproof.

Applying a sealant to the surface of the floor may also assist, and will help to minimise any potential future staining.

If staining does occur it can be cleaned up using techniques described in the Think Brick Australia Manual 13 – *Clay Masonry Cleaning Manual*.



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