

TEXTURED BRICK WALLS

PATTERN
SHADOW

TEXTURE
CONTRAST

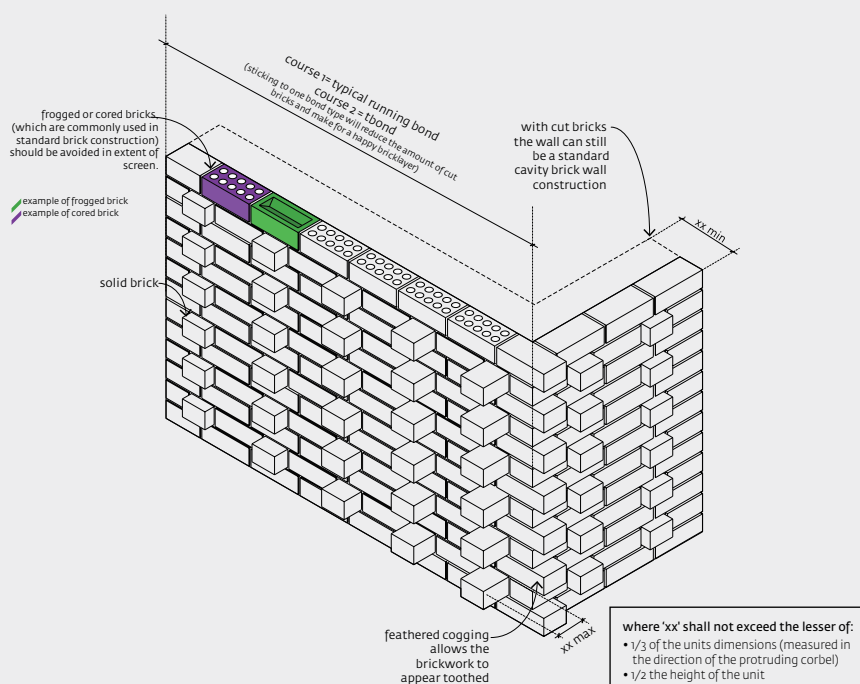
MOVEMENT
INTEREST

DEPTH

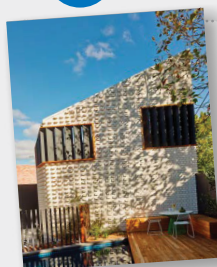
TRADE SKILL LEVEL: 



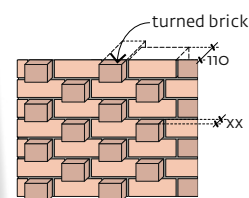
SOME RULES OF THUMB



SOME OTHER BRICK TEXTURES WE LOVE



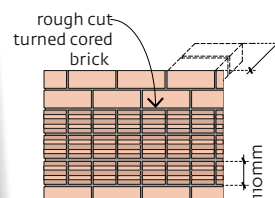
TRADE SKILL LEVEL: 



MAKE Architecture
Little Brick Studio, Vic



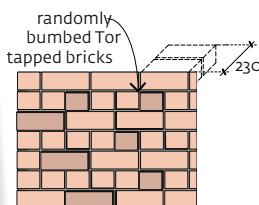
TRADE SKILL LEVEL: 



m3Architecture,
Micro Health Lab, Qld



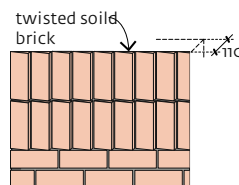
TRADE SKILL LEVEL: 



Aileen Sage Architects
Courtyard House, NSW



TRADE SKILL LEVEL: 



YTH Residence Scott Carver
Architecture, NSW

Seek advice and input from a structural engineer when bricks are overhung and laid unconventionally.

Be inventive with the brick module and consider how it can be laid and cut to expose different surfaces and edges.

