

UNDER

THE COMMISSIONS OF INQUIRY ACT 1908

IN THE MATTER OF

**ROYAL COMMISSION OF INQUIRY INTO
BUILDING FAILURE CAUSED BY CANTERBURY
EARTHQUAKES
KOMIHANA A TE KARAUNA HEI TIROTIRO I NGA
WHARE I HORO I NGA RUWHENUA O WAITAHA**

**STATEMENT OF EVIDENCE OF ANTHONY JOSEPH SCOTT
IN RESPECT OF THE CTV BUILDING**

DATE OF HEARING: COMMENCING 25 JUNE 2012

STATEMENT OF EVIDENCE OF ANTHONY JOSEPH SCOTT

Personal Background

1. My full name is Anthony Joseph Scott (Tony Scott). I am a retired Quantity Surveyor (**QS**). I qualified in 1977 ANZIQS and practised from 1971 to 1996. I am now a commercial apiarist in Hanmer Springs. From 1985 to 1988 I was the senior QS for Williams Construction Canterbury Limited (**Williams Construction**).
2. I was the QS on the CTV Building (**the Building**). My role at Williams Construction on this project was not simply that of a QS. I was also the Project Development Manager. In my role as Project Development Manager I was responsible for setting up the professional team and making sure the project was viable. It did not include management of construction.
3. The development company for the Building was Prime West Corporation Ltd (**Prime West**).
4. When I was first employed by Williams Construction this was primarily for the construction of the Copthorne Hotel. This was originally intended to be an apartment building. It is on the corner of Kilmore and Durham and is being demolished.
5. The Managing Director for Williams Construction at the time work on the Building commenced was Michael (Mike) Brooks. He was subsequently dismissed and replaced by Charles Wright after the Smart Group took over Williams Construction.
6. Williams Property Holdings Ltd was the holding company for Williams Construction. It was a public company listed on the stock exchange. Sir Arthur Williams of Wellington was the majority shareholder. Sir Arthur Williams was a very successful property developer in both Wellington and Christchurch.

The CTV Building

7. The Building was a speculative design-build development. Neil Blair of Prime West engaged Williams Construction to submit a design-build proposal for an office building in early 1986.

8. Mr Geoff Taylor was the Contracts Manager for Williams Construction on the CTV Building. Bill Jones was the site foreman. He had also been the site foreman on the Aged Persons building. Both were senior and experienced, with experience in multi-storey reinforced concrete and pre-cast concrete buildings. Gerald Shirtcliff joined Williams Construction in 1986 as the Construction Manager and replaced Geoff Taylor in late 1986 as the person with the responsibility for the on-site work on the CTV Building. Bill Jones reported to him.
9. The Building was funded by Prime West with high levels of debt. However, no shortcuts were taken in its construction and there was no shortage of money. There was a \$50,000 builder's contingency in the budget and a 15% overheads and profit margin. There was no pressure to leave anything out and the parties ran a smooth design and build project. The Building was a straight forward job.
10. The building contract did not include fit out. What was built was an empty shell.
11. Williams Construction engaged Alun Wilkie of Alun Wilkie Architects as the architect and Alan Reay Consultants as the structural engineer. They were to prepare and design preliminary structural drawings for pricing. Mike Brooks was responsible for liaising between Prime West and Alun Wilkie Architects. I was responsible for liaising with David Harding of Alan Reay Consultants to obtain preliminary structural details for pricing.
12. \$100,000.00 was allowed in the budget for the architectural and engineering design work, but this was only available after the feasibility of the project was established. The preliminary work done by Reay and Wilkie was on a no job, no fee basis. They were retained to help put together a proposal for the Building in order to see whether a feasible and fundable design could be developed. The aim was to spend as little as possible until feasibility was confirmed. All of this was prior to a building permit being issued.
13. I put together prices for the Building at an early stage, based on structural sketches from Alan Reay and preliminary lay-out plans and elevations from Alun Wilkie. My original cost plan was for what was referred to as Option 3. Option 3 was a Hi-Bond structural system which consisted of a metal tray floor with poured concrete over and pre-cast structural beams. It was the best financial option and could be done without

using a tower crane. We used pumped concrete. The only real difference between the various options was in relation to the floor types.

14. On 3 April 1986 my cost plan was submitted to Prime West as a preliminary estimate of \$2.45m plus GST based on A2 architectural drawings and A4 structural sketches and subject to building consent approval.
15. The Williams Construction practise was that these prices would later have to be verified internally. At this point Williams was not yet committed unconditionally as the cost plan was described as a "Preliminary Estimate" only. This is how we initiated most of our design-build negotiations.
16. The \$2.45m estimate for the Building included design fees of \$100,000, a Provisional Sum for foundation piling of \$100,000, a Builders Contingency of \$50,000 and \$369,000 Profit and Overheads margin.
17. In June 1986 we received approval to proceed to instruct the consultants to prepare drawings for permit and construction.
18. In July and August 1986 I re-measured the architectural and structural drawings to check quantities, prices and sub-contractors against the 3 April Preliminary Estimate and also to quantify any extra foundation depths and support work due to the deletion of the bulb piles that had initially been proposed.
19. I had some say in the design of the Building, based on costings of structural alternatives, but not on their detailed design. The final plan involved a 6 level open plan office building of 3174m².
20. In October 1986 Williams signed a formal building contract with Prime West for the same amount as the Preliminary Estimate.
21. In the same month Bill Jones was appointed as foreman and work started on the Madras Street site.
22. The Shangri-La Hotel, on which I also worked, was a similar design and used the same materials. This was Prime West's next project after the CTV Building. There are also other buildings in the Christchurch CBD that have been constructed in the

