

COMMISSION RESUMES ON TUESDAY 28 FEBRUARY 2012 AT 9.31 AM**JUSTICE COOPER:**

Today the Royal Commission is enquiring into the failure of the building at 265 to 271 Manchester Street which is on the north-west corner of the intersection of Manchester and Gloucester Street. Part of the parapet and façade on the Manchester Street frontage collapsed in the earthquake on the 22nd of February. Mr Christopher Smith who was parked outside the building lost his life as a result. The Royal Commission acknowledges the presence here today of his wife Liz and other close family members and we extend to you our deepest sympathy in the loss that you have suffered.

MR ELLIOTT:

Commissioners, the building that was situated at 265 to 271 Manchester Street was a two storey unreinforced masonry structure on the corner of Manchester and Gloucester Streets and it was attached to similar buildings on both street frontages. There is an overview on the screen now. Your Honour Manchester Street now runs to the north, north being to the top, Gloucester Street running east to west and the building in question, that's the red box highlights the left, the edge of the building and the street itself so 173 Gloucester Street is that bottom knee of the building and then 265 through to 271 ran along from 173 to the north along Manchester Street and I'll be referring shortly to 269, the area where Mr Smith was parked and that's the unit directly below the number 271 on the diagram. So a street view of the building WIT.MOH0001.6. The photographer is standing there on Manchester Street looking at the eastern face of the building so that 271 is on the far right and the Commissioners may even be able to see the number 267 which is just left to the yellow shoe repair sign.

JUSTICE COOPER:

Yes.

MR ELLIOTT:

And the vicinity in which Mr Smith would have been parked would have been where those two blue cars were towards the front in the vicinity of the dairy which was number 269. So although some seismic work had been done on the building in the past, that included removal of parapets, adding a concrete bond beam, tying the roof and the floor to the walls and adding a concrete frame to the wall opening on the ground floor, the building would still have been considered likely to be earthquake prone in terms of the council's earthquake prone policy.

Following the September 2010 earthquake a level one rapid assessment was carried out. That was on the 5th of September and that recorded no noticeable damage to the building and a green placard was assigned. A level two rapid assessment was completed by Opus, structural engineers on behalf of the owners of the loss adjusters on the 14th of September 2010. Although some cracks were observed the assessment assigned the building or confirmed the green placard status of the building. Maxim Projects Limited contractors were engaged to carry out repairs which had been identified by Opus as being necessary and a further assessment of the building was carried out by Maxim on 20 September 2010, the stated purpose of which was to ensure the safety of Maxim staff when completing the work and that assessment was consistent with the Opus assessment in terms of its conclusion.

There does not appear to have been any inspection of the building following the Boxing Day aftershock.

In the earthquake on 22 February 2011 the building sustained very significant structural damage. That included the collapse of the upper floor façade on Manchester Street and the collapse of a large section of the reinforced concrete bond beam parapet on the upper level of that façade. To illustrate the damage Commissioners BUI.MAN265271.0001.22, if the top photograph could be highlighted please. I will show two or three photographs but this shows looking directly at the eastern frontage of the building. The Commissioners will note that some parts of the upper level façade have

remained intact although as you'll see shortly the façade above 269 was not even partially intact.

JUSTICE COOPER:

See outer part of the façade bricks painted blue.

MR ELLIOTT:

Yes Your Honour, well that appears to be the case yes. If the bottom photograph could be highlighted please? That's looking at the corner along Gloucester Street, the eastern edge of 173 where Map World was located and hanging down from the upper level is what appears to be a concrete bond beam or parapet which has failed in the earthquake.

JUSTICE COOPER:

So that part of the structure replaced an old parapet? When did that happen?

MR ELLIOTT:

There was some work done in the 1970s according to council records I think to remove a parapet. It's not clear Your Honour whether that resulted in its replacements or if it was only lowered to a certain level and perhaps Mr McCarthy could clarify that for us.

0941

COMMISSIONER CARTER:

Was the brown material that we see, is that internal timber lining that it looks to be built onto a framing of some horizontal members that connected it, so am I correct in assuming that the entire brick work fell away showing the internal lined, timber lined wall?

MR ELLIOTT:

Yes sir, that does appear to be the case, although photographs are all that we have so it is a matter of some speculation. Mr Smith can perhaps comment on that as well.

JUSTICE COOPER:

Are there photographs which show the condition of the building after the earthquake, further to the north near where Mr Smith was?

MR ELLIOTT:

Yes Your Honour, it's BUI.MAN265271.0001.36 – I'm sorry, 33. Again it appears some cleaning work has been done by USAR so rubble has been removed and that may have involved some removal of some areas of the frontage by USAR but the dairy is there with the words TF1 clear in yellow on the front. And there's another photograph which was taken closer to the event at the same location, BUI.MAN271.0001.8.

JUSTICE COOPER:

Mr Elliott, and this may be a question Mr Smith can answer better, but do we infer that what we're looking at is damage wrought by the earthquake or is the search and rescue effort responsible for the complete absence of wall at first floor level? Because if not then this part of the building seemed to have been much more severely affected than the part to the south.