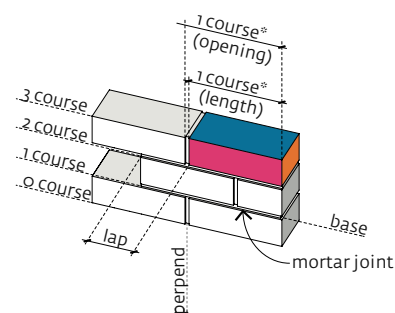
Try varying the overhang of the bricks to create depth and patterns in surface shadows.

Consider different brick formats to achieve alternative pattern proportions.

When locating textured wall surfaces be sure that tense it's out of reach for children that may be tempted to climb it.

If you using standard cavity brick construction always ensure your detail allows for sufficient brick ties and that there are no bricks bridging the cavity.

Take steps to ensure the skill level and qualification of the bricklayer is appropriate for the project.



* non-standard brick layouts may affect coursing.

Stretcher face
Header face
Sailor face

This flyer raises some of the issues that an engineer should consider when advising on the design of a 'textured' brick wall containing corbelled masonry units.

This effect can be used in both non-load bearing and loadbearing wall systems and most masonry types provided they comply with structural design and detailing considerations outlined within AS 3700 'Masonry Structures' and/or AS 4773 'Masonry in small buildings'.

AS 3700 - MASONRY STRUCTURES CONSIDERATIONS

Textured brick walls such as the examples provided, fall within the scope of AS 3700 'Masonry Structures'. As such, it should be designed and detailed with reference to section 4.14 'Corbelling'

DETAILING CONSIDERATIONS

In accordance with Clause 4.14.1, the projection of the corbel beyond the face of the wall shall not exceed $\frac{1}{2}$ the wall thickness and although projected, should still remain fully bedded to a length equivalent to the wall's thickness. Furthermore, the projection of any masonry unit or units making up that of a corbel shall not exceed the lesser of:

- $\frac{1}{3}$ of the unit dimensions measured in the direction of the corbel; and
- $\frac{1}{2}$ the height of the unit

For a common clay masonry unit of 230mm x 110mm x 76mm, the maximum allowable projection would thus be 38mm.

Assuming that the wall's thickness would be equal to the unit thickness (110mm) the corbelled units would have to be cut such that their length is less than or equal to 148mm (110mm + 38mm)

DESIGN CONSIDERATIONS

Clause 4.14.1 states that the loading induced by the weight and arrangement of the corbel shall be taken into account in the structural design of the wall. Therefore, engineers are advised to pay attention to the following clauses within AS 3700 when completing their designs:

• Clause 4.6 – 'Design for Robustness'

Walls must satisfy the robustness requirements and be proportional to resist a uniformly distributed out of plane lateral load of 0.5 kPa.

Additional stability may need to be provided to the wall and/or the base in order to counteract the instability that the eccentric load from protruding corbels place on the wall,

which slightly shift the position of the walls in-plane vertical axis.

• Clause 7.3 – 'Design For Members in Compression'

For compression design, consider the nominal eccentric loading provided by the corbels when calculating the reduction factor (k) for slenderness and eccentricity.

As such, Clause 7.3.4 'Design by refined calculation' should be used.

When calculating k for lateral instability (Clause 7.3.4.5), e_1 and e_2 are determined by analysing the uniformly distributed load (UDL) provided by the weight of the wall's protruding sections (combined corbelled units). For e_1 , the bending moment would be considered by identifying the centroid of the corbelled unit, minus half the length that the corbelled unit protrudes out from the wall.

Note: $e_1 > 0.05t_w$, where t_w is the overall thickness of the wall.

e_2 would equal zero, assuming no corbelled units protrude out from the wall's base otherwise $e_2 = e_1$ if corbelling is undertaken throughout the wall face.

• Clause 7.4 – 'Design for Members in Bending'

Consideration for the perpendicular spacing factor (Clause 7.4.3.4) as a result of the resulting bond type should also be taken into consideration when calculating the bending capacity (section 7.4) of the system.

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