

30/6/17

C/o J. Thompson

structural engineering

Earthquake Engineering Assessment of Potential Earthquake Prone Buildings

PO BOX 41469 ST. LUKES, AUCKLAND

PHONE (09) 361-5712

MOBILE 027 284 0758

EMAIL dshi@xtra.co.nz

**Initial Seismic Assessment (ISA) to NZ Society for Earthquake Engineering (NZSEE) :
Building Grading Scheme to Initial Evaluation Procedure (IEP)**

Building Design : 1987

Address : 12N Andromeda Cres. East Tamaki

Refer plan on IEP for the Building Location

IEP Risk Category for Identified Building :

Overall : Grade B 70% NBS

Not Earthquake Prone or Potential Earthquake Risk as defined.

Attachments : IEP Evaluation. (This value is a measure of comparison with Building Standards only based on a visual site inspection and on a desktop inquiry data gathering basis.).

Attachment : IEP Evaluation.

This building is a rectangular glulam beamed framed structure 17m. by 13m with pilastered blockwork to the perimeter walls. There is a minor light timber framed mezzanine office structure to the south interior. If the existing structural elements are well maintained, the critical overall structural weakness (CSW) for the building would be some damage to blockwork and roof structure fixings in a moderate earthquake. The primary gravity structure has also been briefly assessed to have reasonable structural capacity but other non seismic demand , durability and weathertightness analyses have not been considered part of this instruction.

- This warehouse structure has glulam beams on blockwork pilasters with blockwork infill at 4.5m cts to an apex height of 6.5m. This reinforced masonry to the perimeter is pilastered (with 0.9m side parapets and

frontage opening) in conjunction with the roof framing. There are no canopies.

The building is supported on reinforced concrete perimeter footings , pads and slab on grade floor.

- No geotechnical reporting is available. There are probably areas of compacted fill and type C soil is assumed. Based on these parameters soil stability and settlement of this site has not been considered as part of this report. Some 1987 design drawings were made available for this analysis.
- On the basis of a site inspection 29/6/17 , this office has carried out an appraisal of these primary structural sections with respect to potential earthquake resistance capacity. No history of unusual movement was observed. Other relevant possible as built weak areas unable to be fully inspected but ISA assessed with possible approximations include : foundation soils under the footings and concrete floor slabs , foundations and some fixing details. The possibility of any future added seismic weight or future deterioration of materials was not allowed for.
- The attached IEP evaluation analysis together with this ISA assessment summary appraises the existing overall building behavior to have a minimum earthquake capacity at 70% NBS longitudinally and 70%NBS transversely. This is above the threshold of 67% NBS at which a building is at present defined by some criteria as being a reasonable earthquake risk. Although the NZSEE long term recommendation is to upgrade all buildings to 100%NBS for life safety, I advise this is maybe unrealistic but a check of various insurance cover risk for immediate and medium term parameters that may include building serviceability (not allowed for here) is recommended. If required, the results of this which could be factored in an amendment to this report.
- Owing to the ISA / IEP process being mainly a qualitative estimate, a more accurate a Detailed Seismic Assessment (DSA) may need to be instructed to achieve a more accurate result. This would include more detailed deformation analysis , possible redundancy resilience and a soil /

material test investigation. This analysis would further define parameters assumed in the IEP portion of the ISA and identify critical structural weaknesses more specifically for future improvement upgrading. This is outside the scope of this current appraisal. Other issues not addressed here but that may be relevant in the future include : post earthquake event appraisal , damage control design for services, future building alterations and future replacement repair , change of use and ongoing monitoring.

- During an earthquake the safety of people can be put at risk due to the movement of items non structural or temporary to the main structure of a building . These items need to be adequately seismically restrained (Building Regulations nominate NZS4219:2009 – The Seismic Performance of Engineering Systems in Buildings as a method for the appraisal of specifically fixed non structural items). This should also be addressed in any more specific investigation if instructed together with a life safety hazard report for the continuing function of the building to include detailed risk appraisal and earthquake egress.
- This report has been prepared exclusively for the above client's use for this agreed scope of work. D. J Shilton accepts no responsibility or liability to any third party for any loss or damage whatsoever arising out of the use of or reliance on this report by that third party or any party other than this client. The inspection was limited to a visual examination where safe and ready access existed at the time. No intrusive inspections or testing was undertaken. This report is necessarily limited in this respect and does not address any other matter.

Yours faithfully



D J SHILTON