MR ELLIOTT:

Your Honour, I don't know as to what extent USAR may have played a part, but there is evidence of some degree of difference between damage to that part of the building and especially the frontage along Gloucester Street. I can show Your Honour a picture of that. That seems to remain largely intact. It's BUI.MAN265-271.0001.23. Apparently Mr Smith suspects that would have been mostly earthquake damage to the area above the dairy, and the bottom photograph highlights the state of the Gloucester Street frontage following the earthquake, and on the left top section of the building there's some damage

which I think Opus speculated was caused by pounding with the building to the left, but apart from that it's mostly intact.

JUSTICE COOPER:

I see. You're talking about the damage shown in the bottom photograph I think, on the western end of the building.

MR ELLIOTT:

Yes, Your Honour.

JUSTICE COOPER:

All right, thank you.

MR ELLIOTT:

When the February earthquake struck, Christopher Smith was in his vehicle parked outside 269 Manchester Street. The vehicle was severely damaged by falling rubble from the building. Police enquiries established that Mr Smith was rescued by the New Zealand Fire Service from inside the vehicle and taken across the road to the Orion building which was 218 Manchester Street. Despite medical treatment and CPR Mr Smith died as a result of his injuries.

The issues before the Commission today are firstly the application of the Christchurch City Council's earthquake prone policy to the building. And secondly the nature and effectiveness of the assessment of the building following the September 2010 earthquake up until the earthquake of 22 February 2011.

The witnesses today. Firstly there'll be Mr Claxton giving evidence on behalf of the owners of the building. Secondly Mr Mohanaraj, in fact I'm sorry Mr Mohanaraj will be appearing by video link so that that's been organised for 11.45 this morning, and Mr McLellan will lead his evidence. Mr Hamilton, another engineer who did an assessment of the building from Maxim will give evidence. Miss Patterson I believe will lead his evidence. Mr McCarthy from Christchurch City Council with Mr Laing, to lead his evidence. And finally Mr Smith to give evidence in his capacity as an expert witness assisting the Commission. If there are no further issues I will call the first witness.

MR ELLIOTT CALLS MERVYN GEORGE CLAXTON (SWORN)

Q. Good morning, would you tell the Commissioners your full name please?

A. My full name is Mervyn George Claxton but for the last 40 years I've been known as Monty.

Q. And what's your occupation Mr Claxton?

A. Until recently until these awful earthquakes my wife and I have been small commercial landlords.

Q. And you and your wife are the owners of the properties at 173 to 271?

A. Yes, we own it through our family trust which is myself, my wife and our family solicitor.

Q. Who are the beneficiaries of the trust?

A. Ourselves, we two would be the beneficiaries.

Q. How long had you owned the building, or how long had your trust owned the building?

A. Approximately 10 years, probably a little over, 10 and a half I think.

Q. And had any other entity that you were related to owned the property before then?

A. No.

Q. So that would have been about 2002 that the trust acquired ownership of the property?

A. Yes, true. That would be about right.

0951

Q. Were you aware that the Christchurch City Council had identified the property as potentially earthquake prone?

A. That would have come up in recent years through various sources. We would have read about that in the newspaper. We'd never been approached by the City Council telling us that as such. When we bought the building originally one of the reassuring things was that the real estate agent told us how the building had been lifted to the Council of the times earthquake level and that the parapets had been removed for safety. That a bond beam had been tied around the roof and that other features had been taken care of. It had been strengthened

between the roof and the walls of the building and that what we were buying, in effect, was, to all intents and purposes, a very safe and sound building.

Q. Did you see the photograph just now showing what appeared to be a concrete beam or parapet hanging from that corner of the building?

A. I did.

Q. Can you give the Commission any information about that?

A. I can give them, technically no, but after the first earthquake, the September earthquake we had the building professionally scaffolded entirely and a builder friend of mine and I painted that building completely and so I am intimate with every square inch of that building because I gave it three coats of preparation and paint. So the beam I've stood on on numerous occasions. I've painted it on numerous occasions so, from that angle, I'm certainly familiar with it.

Q. So it was there when you bought the building?

A. It was yes. I was told it had four lengths of steel encased in it, encased in concrete. I was told that that was the construction of the beam.

Q. The Commissioners were asking earlier on whether the frontage was bricks painted blue.

A. Yes.

Q. Was that the case?

A. That was the case.

Q. And did you do that work after the September earthquake?

A. Yes. That, not, I may hasten to cover anything up after the September earthquake. The building had been painted before we bought it, that was 10 years previously. It was due for a paint and some work needed to be done remedially, as will come out in this enquiry, and we were going to scaffold the building it seemed to be a good idea to tie that remedial work in with painting the building and it gave a bit of confidence to the inner city after that awful earthquake that somebody was doing something somewhere to show the flag because the city looked in quite a sad mess. We were proud that our city was the first

one to come through after the earthquake with flying colours looking pristine again.

Q. So the building was occupied by commercial tenants, is that right?

A. Yes.

Q. Was it fully occupied?

A. Fully occupied apart from one. Over the Christmas period, which included the Boxing Day, I was there, again with my friendly painter painting one of the units upstairs for a tenant who was going to be moving in just after Christmas and who did move in just after Boxing Day.

Q. Were they all commercial tenants?

A. Yes.

Q. Do you know whether the building had any classification with the Historic Places Trust or any heritage status?

A. We had been members of the Historic Places Trust all our lives I think for over 40 years now and it had no classification.

Q. Were you aware that in 1991 the Council had carried out a seismic survey of the building?

A. 1991...

Q. This is before you bought the building.

A. No.

Q. Did you initiate any seismic strengthening at all during your period of ownership?

A. No. We did nothing structural to that building in our time and we had no reason to strengthen anything that we had weakened shall we say.

