

UNDER THE COMMISSIONS OF INQUIRY ACT 1908

**IN THE MATTER OF ROYAL COMMISSION OF INQUIRY INTO BUILDING
FAILURE CAUSED BY CANTERBURY EARTHQUAKES**

AND IN THE MATTER OF THE CTV BUILDING COLLAPSE

**OPENING – ON BEHALF OF DAVID HARDING - IN RELATION TO THE CTV
BUILDING**

DATE OF HEARING: COMMENCING 30 JULY 2012

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OPENING

1. Refer Briefs of Evidence – David Harding:
 - 1.1. Primary Brief
 - 1.2. Supplementary Brief – refer Mr Henry – Mr Strachan

2. Discussion – experience
 - 2.1. Hardie Anderson
 - 2.2. Dr Reay's company (first time)
 - 2.3. Waimairi District Council
 - 2.4. back to Dr Reay – November 1985 – November 1988.

3. Earlier experience – structural / civil
 - 3.1. CTV building 1st high rise
 - 3.2. NO experience (CTV) ETABS– Equivalent Static Method
 - 3.3. Mr Strachen – v Mr Horn – Draftsman
 - 3.4. Relying on Dr Reay for
Guidance – supervision – review
 - 3.5. Code of Ethics – areas of competency
 - 3.6. code – irregular structure (building with torsional eccentricity)
more than 4 stories – ETABS

4. Office protocol – CTV Building

Paragraph openings:

4.1. “It was considered”

4.2. “It was agreed”

4.3. “It was determined”

5. Issue of no contact with John Henry

paras 56 – 64 John Henry

Possible explanation – Professional Paulay’s caution

Wall on each end – re torsional resistance

6. Discussion with Alan Reay – direction

High Bond Steel Tray v pre-cast concrete floor

7. Note – Mr Harding:

7.1. NO contact – owner / architect

7.2. No involvement – preliminary calculations / concept design

7.3. Dr Reay – gave calculations (template) – Landsborough House

8. Tapper letter

8.1. notation “rec’d a day or so after letter sent” – Dr Reay’s handwriting

8.2. Document transfer form

8.3. Surprise no design certificate

9. Reference HOLMES REPORT – Mr Wilkinson – para 6.3

Discussion re connections

To walls at the north face

Drag ties / bars

Floors 4-6 - why not floors 2 and 3?

10. Holmes Report – dated 1 January 1990

David Harding left Dr Reay November 1988

Engineers: - scrutiny

- Harding
- Reay
- Wilkinson
- Banks
- Tapper
- Bluck

11. Move away from referential

12. HYLAND REPORT:

12.1. Verticle acceleration

12.2. Calculations

12.3. Design issues

12.4. Brief – conclusion – standards and code

13. Move to Second Brief

13.1. Strachan – Henry – some duplication

14. Mr Harding - shall

14.1. Respond to Dr Priestly “best practice” to state of current knowledge
conclusions

COMMENT

Para 44 (h) - para 83.

44 (h) “Column failures tend to indicate failure at top of splices”

against

83 “The Beam – column joint damage would be initially concentrated in the
bottom region of the joint” ...

15. Professor Shepherd – vertical acceleration

refer vertical accelerations 1.0 g cf page 14 David Harding’s evidence
column capacity reached with 0.65 g at vertical acceleration

16. Office layout

17. Dr Reay

17.1. supervision – review

Transcript 12 July 2012

17.2. At page 70, from line 9, Mr Rennie, in his opening, says:

“Dr Reay’s evidence will be that he was not principally involved in the design of the project. It was a project undertaken by Mr David Harding, an experienced engineer who joined the practice with an interest in undertaking such work. Mr Harding was considered capable and was prepared to undertake the work. Dr Reay would’ve ensured that appropriate resources were available to assist Mr Harding. Dr Reay confirms that Mr Harding, a registered engineer, was appropriately qualified and experienced for the project

17.3. At pages 75 and 76, line 33 and lines 1-3, Mr Rennie says:

“Finally Dr Reay produces time records from ARCE from the time of the CTV building project which identifies a number of hours worked by various staff members on the job. The time records are that Dr Reay recorded 3.5 hours for the job and Mr Harding 304 hours.”

17.4. In cross-examination of Dr Reay by Mr Elliott, starting at page 131, line 28 to line 11 on page 132, it is said:

A. *Yes, like the other engineers, every day, and I look back and I think that if I was, you know, and I look back and try and remember what the circumstances were at that time in my life when I was doing that, and well when I was running the firm, because I do accept that my firm is ultimately responsible for the design, should Harding have had shortcomings in his work.”*

18. Reference to:

18.1. time records

18.2. memorandum – other buildings

18.3. put – to Mr Harding – certain statements of Dr Reay - from briefs 1 and 3

J M Kirkland

27 July 2012