same way as the CTV Building. This would not have been the first one. However, other than one on the corner of Cashel/Cambridge, the Aged Welfare Building, I cannot recall any others by name.

23. The Building was built in accordance with the permit plans. I submitted the permit plans personally to the Council. The Williams Construction staff were under strict instructions to follow the design engineers' instructions. Although there are no as-built plans, this was not a Council requirement at the time and no variation orders were issued during the construction. The Building when finished complied precisely with the permit drawings that were issued on 30 September 1986.
24. I saw the *Sunday* Programme on TV One on 21 August 2011 and listened to the discussion about whether there were inadequate connections between the walls and the floor of the Building. This was the first time I had heard this. It was also the first time I had heard of the letter between Graeme Tapper at the Council and Alan Reay Consultants in relation to the building permit, referred to in that programme. I was not told of the letter at the time. I first learned of it watching the *Sunday* Programme. As I was one in the line of communication into Williams Construction and I was the Project Development Manager for the Building I am confident that if I did not receive this information there was no one else at Williams Construction who did. It is possible that David Harding might have mentioned verbally to me that there was a bit of an issue over the building permit. I do not recall any delay in the permit being issued and I had the impression that it was straightforward. Mr Tapper was in charge of checking the structural drawings for the Council plans. In my experience of dealing with him he liked to deal directly with the consultants.

Smart Group acquisition of Williams

25. Williams Construction was sold to the Smart Group, an Auckland based property company, in 1986. The sale was part of the sale of Williams Property Holdings Ltd, the parent company.
26. There was a change of culture within Williams Construction when Smart Group took it over. Stephen Smart made it obvious that he did not want to own a construction company. Soon after this acquisition Smart Group merged with Richmond Corporation to become Richmond Smart Group and an attempt was then made to sell Williams

Construction as a going concern. I learned about this when I was talking to other construction companies.

27. After Smart Group purchased Williams Construction, Mike Brooks was dismissed as Managing Director. This upset a number of the staff, including me. Several of us were very opposed to his dismissal as we thought that he was doing a very good job. Mike came from a planning background at the Council and had hired me at Williams Construction.
28. Following his dismissal Michael Brooks approached the Angus Group in Wellington and asked if they were interested in moving into Christchurch. At the time I was involved in pricing the Cathedral Properties development. I did know this was owned by Angus Properties. This connection ultimately led to an offer to bring across three key people from Williams Construction to Angus Properties. This included me.

Union Construction takes over CTV Building Construction

29. These events led to court proceedings being issued by Smart Group, alleging a breach of fiduciary duty by Michael Brooks, Gerald Shirtcliff and me. An injunction was sought. In the meantime a new company, Union Construction Ltd (**Union**) had been formed, with Angus Group holding 70% and Michael Brooks, Gerald Shirtcliff and myself holding 30%. The intention was to bring other staff across from Williams Construction to Union. Union then signed up for a building on Bealey Avenue known as Amuri Park.
30. The CTV Building was under construction at the time all this occurred and was about half completed. The upshot of the dispute was that Gerald Shirtcliff agreed to stay on with Williams Construction to complete the CTV Building and the Durham Towers Hotel. A meeting was called by Stephen Smart in which he said to the effect that he would call off the dogs and give Williams Construction a decent burial, any outstanding contracts of Williams would be assigned to Union and the injunction proceedings would be discontinued. All parties could then get on with their respective businesses.
31. This offer was accepted and it included the assignment to Union of the CTV work, which Union completed. Bill Jones and Gerald Shirtcliff continued throughout as foreman and construction manager respectively.

32. Union was given continuous access by the Smart Group to the Williams Construction documentation for the Building.

Sharemarket Crash – 1987: Union Construction wound up

33. In 1987 the sharemarket collapsed. The Richmond Smart Group went into statutory management in 1989 and the Angus Group went into receivership in the same year. The CTV Building was completed in 1988 by Union after which it too closed down after paying off all its creditors.