Q. There will be evidence that following the 4 September 2010 earthquake that the building was green placarded. That was the case was it?

A. It was.

Q. Where was the green placard placed?

A. It was placed on a glass panel facing the street on each of the downstairs doors. There was a door onto Manchester Street, there was a door onto Gloucester Street.

- Q. So after 4 September 2010 did you initiate any particular engineers' assessments yourselves?
- A. No.
- Q. But I think you told the Commission in an email that you were contacted were you by an engineer from Opus?
- A. Our, Anthony Runacres, our business brokers, were very quick off the mark after that earthquake, the first quake, September quake, which we always admired them for because their own building was 'munted', to use the common word, and they were working off kitchen tables in their own homes for a period of two months but somehow they managed to function and immediately they asked Opus to prepare an engineering report on the state of the building and I believe because Runacres had that building insured or we had that building insured with Lloyds of London, they being an overseas insurance company, it's my understanding, I'm not sure but it's my understanding that they required a second opinion and that was provided by second report which they had prepared by a Maxim in Christchurch. So, in effect, that building was inspected twice but we knew nothing of that. This was done by our brokers and it wasn't until Mark Zarifeh sent us a report from the Indian gentleman, Mr Mohanaraj, that we saw Mr Mohanaraj's report and that would be about two weeks ago. We'd never seen either of those reports but the building was ultimately repaired by the building wing of Maxim and we had no input into any of that.
- Q. Did any of the tenants express any concerns to you about safety in the building following September?
- A. No wide concerns. We were on first name terms with all our tenants. We were small commercial landlords. We knew them all. We did our own renting and obviously I would have gone round all the tenants at various times and talked to them and obviously we would have talked about the dreadful situation that had fallen upon Christchurch and they would have talked about their concerns, damage in their shops, stock falling off walls and things like that, but nothing specific.
- Q. Did you have any discussions with Mr Mohanaraj?

A. We're hazy on that. We think we met him investigating the building in the very beginning. We took him for a Christchurch City Council initiated inspector. We had never expected anything like this earthquake and the rules and regulations on how things should be done and would be done were foreign to us but we did meet that gentleman on site briefly and we thought that he was one of the Christchurch City Council people out inspecting buildings to see whether they should be green stickered or what the Council made of them.

Q. Did you have any discussions with Mr Hamilton from Maxim?

A. Yes I did. I got to know Mr Hamilton of Maxim because he was going to be affecting the repairs that the two engineering reports had obviously said were necessary and I would have told him that we were intending to scaffold the building and that was a good time for him to use the scaffold to effect his repairs for example. The repairs were to the south facing wall, quite obvious from the street, and access was up two storeys so rather than have him have his company scaffold the building it made sense for him to do it off ours.

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Q. So what did you think Mr Mohanaraj and Mr Hamilton were there to do?

A. I thought Mr Mohanaraj was there on behalf of the City Council. I imagined that, I mean this was a very confusing time, none of us had heard of green stickering, red stickering buildings but obviously buildings were being inspected for damage and so Mr Mohanaraj we thought was there on behalf of the City Council to check the building.

Q. Did you seek to give them any instructions about the need to address potential safety or risks associated with the building?

A. Not at all. I don't think we had more than a brief hello and you know a brief discussion. We had no complicated discussion with this gentleman.

Q. What did the green stickers on the building mean to you?

A. It meant to me it had sustained damage but had been inspected and was allowed by whichever authorities ran the commercial aspect of the city that we were able to operate as usual.

- Q. You've said that you only saw Mr Mohanaraj's written report recently.
- A. Right.
- Q. I'll just refer you to one or two comments from that and just ask for your comment.
- A. Right.
- Q. We don't need to call it up.
- A. I do have a copy of that now by the way. Mr Zarifeh had forwarded that to me.

JUSTICE COOPER CORRECTS WITNESS ON PRONUNCIATION OF MR ZARIFEH'S NAME

- A. I beg your pardon, sorry, my wife is Swedish, Birgit, but no-one can ever pronounce her name she's had all her life – Zarifeh.
- Q. In his absence Mr Zarifeh will appreciate if we clarify the pronunciation of his name. So, he sent you this document and you've read it.
- A. Yes.
- Q. And it just includes one or two points. Firstly, there's a recommendation which says get a structural engineer's assistance to check and provide appropriate crack repair details.
- A. Yes.
- Q. So were you aware of that recommendation?
- A. No but I'm aware with hindsight that it was acted upon immediately by our brokers, we did that, and calling in the Maxim for a second opinion.
- Q. Mr Mohanaraj didn't say to you you should get a –
- A. No.
- Q. – structural engineer's assistance?
- A. Not to my recollection no.
- Q. But you say that's, in effect, what happened because Mr Hamilton came along to effect repairs.
- A. It's strange to sit in a room like this cool, calm quiet and collected and try and go back to standing in a street full of rubble with sirens going off all over the place and dust and smoke and try and recall and piece together accurately a conversation with a stranger who suddenly appeared in front of you and disappeared. I'm doing the best I can.

