



7 October 2011

Canterbury Earthquakes Royal Commission
PO Box 14953
Christchurch Mail Centre 8544
CHRISTCHURCH

Attention: Stephen Mills QC

By email: stephen.mills@royalcommission.govt.nz

Dear Sir

CTV Building, 249 Madras Street

We refer to your letter of 13 September 2011.

We set out below our responses to the specific queries that the Commission made in its letter arising out of the Damage Report prepared by CPG regarding the building at 249 Madras Street, Christchurch ("CTV Building").

CERC letter extract.

Would you please provide any written instructions that were given to CPG regarding the nature of the investigation it was required to undertake. As well, please advise the content of any verbal instructions CPG received.

CPG response

No written instructions were received by CPG.

On or about 24 September 2010, David Coatsworth (the author of the Damage Report) had a telephone conversation with John Drew, the Building Manager of the CTV Building. A damage inspection by CPG of the CTV Building was discussed. We have asked Mr Coatsworth whether he remembers the details of the telephone conversation and he has confirmed that he does not. However, Mr Coatsworth did send John Drew an email on the afternoon of 24 September 2010 setting out CPG's proposal for the building inspection. A copy of that email is annexed as Attachment 1 ("Proposal").

As set out in the Proposal, CPG proposed to conduct a visual inspection of the CTV Building and determine whether there was any pattern to the damage observed that would explain any deficiencies in the performance of the CTV Building. A report would be prepared describing the building, the damage observed, commenting on any reasons for the observed damage and would briefly comment on possible remedial works. The Proposal explained that the report would not provide a structural analysis of the CTV Building, although one may have been required if significant structural damage was identified.



At some time prior to 29 September 2010, Mr Drew telephoned Mr Coatsworth and confirmed that the building owner, Madras Equities Pty Limited, wished to proceed with the inspection as set out in the Proposal. Mr Coatsworth has confirmed that he does not recall when this telephone call was received but it was likely to have been on either Monday, 27 September 2010, or Tuesday, 28 September 2010.

CERC letter extract

The report records that no structural drawings for the Building had been sighted by CPG. Please advise why this was the case. In particular, did CPG consider it relevant in determining the structural integrity of the Building to examine structural drawings? If yes, what steps (if any) were taken to obtain the structural drawings and why were they not reviewed? If examination of the structural drawings was not thought to be relevant, please explain why.

CPG response

In the Proposal, Mr Drew was asked as to whether any structural or architectural drawings of the CTV Building were available. Mr Coatsworth has confirmed that he was informed by Mr Drew, probably during the second telephone conversation referred to above, that he, Mr Drew, did not have copies of such drawings. Mr Coatsworth telephoned the local council to obtain drawings from them but they advised that their records were in disarray following the September Earthquake as racking systems had overturned and they did not know when drawings would be available.

The structural and architectural drawings would have been useful to familiarise Mr Coatsworth with the structural systems in place at the CTV Building prior to undertaking the visual inspection.

While the structural and architectural drawings would have been useful they were not actually required to conduct the inspection of the CTV Building. Mr Coatsworth was able to identify key structural systems from the visual inspection. Consequently, the inspection of the CTV Building was not compromised as a consequence of not having access to the structural and architectural drawings.

Mr Coatsworth did obtain an architectural plan of the ground and first floors from the CTV Manager during the inspection. CTV occupied these two floors.

CERC letter extract

The report records that CPG had no information regarding the Building foundations. Did CPG consider it relevant in determining the structural integrity of the Building to obtain information about the Building foundations? If yes what steps were taken (if any) to obtain information about the foundations? If this information was not considered to be relevant, please explain why.

CPG response

The structural drawings would have included details of the foundations. As explained above, the structural drawings were not available.

No damage was observed by Mr Coatsworth that indicated that the Building foundations had been compromised. If such damage had been observed, CPG would have recommended an intrusive inspection of the foundations and a detailed analysis once the drawings became available.

CERC letter extract



It appears from the report that no steps were taken to accurately determine the design load requirements that applied under the code at the time the CTV Building was permitted. Did CPG consider it relevant in determining the structural integrity of the Building to know what the design load was that applied to the CTV Building at the time of construction? If yes, what steps were taken (if any) to obtain this information? If CPG did not consider this information relevant, please explain why.

CPG response

Mr Coatsworth did not determine the design load requirements that applied under the code at the time the CTV Building was permitted.

As explained above and as set out in the Proposal, CPG's scope of work was to conduct a visual inspection of the CTV Building and determine whether there was any pattern to the damage observed that would explain any deficiencies in the performance of the CTV Building. This is a qualitative review rather than a quantitative analysis. The design load requirements would only have been relevant in performing a detailed structural analysis which would have been required if the damage observed in the visual inspection indicated that the structural integrity of the CTV Building had been compromised. No such damage was observed by Mr Coatsworth.

CERC letter extract

The report recommends that the internal ground storey strapping and plasterboard lining be removed to review the structure behind. Why did CPG recommend this? Did you discuss this requirement at any stage with John Drew or anyone else acting for the Building owner? If yes please provide details. Do you know whether this recommendation was ever followed? If yes, what was the result of that further investigation?

CPG response

The inside face of the south elevation coupled shear wall is finished with a thin coating of gypsum plaster at all levels except the ground storey. At the ground storey, the wall was lined with plaster board. At the upper levels, the thin lining of gypsum plaster will generally reflect the condition of the underlying concrete wall; that is, where cracks are evident in the lining, they would be evident in the concrete. However, a plaster board finish does not perform in the same manner as it is an independent lining. The plaster board might exhibit damage for reasons other than damage to the underlying wall.

