

Safety - Masonry Construction

Electronic Blueprint and ENVIROSPEC provide building specifications, details and training on safe and sustainable buildings to architects, engineers and builders. Safety during the construction of masonry is of paramount importance. The following specification is intended to assist the structural engineer to determine the appropriate temporary bracing for the particular application..

Like all cement based products, masonry mortar takes time to cure – meaning that masonry (clay brickwork or concrete blockwork) must be adequately supported during the construction stage, to prevent collapse due to wind or accidental loads. Masonry walls are normally supported in a building by the roof, upper floors (if any), piers and cross-walls. During construction, some of these may not be present.

Electronic Blueprint provides tables setting out the suitable spacing of bracing to meet the various combinations of terrain, shielding and topography described in AS 4055 *Wind loads for housing*. The builder must construct temporary supports, making sure that they have sufficient strength and adequate fixing to prevent collapse of the masonry. In particular:

- Walls must be supported from both sides.
- Supports in compression must be thick enough to prevent buckling.
- Supports must be anchored firmly to the slab and to the masonry to prevent sliding.
- Supports should be designed by an experienced and qualified structural engineer.

| Maximum Horizontal Spacing (metres) of Vertical Supports (Temporary Bracing or Permanent Returns) for Masonry Walls Under Construction | | | | | | |
|---|-------------------|-----|-----|-----|-----|-----|
| Topography T1 = Hills, ridges & escarpments under 1 : 10, lower two thirds of hills under 1:5, over the top of escarpments less than 1:5. T2 = middle third of hills between 1:5 & 1:3, top third of hills between 1:7.5 & 1:5, over the top of escarpments between 1:5 & 1:3. All other cases are T3, T4 or T5 | Wall Thickness mm | T1 | T2 | T3 | T4 | T5 |
| TC 3 Terrain with numerous closely-spaced obstructions having the size of houses. The minimum density of houses shall be the equivalent of 10 house-size obstructions per hectare. | 90 | | | | | |
| | 110 | 4.2 | 4.2 | 3.0 | 3.0 | 2.4 |
| | 140 | 5.8 | 5.8 | 4.2 | 4.2 | 3.0 |
| | 190 | 6.0 | 6.0 | 4.8 | 4.8 | 3.4 |
| | 190 | 6.0 | 6.0 | 6.0 | 6.0 | 5.2 |
| TC 2.5 Terrain with few trees, isolated obstructions, such as agricultural land, cane fields or long grass up to 600 mm high. Terrain in developing outer urban areas. | 90 | | | | | |
| | 110 | 4.2 | 3.0 | 3.0 | 2.4 | 2.4 |
| | 140 | 5.8 | 4.2 | 4.2 | 3.0 | 3.0 |
| | 190 | 6.0 | 4.8 | 4.8 | 3.4 | 3.4 |
| | 190 | 6.0 | 6.0 | 6.0 | 5.2 | 5.2 |
| TC 2 - Open terrain including sea coast areas, airfields, grassland with few well-scattered obstructions, such as isolated trees and uncut grass having heights from 1.5 m to 10.0 | 90 | | | | | |
| | 110 | 3.0 | 3.0 | 2.4 | 2.4 | 1.8 |
| | 140 | 4.2 | 4.2 | 3.0 | 3.0 | 2.2 |
| | 190 | 4.8 | 4.8 | 3.4 | 3.4 | 2.6 |
| | 190 | 6.0 | 6.0 | 5.2 | 5.2 | 3.8 |
| TC 1 Exposed open terrain with few or no obstructions. | 90 | | | | | |
| | 110 | 3.0 | 2.4 | 2.4 | 1.8 | 1.4 |
| | 140 | 4.2 | 3.0 | 3.0 | 2.2 | 1.8 |
| | 190 | 4.8 | 3.4 | 3.4 | 2.6 | 2.2 |
| | 190 | 6.0 | 5.2 | 5.2 | 3.8 | 3.0 |

For further details of electronic specifications or the ENVIROSPEC Protocol - www.electronicblueprint.com.au



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