- Q. Mr Hamilton says that Maxim was not instructed to carry out the inspection and, indeed, we were questioned by the owner's insurance broker as to why this would have been completed when Opus had already undertaken this work. He says that he was there to review the scope of repair work and that, to the extent that he did do an inspection, it was to confirm that their own staff would be safe when repair work was carried out. Can you comment upon that?
- A. Ah, I'd have several comments I suppose. The first one would be perhaps you should be talking to the broker who initiated the various actions on the building, and the second one would be that we wanted to try and retrieve as much of our tenants' possessions as possible, their computers and their personal effects and to that effect we were obliged to have what was called a level 2 assessment done on the building by an engineer. That was to provide a safe way for whoever was going to be attempting to retrieve the various goods to get in without endangering their lives and so there may have been two different reports we're talking about. The level 2 report I definitely asked Mr Hamilton myself if he would carry that out and be part of the retrieval process. In the end we put shipping containers by the doorways and Mr Hamilton himself turned up and was part of the retrieval process but that was further down the track. I'm hazy about the first processes because I had nothing to do with organising it.
- Q. So the quote I've just given you from Mr Hamilton, I think, related to the period between September and February, not the period after February and I'm just seeking to clarify what your understanding was of his role and whether you agree with his description of his role during that period and your answer is that you're hazy on that, is that right?
- A. Could you run that past me again please.
- Q. Well he talks in a brief of evidence about post-September 2010 repairs and he says that he was instructed by Stephen McManus of Runacres to carry out urgent repairs to the property. He says, and I'm just paraphrasing it, he says that Maxim was not instructed to carry out the inspection and, indeed, we were questioned by the owner's insurance

broker as to why this would have been completed when Opus had already undertaken this work. He attended the property. The nature of my inspection was a visual examination of the observable damage to cross-check against Opus and confirm that our staff would be safe in undertaking crack repair work requested, you see. So he seems to confine his purpose to effecting repair work and checking safety for his staff.

Q. He came across to me as an honourable man and if that's what he said I would go with that, I've no argument with that at all. Maybe I'm just confusing the early times when things went on which we were in no control of. Whatever instructions had been given to him had been given to him. But not by me.

A. I just refer you to another section of Mr Mohanaraj's report and perhaps we'll show this to you.

WITNESS REFERRED TO BUI.MAN265-271.0001.11

Q. If the handwritten section could be enlarged please.

A. That's okay. Sorry my specs are in my jacket could I just....

Q. Well can you see that now on the screen in front of you.

A. Oh yes, oh that's good.

Q. Okay so that's a page from Mr Mohanaraj's report.

A. Right.

Q. And he makes a series of recommendations. You've read this before.

A. Yes I've read this two weeks ago.

Q. So, firstly, he recommends repair the crack in the arch window lintel on the south side ASAP.

A. Yes.

Q. Also repair other cracks in the walls and ceiling.

A. Right.

Q. Do you know whether that recommendation was carried out?

A. It definitely was.

Q. How do you know that?

A. That particular crack was very visual from the street and, as I said earlier, it made sense for it to be repaired off the scaffold that we were

going to be putting round the building and was repaired and that took several days to repair and I personally was up there painting that building whilst one of their staff was repairing it.

Q. Did the purpose of the scaffold relate just to the painting of the building or was there something else that that was there for?

A. No just to paint the building.

Q. Mr Mohanaraj also recommended “check the arch lintel above dairy for any loose bricks. Remove/secure if found to be loose”. Firstly, were you aware of that recommendation?

A. No.

Q. Do you know whether that recommendation was carried out?

A. No but in painting the building I can assure you or this hearing that there were no loose bricks in that area. There may have appeared to be from the ground looking up two storeys but there were no loose bricks.

Q. Were you personally involved in the painting of the building on the second level of 269?

A. Yes, yep, the entire building.

Q. What can you tell the Commission about the state of the brick work on the upper level of 269?

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A. Brick work was very good condition. That building was in very good condition. Considering its age, it was 104 years old, we had owned it for 10 years. Anything to do to the building we did in the way of maintenance. The brickwork was in very sound condition. The only problem in my opinion was the wall in Gloucester Street where a crack had gone up in above the doorway into a windowsill and then up the side of the window and ultimately up through the top of the window.

Q. Was that dealt with?

A. Yes this was dealt with very effectively by Maxim with a two pack resin which one of their people injected into the wall to literally glue the bricks together.

Q. Did you examine the state of that upper parapet above 268?

- A. Not due to this report I didn't, but I mean, I was there painting the building. This was my one in 10 year chance to do anything to that building to put in good repair for the next 10 years so anything that needed doing in the way of maintenance was done.
- Q. If you had seen any cracks in the vicinity of the area above 269 what would you have done?
- A. I would have repaired them. I mean this was my one chance. That scaffolding cost my wife and I \$12,000. Upright Scaffold put it in. I mean that's the sort of money it cost to get scaffold to do something to a building, that was our chance.
- Q. Would you have notified an engineer as well?
- A. If there had been loose bricks I would have had a bricklayer replace the loose bricks I suppose. What more can I say? If there had been evidence of serious damage I would have tackled it seriously. If there had been evidence of light damage I would have repaired it lightly.
- Q. Mr Mohanaraj also recommends that a "support arrangement, (for example, steel bands) to external arch lintels shall be provided to prevent sudden failure of lintel blocks (consult a structural engineer)". So firstly were you aware of that recommendation in September 2010?
- A. I was aware of that two weeks ago.
- Q. No one told you that you might look into those possibilities?
- A. Only anyone who would have had access to that report would have known about it.
- Q. Do you know whether that recommendation was carried out in any way?
- A. No. I don't really understand what he was talking about. I couldn't see any damage up close. To my mind there was no damage at all. He, don't forget was standing on the ground looking up. Maybe, I mean maybe doing other repairs that had also been taken care of by Maxim, I don't know.
- Q. Do you know if there were any further inspections of the buildings after the Boxing Day aftershock?
- A. There weren't to my knowledge.
- Q. Did you not initiate any?

