

Date: 29/3/16
Job No.:5224

RDC 46 High Street Marton Structural Strengthening
INDICATIVE BUDGET ESTIMATE
Based on GHD report 29/3/16



Client brief

Project is to upgrade the building structure to 34% of NBS.
As this is classified as an alteration to the building under the current Building Act, the fire system and disabled access is required to be upgraded as close as reasonably practicable as if it was a new building.

	Cost	Total
• structural work to parapets	\$ 10,000.00	
• Emergency lighting/ signage.	\$ 10,000.00	
• Accessible toilet handrail	\$ 1,000.00	
		\$ 21,000.00
• Contingency Sum		\$ 3,000.00
• Preliminaries & General		\$ 5,000.00
• Contractor's Margin		\$ 3,000.00
TOTAL - CONSTRUCTION		\$ 11,000.00
Consent Fees		
• Building Consent	\$ 2,000.00	
		\$ 2,000.00
Professional Fees		
• Architectural, project management, structural, fire	\$ 10,000.00	
		\$ 10,000.00
TOTAL - PROJECT		\$ 44,000.00 plus GST

Notes:

Costs are based on Rawlinsons 2013/14
Proarch Consultants Limited are not registered Quantity

Exclusions

Ground Conditions

- Unforeseen ground conditions and contamination.
- Removal of unforeseen hazardous materials like asbestos, lead.
- Liquefaction investigation.

Finance

- GST.
- Cost escalation.
- Non-competitive tendering.
- Inflation adjustment beyond date of estimate.



CLIENTS | PEOPLE | PERFORMANCE

29 March 2016

Rangitikei District Council
46 High Street
Marton

Our ref: 51/33950//Admin
Building - 46 High Street,
Marton

Attention: Michael Hodder

Dear Michael

Detailed Seismic Assessment Admin Building - 46 High St. Marton

1 Background

A detailed inspection of the structure at 46 High Street, Marton was conducted on 23 March 2016. From the original drawings provided by RDC, the building was built in 1923 to replace the original timber structure, and an extension was built in 1935. At present, this is now the administration office.

The structure is comprised of light steel roof on timber trusses supported on the reinforced concrete frames with infilled cavity masonry brick. All internal walls are unreinforced masonry brick walls with concrete beams top and bottom.

2 Detailed Assessment Results

A detailed inspection of the existing structure confirmed that most of the original drawing details are accurate with only minor alterations to the internal walls.

Using the results of the detailed inspection of the structure, the detailed assessment is based on the following:

- Structure has an Importance Level of 2.
- Site is located in Marton, $Z=0.30$ and assumed soil class of "D".
- Steel reinforcing bars for all reinforced concrete structural members are as per original structural drawings.
- Concrete foundations are as per original drawings.

From these we have completed our detailed assessment of the building and below are the summary of the elements checked and their corresponding percentages of new building standard (% NBS):

Internal masonry brick infilled wall

- Internal unreinforced masonry brick wall (out-of-plane) – 94% NBS



- Internal unreinforced masonry brick wall (in-plane) – 100% NBS

External masonry brick infilled wall

- Lower external unreinforced masonry brick wall (out-of-plane) – 59% NBS
- Lower external unreinforced masonry brick wall (in-plane) – 100% NBS
- Higher external unreinforced masonry brick wall (out-of-plane) – 100% NBS
- Higher external unreinforced masonry brick wall (in-plane) – 100% NBS
- Highest Parapet wall (out-of-plane) – 17% NBS
- Lower concrete beam flexure (out-of-plane) – 43% NBS
- Higher concrete beam flexure (out-of-plane) – 33% NBS
- Top of concrete column flexure – 100% NBS

Across

- Concrete frame flexure (in-plane) – 36% NBS
- Concrete frame Shear (in-plane) – 100% NBS
- Concrete frame foundation bearing (in-plane) – 56% NBS

Along

- Concrete frame flexure (in-plane) – 40% NBS
- Concrete frame Shear (in-plane) – 100% NBS
- Concrete frame foundation bearing (in-plane) – 71% NBS

3 Summary of Detailed Assessment Results

Following this detailed assessment of the building, we conclude that the building achieved a rating of 17% NBS. The critical weakness of the structure is the lack of support between the roof and brick parapet.

The prime option available to improve the seismic performance of the building to at least 34% NBS is to provide some new fixings connected to top of parapet to the roof. Also we recommend that the roof rafter – top beam connection be improved by adding simple proprietary bracket connections.

4 Remedial work required to strengthen to 34% NBS

- Install the new fixings to parapet.
- Improve roof-wall beam connections



5 Strengthening Cost Estimate:

We estimate a rough order of cost for this strengthening to be \$10,000+GST.

The rough order of cost estimates DO include the costs associated with any consequential works associated with the strengthening works (such as making good existing finishes and the like). The costs DO NOT include the following:

- Building Consent Fees
- Consultancy fees
- Other costs associated with an upgrade to the building that may be considered if a seismic strengthening project was to proceed
- Cost escalations

A more accurate cost estimate can be developed after completing a detailed design for the suggested structural improvements and with the engagement of a qualified builder and/or quantity surveyor.

Yours sincerely
GHD Limited,

A handwritten signature in black ink, appearing to read 'Arthur Bringas', is written over the printed name.

Arthur Bringas
Senior Structural Engineer
06 353 1803