Lateral Restraints

The Wykamol Group, under its Thor Remedial division, bring to market an engineered solution to enhancing lateral restraint through tying external walls to structural timbers and partition walls in a method that improves reliability, reduces cost and alleviates disruption to property owners or building occupiers.

Signs of bulging brickwork are often highlighted on houses where a middle section of a wall is pulling away from the main structure of the building.

The cause of such buckling walls is often due to the combination of excessive vertical loads and inadequate mechanical connection between perimeter walls and the main structure of the building, for example the timber joists, partition walls and party walls.

In older buildings that have no joist-hangers the timbers often sit into pockets in the masonry and rely purely upon friction to maintain their relative position to it.

When this frictional resistance is overcome by forces that encourage the wall outwards, the connection between the wall and the joist is lost, leaving the wall free standing and vulnerable.

In the past, means of arresting outward movement of the walls have included the insertion of intrusive heavy duty tie-bars and pattress plates.

Other methods of strengthening the walls connection with abutting structural timber include the utilisation of lateral restraint straps or angle irons, often held in place by lightweight screws and plugs; both methods involve much internal upheaval and disruption as internal floorboards are lifted and plasterwork is disturbed.

Wykamol offer two types of lateral restraint products for reconnecting and strengthening bulging walls; one for tying perimeter walls to the more stable floor diaphragm structure or to stud walls and the other for strengthening the connection between the masonry façade and walls that run perpendicular to it, such as masonry partition walls and party walls.

The masonry to timber lateral restraint tie comprises of an 8mm threaded shaft and a timber drilling tip. A clearance hole is drilled through the facade up to first joist/stud and the tie is screwed through the required number of joists/studs. The drilling tip pilot holes the timber and the threaded section follows to provides a strong threaded connection with the timber section.

The outside end of the lateral restraint tie is then securely resin bonded into the masonry facade. The wall is securely held in position thus resisting further buckling.

Long Thor Helical tie bars can be used to tie facade walls back into masonry partitions and party walls. The heavy duty helical bars are generally fully embedded in Thor W60 grout. Alternatively, driven helical fixings can be used to connect directly into the end grain of floor joists or into pilot holes through thinner masonry sections for a quick and easy mechanical fixing solution.

Whichever lateral restraining technique is adopted the façade wall is fixed firmly in place relative to the main building and buckling loads are transferred and dissipated into the main structure.

This leaves a strong, durable and virtually invisible repair that utilises the existing structural elements to provide the necessary support and stability without major upheaval.