- A. I've never initiated an inspection on that building, neither the first one nor the second.
- Q. Can you say why?
- A. There was no material damage to the building, that's why.
- Q. After Boxing Day did you form the view that there was no material damage?
- A. I did.
- Q. On what basis did you form that view?
- A. It was an unusual building. It was slightly different to the way you introduced it in the beginning. Our building stood alone. It didn't adjoin any other building. I think you'd said it adjoined two buildings, it didn't. You could – could I show on the screen, could we have an aerial shot or something, or maybe not.
- Q. We can (overtalking 10:15:33) quite easily. So we'll produce –
- A. Could we have the aerial shot looking down, thank you. Our building is – we have Bells Antique Shop here, that's Bells premises. Most of us would be familiar with Bells.
- Q. Just pause there, so you're indicating the building immediately to the west on Gloucester Street?
- A. Yes. Suppose you stood on the footpath outside Bells and walked down to the corner of Manchester Street past our building. You can walk down here on a very wide footpath and look up at it. You can walk out on the street here and look up at it, it's all very accessible. You can walk around the corner onto Manchester Street, a very wide footpath. If you wish you can walk out onto Manchester Street itself, the entire length of the building and look up at it, and then you can come into the service alleyway, and that's unusual, in that you can look up at the third end of the building. You can stand easily. Then you can walk around the behind the building, and behind the building are the various yards of the various tenants and to get a long view you can stand here in the rear yard of Bells Antiques and look at the building. The only area of our building you can't view easily is this wall here. That wall would be the length from here to the fan sitting there. So –

- Q. So you're indicating –
- A. That little wall there.
- Q. The wall between –
- A. Between us and Bells Antiques, and they didn't lean on each other. There was a gap of something like that between the two buildings, so it wasn't as if they were – when they were built -

JUSTICE COOPER:

- Q. Show me the size that you're indicating, show me.
- A. Eight inches in the old, 400, hang on, 800.

EXAMINATION CONTINUES: MR ELLIOTT

- Q. So you've given us that indication to confirm –
- A. Sorry –
- Q. – the sort of damage.

JUSTICE COOPER ADDRESSES MR ELLIOTT:

No, Mr Claxton was saying the buildings didn't "adjoin other buildings." There's an extensive gap between this building and the one to the north on Manchester Street and he's now talking about a gap between this building and the building to the west on Gloucester Street.

EXAMINATION CONTINUES: MR ELLIOTT

- A. And in some buildings like on Colombo Street the various shops are built like a sausage, string of sausages where I imagine an impact on one would go through the next and the next and the next, the next. Our building wasn't, it stood alone, and it was very easy to stand back and look at it and view it externally. There was nothing in the way, you could walk, that was my long laboured point, you could walk virtually around the entire building, look at it up close, you could touch it, you could step back, you could step right back and look at it.
- Q. I see, well that was my question that you'd mentioned that after Boxing Day there was no damage.
- A. Right.

- Q. And I asked how you knew that?
- A. How I knew it, I knew it –
- Q. And you were saying that you knew it by having walked around the building?
- A. Yes, and of course through it, through the entire building. We used to service that building once a week ourselves, the public areas, and either my wife or I would go there every Saturday or Sunday and we had for 10 years, so on 500 occasions we had been in that building, in every room in that building doing this, that and the other. It was a building that, I mean we're not absentee landlords, it was a building we knew intimately.
- Q. Thank you.
- A. There was no damage on the Boxing Day quake that would have given me concern to have a report done to have anyone else look at it. We had 12 tenants in the building. None of them were concerned that they were living and working in a building that had sustained damage to the point that they wanted inspections carried out.
- Q. Did you see the report from Mr Hamilton dated 20 September 2010?
- A. That's the first report. I saw that two weeks ago.
- 1021
- Q. Just one of the concerns that Mr Smith's family has had, having read the documents that we're hearing about today and I accept you hadn't seen some of them at the time, but it appears that the only assessments that were carried out on this building were level one and two rapid assessments. There's the comments in Mr Mohanaraj's report of structural engineer coming in and having a further look and the question on their minds is just why you did not initiate a more detailed structural engineer's assessment apparently at any point before the 22nd of February earthquake. What would you say to that?
- A. I would say to that that we didn't initiate any of the first inspections. That had been taken out of our hands and done for us by our brokers and that I could see no material damage to the building after the

Boxing Day quake and I could see no reason to have a building which apparently had no damage inspected for damage.