During his visual inspection, Mr Coatsworth identified fine cracking of the inside of the structural wall on the first floor of the CTV Building. He also identified a fine diagonal crack on the outside of the wall on the ground floor. The inside wall, which was finished with the plaster board, presented with some significant cracks. While an inspection in the ceiling space, which was conducted by removing a ceiling tile, did not identify any cracks, Mr Coatsworth has confirmed that he considered it prudent that the plaster board lining be removed to confirm whether there had been damage to the structural wall itself. As set out in the Damage Report, Mr Coatsworth considered that it was likely that some cracking would be evident but that it would be similar to the damage identified on the first floor.



Mr Coatsworth could not recall if the recommendation to remove the plaster board on the ground floor was discussed, other than in the Damage Report, with Mr Drew or any other representative of the building owner.

Mr Coatsworth has also confirmed that he was not aware as to whether the recommendation to remove the plaster board lining, or any other recommendation contained in the report for that matter, was adopted by the building owner. CPG is not otherwise aware of whether any recommendations were followed.

CERC letter extract

The report refers to the removal of ceiling tiles in a "limited number of locations". Would you please provide detailed information about the locations where ceiling tiles were removed and why those particular locations were selected.

CPG Response

A ceiling tile was removed from the ground floor ceiling adjacent to the south side coupled shear wall for the reasons described above.

A ceiling tile was also removed from the ground storey ceiling in the CTV store room adjacent to the stair lobby. This tile was removed in order to view the underside of the first floor and its support beams and beam/column joints to check for damage. No structural damage was observed.

The CTV studio on the ground floor had no ceiling lining. The underside of the first floor slab and the support beams and beam-column joints were all exposed to view. No structural damage was observed.

A ceiling tile was removed from the first floor ceiling. To the best of Mr Coatsworth's recollection this was in the lift lobby. This ceiling tile was removed for the purpose of viewing the underside of the second floor and its support beams and beam/column joints to check for damage. No structural damage was observed.

No other ceiling tiles were removed to Mr Coatsworth's recollection during the visual inspection.

CERC letter extract

Did [CPG's] instructions include advising on whether the Building was safe to re-occupy?

CPG Response

The visual inspection conducted by Mr Coatsworth took place on 29 September 2010. This was 25 days after the earthquake on 4 September 2010. At the time the inspection took place the CTV Building was occupied. CPG is not aware that the building was ever vacated, although it would be logical for there to have been a brief period when the building was vacated immediately following the September earthquake.

As set out in the Proposal, CPG was engaged by the building owner to prepare a report that would describe the building and the damage observed, commenting on any reasons for the observed damage and that would briefly comment on possible remedial works. CPG was not engaged to advise as to whether the CTV Building was safe to re-occupy.

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However, it was Mr Coatsworth's opinion that while there had been some minor structural damage there was no obvious structural failure. If Mr Coatsworth had found any evidence of damage affecting structural integrity that might render the building unsafe to occupants, CPG would have advised the Building Manager. However, no such damage was observed.

We trust the responses above to the queries raised by Commission assist. Should you require further information please do not hesitate to contact us.

Yours faithfully
CPG

A handwritten signature in blue ink, appearing to read 'Tony McCartney', is written over a light blue horizontal line.

Tony McCartney
Executive General Manager

Enclosure

Email from David Coatsworth to John Drew dated 24 September 2010

David Coatsworth

From: David Coatsworth
Sent: Friday, 24 September 2010 4:21 p.m.
To: [REDACTED]
Subject: 249 Madras Street

Hi John

Thank you for your time given in discussion with myself regarding earthquake damage to your building at 249 Madras Street. I understand that the building owners are interested in having an independent structural assessment carried out.

CPG NZ Ltd is a multi-discipline consulting practice incorporating structural, seismic and geotech engineering, and surveying and planning disciplines. We have experience in seismic risk assessment and design of seismic strengthening. We also have experience in cost assessment for restoration and strengthening works. We have set up an earthquake response team here in Christchurch and have been carrying out inspections and assessments for property owners including private, commercial and territorial authorities.

I understand that your building is 5 storeys high and is of reinforced concrete beam and column construction. It has a double lift shaft and services shaft. Floors are suspended concrete which cantilever out at the perimeter of the building supporting concrete spandrel panels.

With regard to damage I understand that you have some cracking of internal linings, some broken windows and a door on the top floor that has jammed.

I suggest that we should allow to carry out a thorough inspection of the building. This would include viewing the exterior from the ground, from windows, from the roof and from whatever other vantage points are available. It would also include inspecting all visible internal surfaces. I would propose that we lift ceiling tiles in appropriate places to inspect under floor surface, beams and beam-column joints where possible. For the purpose of this review I would not suggest removing internal wall linings unless there is some obvious reason to want to do this. For instance, if linings were badly damaged around a column base, then it would be logical to remove the linings to observe the structural elements. We would take photos of any damage and record locations on sketches. Structural and Architectural drawings of the building would be very helpful. If these can be made available, they will help with the understanding of the structural systems within the building.

We would then consider the information obtained from the inspection and determine if there are any patterns to the damage observed that would explain any deficiencies in the performance of the building.

We would then prepare a report describing the building, the damage observed, comment on reasons for the observed damage and briefly comment on possible remedial works. Within the scope of this report we would not anticipate detailing or specifying repair works. Similarly we have made no allowance in our estimate for any analysis of the structure although in the event of significant structural damage it would ultimately be necessary to carry out structural analysis to determine strengthening and repair work requirements.

We believe that for a fee of \$3,000 plus gst we could carry out a reasonably detailed inspection and prepare a report that would be useful to the building owners.

I look forward to your response and if you have any queries regarding the building or our proposal please call me on 374 6515 or 0274 880 300.

Regards

David Coatsworth

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29/09/2010

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