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2010

For the attention of: Mr Tim O'Sullivan

Dear Tim

The Redevelopment of the former Rachel Forster Hospital

Structural Assessment

Overview:

This assessment refers to Building 1, as the only retained building structure in the proposed development. The work has been based on three sources, namely site visit, structural and architectural drawings (incomplete set) found on site during the site visit and a separate report prepared by Taylor Thomson & Whitting April 1997 : " Report on Building Condition Structural Assessment of Rachel Forster Hospital".

Building 1 Existing Structural System:

The existing building contains a reinforced concrete frame structure. The structural grid is based on four columns across the building's short (north to south) dimension, located in the perimeter and corridor walls supporting beams running parallel to the long dimension (east to west) of the building. The columns are founded on pad footings bearing on weathered rock. The building relies on frame action ie column and beam framing to resist lateral wind and earthquake loads. For this reason the columns are larger than one would expect for gravity capacity.

It is likely in its current configuration the building would not meet current code requirements for lateral resistance to wind and earthquake.

The building is of the order of 60 years old and there is evidence of deterioration of exposed concrete, for example the cantilevering balconies.

Building 1 Proposed Upgrade:

The proposed development converts the existing hospital wards / theatres to residential usage adding one floor and extending the building to the south.

Based on current codes of practice hospital wards and residential have similar design live loads. Thus providing the proposed fit out (partitions, floor coverings and ceilings) are similar to or less than the existing, then the proposed development will not require increased capacity in the building structure. In order to achieve this lightweight partitions have been recommended.

The exisiting building has a concrete roof, which is likely to have similar capacity to the existing floors. The additional floor will only add the notional weight of a lightweight steel roof. On this basis it is unlikely that the existing building frame and foundations would require upgrading to carry the vertical load of the additional floor.

In order to upgrade the lateral capacity of the building, reinforced concrete (150 mm thick) shear walls will be introduced into the north south dividing walls at selected locations. It may also be necessary to upgrade foundations under these walls.

Conclusion:

Building 1 will be retained and this study has determined that it will be able to accommodate the proposed additions and works. Upgrade work will be required to reinforce the building's lateral structure to meet the requirements of the wind and earthquake codes, via the introduction of internal shear walls. General upgrading of exposed elements such as concrete balconies, masonry ties and balustrades will also be required.

Further investigation is required to determine the extent of these works, and these investigations should be undertaken at Project Application stage.

for
enstruct group pty ltd
Ross Clarke

Director