Q. What became of the building?

A. In the February earthquake it was severely damaged.

Q. Has it been demolished?

A. And demolished.

Q. And just finally –

A. And could I say we were very pleased isn't the word, very happy isn't the word, very pleased that none of the tenants in that building had been adversely affected. The bond beam and the remedial work that had been carried out had obviously done their job. All our tenants got out unscathed and we had no idea that masonry had fallen from our building on to Mr Smith's car and it was probably a month later until a doubt was put in our minds by the tenants on the takeaway shop which is the ground floor to the immediate north next to the YHA hostel and he said he thought that a car sitting outside our building may have had someone in and had masonry fall on it but no authorities ever alerted that to our attention. We looked at coverage which amateurs had taken and posted on the internet and we can see obviously fallen masonry and a car there but nothing was ever brought to our attention and on that matter I would like to pass on our condolences to the family of the deceased. We know nothing of the circumstances. We only know his name. We'd imagined that he was a young chap, a young Irish chap travelling around the world and we ourselves have family living abroad, both our kids live overseas and I can imagine the tragedy of the situation where a family member is killed overseas and if it would give any closure to the Smith family if a representative is here today we would be very happy to talk to that person.

CROSS-EXAMINATION: MR MCLELLAN

Q. I represent Opus International Consultants, Mr Mohanaraj's firm. You said that the condition of the brickwork was very sound.

Q. Yes.

Q. And after the September quake and we have the benefit of you having applied three coats of paint to the entire building so you had a close look at it.

A. Yes.

Q. Can I just get you to look at one of the photographs that Mr Hamilton took which is 265–271.0010.4 and that will come up in front of you in a moment. Now these I think are photographs of the brickwork with the epoxying resin that I think you referred to earlier on is that right?

A. That's right yes.

Q. Was that reasonably widespread in the brickwork on the walls facing Manchester and Gloucester Streets?

A. It was only on the Gloucester Street façade. It began as a crack about as thick as a piece of cardboard and over the subsequent tremors and I know we've had 10,000 tremors now. There were quite a few tremors between the first earthquake and Boxing Day on the ultimate surmise of the building that crack gradually grew wider and wider and crept up the building. It started above the downstairs window and up into the windowsill on the second storey and up the side of the window and then ultimately up the, up above the window up to the roofline.

Q. And was anything done to repair that?

A. This was the repair completed by Maxim Construction.

Q. Right. If I can just get you to look at another photograph which is WIT.MOH0001.7. Just while that's coming up, was that towards the western side of the Gloucester Street frontage that you're talking about?

A. Yes that's correct.

JUSTICE COOPER:

I'm confused now by the way that question and answer went. Was the question in relation to the repair work that we had just been looking at?

CROSS-EXAMINATION CONTINUES: MR MCLELLAN

- Q. Correct sir. If we now have a look at this photograph, that's the general area of the wall that you've just described?
- A. For those people in here who would know Bells Antiques this is the Bells Antique shop is immediately to your left-hand side looking up at that window.
- Q. So we can just see the dark grey wall can we on the left-hand side of that photograph?
- A. You can indeed and the gap between the two buildings you'll notice.
- Q. So the damage that you were referring to, can you see it in this photograph which was taken by Mr Mohanaraj in September 2010?
- A. Yes you can there's a bracket in the very bottom of the photo that was used to put a flag there in the early days over the door and I think about halfway above there. There's the bracket and I think around here I think this is probably the start of the crack and I think that would be the crack going across there and up here. That's definitely the crack there. By the time the aftershocks have gone on after September it had made its way across above this lintel up the side there and then it began to effect, this would be part of it here. Again to effect this area and to travel up here and up here.
- Q. So that's where you just had the mouse which was at the top of the, sorry the bottom face of the brickwork at the top of the arch window.
- A. Yes around here.
- Q. Yes exactly. Was that repaired?
- A. Yes.
- Q. And you painted that area?
- A. Yes.
- Q. And inspected it?
- A. Yes.
- Q. And I think you would have been doing that what in November?
- A. That would be November yes.
- Q. Now Mr Mohanaraj says that after his inspection in September he telephoned you that evening because when he got back to Opus's

offices that night he got a message that the building owner wanted to know about the condition of the building. Do you recall that conversation?

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- A. I recall it vaguely. A lot went on around that particular time. Our own house sustained damage. Our daughter's house sustained damage. Our building obviously had been badly damaged. There was a lot going on. I have a vague memory of a telephone call which is now a year and a half ago by a stranger, by this chap, but if you held a gun at my head I wouldn't be able to give you the details of it.
- Q. Oh well I'm not going to do that. He says that he summarised his findings from his inspection that day. You would not disagree with that.
- A. I wouldn't disagree with it, no. Of course it's awkward too on the phone under some sort of pressure talking about sustained damage to certain windows and which windows. It's easy now I can look at it in front of you and I've got a mouse and we can talk about where the damage is. On a phone a stranger is talking about a window which he can see in his mind which you can't necessarily identify in your, I'm pretty sure we had a chat about the fact that he had looked at the building. We were still under the impression that he was employed by the City Council.
- Q. Do you recall him advising you of his recommendation that a structural engineer be engaged?
- A. I don't recall that at all, no. Luckily it was because Runacres acted on his report obviously but I don't recall that at all, no.
- Q. And you're referring to Mr Hamilton as the structural engineer who was engaged by Runacres.
- A. Yes.
- Q. Your contact at Runacres was Robert Spooner was it?
- A. Yes.
- Q. And he, as you have said, acted quite promptly to engage Opus and then Maxim to inspect the building.
- A. Yes.
- Q. Had you authorised him to do that?

