

13 FEB 2012

Our ref: 1001887

10 February 2012

Stephen Mills QC
Canterbury Earthquakes Royal Commission
PO Box 14053
CHRISTCHURCH MAIL CENTRE 8544

Dear Mr Mills

**Canterbury Earthquakes Royal Commission - Requirement for
Information dated 21 December 2011
Re: The CTV Building**

We write further to our letter of 8 February 2012.

We have now taken instructions from Holmes Consulting Group (**HCG**) upon your letter of 21 December 2011. We respond as follows:

Background

HCG wishes to summarise/clarify its role in respect of the CTV building (**the Building**). This summary is based on HCG's recollection of events and taking into account the passage of time (the events arose some 22 years ago).

On 24 January 1990, HCG was engaged by Buddle Findlay Limited and Schulz Knight Consultants Limited (**the Client**) to prepare a structural report on the office development located at 249 Madras Street, subsequently known as the CTV Building, on behalf of a potential purchaser of the Building. At the time of producing the report, HCG was unaware of the identity of the potential purchaser. HCG subsequently became aware that the potential purchaser was the Canterbury Regional Council (**CRC**).

HCG's review was limited to a brief inspection of the Building, documents, and carrying out approximate calculations. No material testing, nor detailed computer analysis, was undertaken and the inspection of the Building was limited to such areas as were readily accessible at the time.

HCG's Project Director for this assignment at the time was Mr Grant Wilkinson (**Mr Wilkinson**) who is no longer with HCG. The detail of the report and approximate

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calculations were carried out by Mr John Hare (**Mr Hare**). Mr Wilkinson's involvement was limited to a review of Mr Hare's work.

In conducting the review, HCG's first task was to review the primary load paths of the Building. At this early stage of HCG's work, HCG identified that there appeared to be an area of non-compliance with the code of the day with respect to the tying of the floors to some of the shear walls, in particular to the north core walls.

HCG developed a possible remedial detail to reinstate that connection between the north core and the floors. This detail was developed solely for the purposes of being able to determine the likely cost of any remedial work, as part of HCG's report for the client.

Mr Hare met Mr Geoff Banks (**Mr Banks**) of Alan Reay Consultants (**ARC**) at or around this time. Mr Hare discussed the potential area of non-compliance with Mr Banks. Mr Hare advises he may have shown Mr Banks what HCG's remedial detail for determining costing was, but Mr Hare does not believe a copy was actually issued to Mr Banks.

Also around this time HCG was requested by the client to supply a copy of its report as it stood at that time (which is HCG's report of January 1990) and thereafter cease any further work. At this stage, HCG's engagement ceased. HCG subsequently became aware that the potential purchaser had decided not to proceed any further with the potential purchase of the Building.

Having informed ARC of its concerns, HCG had some limited further discussion with ARC in February 1990 (which was undertaken at HCG's own expense, i.e. beyond the original client's engagement).

HCG had no further involvement with the Building post February 1990.

Response to Questions

HCG responds to the questions raised in your letter of 21 December 2011, adopting the same numbering, as follows:

1. Report dated January 1990 - paragraph 6.3

Request:

- a) HCG is asked if the identified problem was, in lay man's terms, that the north wall of the shear core walls had so many penetrations that there was an insufficient area of connection between the floor diaphragm and the wall.
- b) HCG is asked if the effect of this was that more reinforcing was required in the north wall than the south wall to compensate for reduced areas of connection.
- c) HCG is asked that if this query does not correctly characterise the issue, to provide its own description of the issue as referred to in paragraph 6.3.

Response:

- a) HCG advises that the problem was not as is suggested. In fact, the issue was that the floor diaphragm was heavily punctured by the lift, stair, and services risers, meaning that there was relatively little direct connection from the floor diaphragm to the shear walls.



b) The effect of this was that there would be more reinforcement required in those areas of floor that did connect to the walls.

c) Refer above.

2. File Note dated 28 September 2011

Request:

a) Was the identification of the area of concern made from a review of the structural drawings?

b) Is it correct that this area of concern was an aspect of the structural engineer's drawings and not the result of the as-built building?

c) Is there any aspect of the defective connections that can be attributed to the way the building was built, as opposed to the structural design?

Response:

a) Yes, the identification was made from a review of the drawings.

b) Yes, this was an aspect of the design.

c) Not so far HCG is aware from the review HCG has carried out.

3. Reason why CRC did not proceed with the purchase

Request:

a) HCG is asked if it has any knowledge of why CRC did not proceed and, in particular, does HCG know whether CRC was concerned about structural issues beyond the specific issue that was identified in the HCG January 1990 report.

Response:

a) HCG does not know why CRC withdrew.

4. ARC proposal

Request:

a) HCG is asked if it has any knowledge of the reasons for ARC recommending remedial work on specified floors only.

b) Based on HCG's knowledge of the Building, does it have a professional opinion on whether strengthening only at these levels would be likely to address the deficiency identified in the January 1990 HCG report.

Response:

a) HCG has no knowledge of the reasons for this.

b) HCG has not carried out any further review of the Building since 1990. Without analysing the detail/design of the remedial works proposed/carried out, HCG is



unable to comment further.

5. Structural design

Request:

- a) HCG is asked if there are any specific provisions in the NZS Standards that, in its view, the Building did not comply with.
- b) If there are, HCG is asked to identify the Standards.

Response:

- a) The specific area of non-compliance that HCG recalls was with regard to the floor diaphragm connections to the north core walls, as reported in its January 1990 Report. HCG cannot say whether there were or were not any other areas of non-compliance because HCG's client instructed HCG to cease any further work after the January 1990 work-to-date report was issued. HCG did not carry out any further review.
- b) The specific standards that would have governed the design of the floor diaphragm connections were:
 - (i) The Loadings Standard, NZS4203:1984, for derivation of the demand (loads)
 - (ii) The Concrete Design Standard, NZS3101:1982, for the design of the elements.

6. Structural drawings

Request:

HCG is asked if, in HCG's view, the areas of non-compliance in the structural drawings were sufficiently obvious that an experienced Council building inspector should have identified these deficiencies.

Response:

The non-compliance in the lack of floor diaphragm connectivity to the north core walls, as HCG recalls it, was a relatively obvious omission in the primary load path. That said, whether an experienced Council building inspector should have identified the omission is, no doubt, a matter for expert opinion having regard to the level of expertise, experience and training provided to such inspectors in this regard.

7. Comparison of the ARC proposal and HCG proposal

Request:

HCG is asked to identify the specific respects in which the ARC proposal was different to the remedial work proposed by HCG.

Response:

HCG only became aware of the ARC repair detail shortly prior to the 28 September 2011 meeting. It should be noted that HCG have not carried out any formal or detailed review of the ARC repair detail.



The main apparent difference is in the number of floors over which the detail was fitted, as previously noted. The HCG preliminary design proposed ties at every floor, whereas the ARC detail omitted the lower levels.

The form of connection from the steel ties to the underside of the floor also appears to have been different to that as had been proposed by HCG in 1990.

We hope the above is of assistance.

Yours sincerely

A handwritten signature in blue ink, consisting of several loops and a trailing line.

Marie Evans

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