The Building Foundations

34. Initially the Building was priced to have bulb piles, but these were found unnecessary and deleted. A provisional sum of \$100,000.00 was initially allowed in the costings for piling, but I was later advised by David Harding that this was no longer required and a credit for the difference between \$100,000.00 and the cost of the foundation supports used was given. As built, the Building has no piling. It is based on a shallow foundation.
35. I am confident there would have been a foundation investigation and a soils report before this decision was made, but I have no record of this. My belief that there would have been a proper foundation investigation is based on my confidence that David Harding and Alan Reay were very thorough and there was a soils investigation for the Shangri-La development in which both Harding and Reay were involved. \$7,000 was spent on a soils report, for that building, for which I have records.
36. I was also involved in the Durham Towers development. There were 53, 10 metre bulb piles used for an 11 storey building. The engineers on that project were Halliday, O'Loughlin & Taylor.
37. David Harding was also involved in the building at 108 Park Terrace where friction piles were used. This building is 5 storeys plus a basement.

Construction supervision

38. David Harding was closely involved in supervision on the CTV site. He checked the foundations and steel on every floor before the concrete was poured. At that time the

Council permitted the owner's engineer to do this instead of using its own inspectors. The cost of site supervision was included in the Alan Reay contract, although the contract was just a letter. It was a standard form letter and was the same as the one used on the Shangri-La development.

39. If I had had any concerns about the CTV Building I would have raised these directly with David Harding and beyond this with Alan Reay. In addition Arthur Williams had always told me I should raise with him any concerns I had about the Company.
40. On another project I was involved in for Williams Construction I did just this. Here Williams Construction was the client of Williams Holdings on an arms length basis. Shephard and Rout were the architects and Halliday, O'Loughlin & Taylor were the engineers. I was the QS and Project Development Manager and responsible for co-ordinating the design team at the early stage. Originally Durham Towers was to have been apartments, however Quality Inn signed a long term lease as tenants and managers and the decision to convert the apartments into a hotel required a redesign and the levels 1 to 3 partition framing had to be ripped out.
41. I had concerns about the structural form of Durham Towers (or Copthorne Hotel as it subsequently became). I expressed these concerns to Mr Harmon Halliday of Halliday, O'Loughlin & Taylor. My specific concern was that the elevator walls were not being taken all the way down to the basement. Instead they stood on a suspended slab at ground floor level. I could not understand why all this weight was sitting on the suspended slab, including all the elevator machinery and the reserve water tanks which were on the roof of the hotel. However, I was told that this was cutting edge technology and I was not an engineer.
42. I then took up the issue with Arthur Williams. I phoned him. He was not there when I phoned, but I passed on my concerns about the construction of Durham Towers. I did not hear anything further, although it is possible there may have been some discussions following my call that I did not know about.
43. I visited Durham Towers in September 2010 to see how it had responded to the September earthquake. All the people in the building had been evacuated and I was told by the security guards I spoke to, who refused me access to the basement to look for myself because they said it was too dangerous, that the beams under the elevator

shaft had cracked. At the time I could see the red tape that had been put around the elevator shaft to prevent anyone going near it.

44. I was not surprised by this as it was exactly the concern I had raised with the engineers at the design stage, before construction began. The point I wish to make here is not to criticise the designers of Durham Towers but to emphasise that I had no such worries about the CTV Building.
45. When people were evacuated from other buildings after the 4 September 2010 earthquake many of them were taken to the Millennium building. This was built in the early 1970's and it is one of my favourite buildings. I was the QS on that building for Fletcher Construction. I regard it as a model of strong structural design. It has stood up extremely well. It consisted of a waffle slab construction with fibreglass moulds being put into the formwork. There was no pre-cast concrete used except on the outside marble panel. It was all solid concrete. It is my belief that there is now too much pre-cast concrete being used.

Concluding Points

46. I have thought a lot about the collapse of the CTV Building and what might have caused this. My thoughts on this follow:
 - (a) Did the CTV Building really survive the September 4 quake? Was it inspected properly after it? The weak point in the Building could be the column-beam connections.
 - (b) The columns were poured in situ, with the column poured first and the beam then fitted over it. I am not sure how they fitted together, but Bill Jones would know as he was the foreman. This method of construction has also been used in other buildings I have worked on, although I cannot now recall which ones.
 - (c) Were the ceiling tiles removed to inspect the columns after September 4? The only way to properly inspect the Building was to remove the ceiling tiles.
 - (d) Was the flooring carpet removed after 4 September?

- (e) Why was the building not red stickered and evacuated similar to the Copthorne Durham Hotel?
- (f) Why was the tenancy increased after September 4 (as this increased the live load of the building)? What effect did this have in February?
- (g) Until I saw the *Sunday* Programme I had no idea that welded mesh was identified in the USA as a problem in early 1990, but nothing was done to strengthen any New Zealand buildings even after it was written into the 2004 Building Code Amendment.
- (h) Was there an issue with the quality of the concrete? Water is sometimes added to assist the pumping and this can weaken it. However I do not believe David Harding would have allowed this. Bill Jones, Geoff Taylor and Gerald Shirtcliff would know whether the concrete strength was audited.
- (i) Tenants reported hearing noises from building movement during numerous aftershocks and heavy traffic passing on Madras Street. A multi-storey reinforced concrete structure does not produce noises in my experience. These reports should have rung warning bells to the building owners, managers and inspection structural engineers.



ANTHONY JOSEPH SCOTT

30 March 2012