- A. No.
- Q. So the relationship between you and Runacres allowed them to make decisions like that on your behalf.
- A. Yes, we trust them implicitly. He's a top man in a very good company. It's, yes.
- Q. Presumably you received an invoice for Opus' inspection?
- A. We received that about a month ago.
- Q. And, of course, you paid for Maxim's services as well.
- A. We paid for that at the time, promptly.
- Q. I think in the letter which Robert Spooner has written to the Commission he says that he met with you and Mr Hamilton at the building on one occasion. Do you recall that?
- A. Yes he would have, yes.
- Q. And that was presumably to discuss the works that needed to be done.
- A. Yes that would be right.
- Q. He says that he met with you and Mr Hamilton and Mr Lambert also of Runacres.
- A. Yes Mr Lambert was an English chap out here on behalf of the insurance company.
- Q. And the engineer, that's Mr Hamilton, pointed out and discussed damaged areas and advised on method of repairs. Would you agree with Mr Spooner?
- A. Yep, I would, I do remember that, yes. We stood on the corner there, we stood on the Gloucester Street corner and looked up at the damage.

CROSS-EXAMINATION: MS PATTERSON

- Q. Just briefly, Mr Claxton, I'm appeared for Maxim Projects Ltd. There's just one point I want to clarify. You said a number of times in your evidence and in answer to questions from my friend that Maxim was engaged as a second structural engineer. Do you recall saying things to that effect?
- A. Yes.

- Q. You are not a party, as I understand it, to the engagement of Maxim Projects. That's correct?
- A. Only for the level 2 report for the purpose of getting the tenants possessions out which was initiated by me.
- Q. Sorry, let me rephrase that. You didn't give the instruction to Maxim, did you?
- A. No.
- Q. So would you accept from me that, in fact, Maxim was not engaged as a structural engineer but as the contractor to carry out the works?
- A. I would have not comment on that. Not because I wish to cover anything up but, I mean it's not my field. I certainly didn't ask him as an engineer to inspect that building, no, that was done by the brokers.

JUSTICE COOPER:

- Q. Mr Claxton, after the September earthquake did you make an insurance claim?
- A. Yes.
- Q. And that's how Runacres became involved, is that right?
- A. Sorry, I'm confused here. Are you, that's the first one. We didn't make a claim. Runacres acted before we ever made a claim.
- Q. So did you ask Runacres to do anything?
- A. No.
- Q. Or did they just suddenly do things?
- A. They suddenly did things.
- Q. And so the building was damaged and somebody else fixed it for you. Is that the way you see it?
- A. Yes.
- Q. And this scaffolding that you put up. When did you put that up?
- A. I would think a fortnight after the initial shock.
- Q. Late September?
- A. Yes that would be a...
- Q. And when had you finished your work and the scaffolding, when was that removed?

- A. That would be in November.
- Q. So after the scaffolding came down any observations that you made about how the building was faring in the ongoing aftershocks were made without the benefit of the scaffolding.
- A. That's correct.
- Q. So that would include views of the building from outside on the street?
- A. The same as the engineers would have done, yes.
- Q. But you were also inside the building I take from time to time.
- A. I was inside, I was inside painting that building the day before Christmas for a new tenant who was going to be moving in and who did subsequently move in after Boxing Day. I was there painting upstairs probably a fortnight before Christmas on the inside.
- Q. And so the building was unoccupied for a period was it, after September?
- A. No, for a few days, some, let me see. It must have been unoccupied while the dust settled, yeah. Some tenants got up and running very quickly and others took longer.
- Q. And the tenancy where there was damage apparent to the eye on the Gloucester Street frontage, that part of the building, did those tenants, do you recall when they moved back in?
- A. That was used as a store by Mr Jones, Neville Jones, who was our tenant in Map World who had the shop on the corner. So that was full of his stock and it remained full of stock whilst the repairs were carried out.
- Q. Did the Map World premises occupy, you say they were on the corner and I've seen a photograph that shows that they occupied part of the, or that tenancy extended part way down Manchester Street.
- A. Yes.
- Q. Did it also extend around the corner into Gloucester Street?
- A. It did. They had the entire wing of the building that extended round the corner, upstairs and down.
- Q. And now these tenancies, were they typically of two floors?
- A. No typically of one, sir.
- Q. So who was occupying the upstairs tenancies in this building?

A. Flowers of Canterbury occupied the upstairs most northern suite. Next door to them was the dance company which was an off-shoot of the Christchurch City Council.

Q. So they went there and practised their dancing did they?

A. They organised dance festivals around the South Island.

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Q. So it was an office?

A. Yes it was, yes. They were all offices.

Q. I see.

A. Tiger Eye Beads were tenants upstairs in the next suite along. They had a shop in New Regent Street, an outlet. There was a travel agent next to them and Map World had the large administration office on the upstairs over his shop.

Q. Can we see photograph with the suffix 1.33 please. In fact if I can change that to say 1.8.

WITNESS REFERRED TO PHOTOGRAPH

Q. Just while we're waiting for that, Mr Claxton did you visit this building after the earthquake on the 22nd of February?

A. It was always very difficult to get into the city.

Q. Yes.

A. I did but it took probably I think six weeks to get in there, to get through the red tape. It took a long time to get there.

