Reinforced Concrete Masonry Boundary Walls

Electronic Blueprint and ENVIROSPEC provide building specifications and training, on safe and sustainable buildings, for architects, engineers and builders. The collapse of a number of free-standing masonry privacy walls under extreme wind has prompted the Queensland government to consider regulating their design and construction. They must be designed and constructed to withstand a range of loads, and in particular, wind loads. Design tables are available from *Concrete Masonry Fences,* Data Sheet 5, Concrete Masonry Association of Australia, May 2007.

The following paper provides a detailed description of the design process and the determination of:

- Wind loads for various locations and exposures
- Earthquake loads
- Active and passive soil pressures that affect the stability of the system
- Pier dimensions to provide stability, including the relevant structure/soil interaction
- Pier and masonry reinforcement design
- Detailing of masonry privacy walls.

Johnston, R.K, “Free-standing Masonry Privacy Walls”, 14th International Brick & Block Masonry Conference, Sydney, Australia, 2008.

Recommendations include:

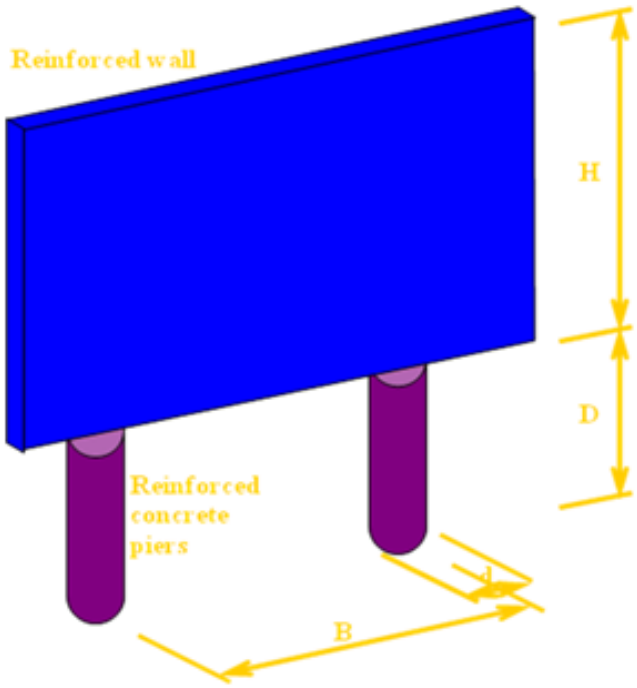
1. The worked example describes a methodology for the design of free-standing masonry privacy walls for various combinations of wind, earthquake and soil conditions.

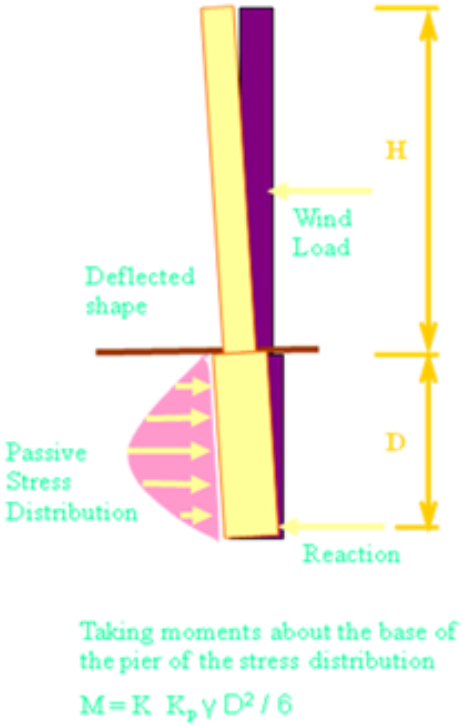
2. Wind loads on free-standing masonry privacy walls should be calculated using AS/NZS 1170.2-2002.

3. Although masonry privacy walls are outside the scope of AS 4055-2006, it is recommended that a system of suitable wind load classifications, using nomenclature compatible with AS 4055 be adopted.

4. It is recommended that earthquake loads be calculated using AS 1170.4-2007, Method EDC I, which permits the lateral earthquake inertia load to be assumed to be 10% of the seismic weight.

5. Although masonry privacy walls are outside the scope of both AS 4678 and AS 2159, it is recommended that the determination of design soil properties be carried out in accordance with AS 4678-2002 and the pier analysis be in accordance with AS 2159-1995. A method of analysis based on the recommendations of Broms (1964) has been described, although the choice of analysis remains at the discretion of the design engineer.





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