Canterbury Earthquakes
Royal Commission
Te Komihana Rūwhenua o Waitaha

UNDER	**THE COMMISSIONS OF INQUIRY ACT 1908**
IN THE MATTER OF	**THE CANTERBURY EARTHQUAKES ROYAL COMMISSION**
AND IN THE MATTER OF	**THE CTV BUILDING COLLAPSE**

MINUTE CONCERNING PERFORMANCE OF THE CTV BUILDING

DATED 27 June 2012

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[1] The Royal Commission has given consideration to the material currently available to it about the performance of the CTV building in the February 2011 earthquake. As a result we wish to pose a number of questions for consideration by the experts who will be giving evidence during the hearing.

[2] The questions are as follows:

South wall (line 1)

This wall appears to have been designed as a coupled shear wall.

(a) Would this wall have behaved as a coupled shear wall in the Canterbury earthquakes? In particular would the coupling beams have yielded with plastic hinges forming in each of the walls?

(b) What influence would the floors in the building have had on the behaviour of the south wall?

(c) Was there an adequate load path to transmit the inertial forces from the floors into the south wall?

(d) How did the design inertial forces between the wall and the floors compare with the corresponding design actions calculated from NZS4203:1984 and NZS1170.5:2004?

North wall complex (between lines 4 and 5)

In this wall complex there are four walls which can provide lateral force resistance in the north south direction and one wall on line 5 to provide lateral force resistance in the east west direction.

(e) Given the lateral force resistance in the east west direction what level of ductility would be appropriate in designing the wall and the inertial forces generated between the wall and the floors?

(f) What was the load path for the shear transfer between the floors and the wall complex?

(g) Would the wall complex warp under the action of this shear transfer? Can you account for the observed vertical cracking in the wall complex?

(h) What other structural actions are associated with shear transfer from floor into the structural wall complex?

(i) Is the detailing of the junction between the floors and the wall complex adequate to resist the shear force and associated actions?

(j) How does the predicted magnitude of shear force transfer between the floors and the wall complex correspond to the corresponding design value found from NZS4203:1984 and NZS1170.5:2004?

[3] Expert witnesses are requested to consider these questions and address them in their evidence.

Dated: 27 June 2012

The Honourable Justice Cooper
Chair of the Royal Commission