Q. So just having a look at the photograph which is now displayed, 1.8, that's the scene that you never saw is it?

A. No, no. I'd seen similar on the amateur videos which people had taken and posted on the internet, but ...

Q. Did you recognise your building in any of those?

A. Yes I did. Yeah.

Q. Did you?

A. Well I mean you could see Manchester Street, the whole of Manchester Street was smashed to bits, the Tulsi restaurant across the way was sprawled out onto Gloucester Street, Winnie Bagoes was a mess, the whole area was an absolute shambles, yeah. But it was severely red

zoned. To get in there was you know, hard. (inaudible 10:44:20) was getting a pass and going past the Army who were guarding the area.

Q. You knew the building was green stickered after September. Did you read the green sticker?

A. I would have I'm sure.

RE-EXAMINATION: MR ELLIOTT

Q. Just firstly WIT.MOH111.6. His Honour was asking about the occupation of the premises, and I'm just wondering what these orange signs were appearing on three or four of the upper level windows?

WITNESS REFERRED TO PHOTOGRAPH

A. The orange signs were 'to lease' signs.

Q. I see, so were the premises vacant right along the top, apart from the two on the right?

A. The one above the Map World door was vacant and the other one was there by the grace of the sitting tenant.

JUSTICE COOPER ADDRESSES MR ELLIOTT:

Q. Do we know when this photograph was taken?

A. Well I think Mr Mohanaraj –

JUSTICE COOPER ADVISED 15 SEPTEMBER

RE-EXAMINATION CONTINUES: MR ELLIOTT

Q. His Honour asked some questions about insurance. In his letter to the Commission Mr Spooner says that his role was insurance broker who arranged insurance and managed claim for client with insurer. So there was an insurance claim at some point was there?

A. Yes.

Q. And when was that?

A. I wouldn't know the exact date. We had an ongoing relationship with Robert Spooner and I can only imagine that we would have had conversations under difficulty, him sitting at home at his kitchen table talking about the dreadful situation there with our building and what had

been done and what would be done and who would be called in and that we would be putting a claim in obviously. But I don't think – I mean we never had a formal meeting with him where we sat down and said, now Mr Spooner we would like to lodge a claim for our damaged building. It was never like that.

Q. Mr Spooner has produced to the Commission some invoices from Maxim dated 13 December 2010 and 24 January 2011. Would you like me to show those to you or do you recall having seen invoices from Maxim?

A. I don't. My wife would be – pays the bills in our relationship. I do the material repairs or ongoing maintenance and she handles the book work. She would be very capable. You would probably need to direct that question to her.

Q. I see, so they're invoices totalling about \$26,000 for some repair work directed to the Claxton Family Trust care of Runacres, but you can't tell us who paid those invoices, but your wife perhaps could?

A. Well we would have – we pay our bills sir, I'm sure we would have paid but when or – I can't tell you.

JUSTICE COOPER:

Well there's a lady in the back of the room. No you can't from there, (addressing lady). Mr Elliott will speak to you once Mr Claxton is finished.

WITNESS EXCUSED

MISS PATTERSON CALLS**GRAEME ROY HAMILTON (AFFIRMED)**

Q. Is your full name Graeme Roy Hamilton?

A. It is.

Q. And you reside in Christchurch?

A. I do.

Q. And you're a company director?

A. I am.

Q. Do you have with you a brief of evidence that you've prepared in relation to the building at issue today?

A. Yes I do.

Q. Could I ask you to read your brief of evidence please. You can start at paragraph 2.

WITNESS READS BRIEF OF EVIDENCE

A. "I am managing director of Maxim Projects Limited. Maxim leads a group of associated companies which collectively provide services related to design, development and construction of a wide range of projects, including land, residential and commercial. I have a Bachelor of Engineering Civil. I qualified in 1984 and have since had over 25 years experience in the construction industry. Initially as a consulting engineer and project manager within established engineering firms. I established the Maxim group of companies in 1990. I am a member of the Institute of Professional Engineers of New Zealand, a Chartered Professional Engineer and an international Professional Engineer.

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On the 16th of September 2010 Maxim was instructed by Stephen McManus at Anthony Runacres & Associates Ltd, the owner's insurance broker, to carry out urgent repairs to the property on the corner of Gloucester and Manchester Streets. I was provided with a copy of the Opus level 2 rapid assessment form dated 14th of September 2010. Maxim protocol of that time was for an inspection to be carried out in accordance with the New Zealand Society for

Earthquake Engineering document Building Safety Evaluation during a State of Emergency, Guidelines for Territorial authorities. That report is referenced there. Prior to any work being undertaken to review the scope of repair work required in order to ensure that Maxim employees were able to go about their work with the likely risks associated with the building having been reviewed, I am qualified to carry out this review. Maxim was not instructed to carry out the inspection and, indeed, we were questioned by the owner's insurance broker as to why this would have been completed when Opus had already undertaken this work.

I attended the property on the 20th of September 2010 with Logan Townsend, also a director of Maxim. Mr Townsend is a qualified builder and was there to assess the necessary building repairs. The nature of my inspection was a visual examination of the observable damage, cross-checked against the Opus report and to confirm that our staff would be safe in undertaking the crack repair work requested. My inspection was undertaken in accordance with the SESOC guidelines and forms.

The building had some evidence of previous structural improvements at the time of my inspection. These included the parapets had been removed down to the concrete capping band in all areas other than the south-western side. We removed the remaining portion as a part of our repair works after we had recommended that it be done. Steel bands were in position to support the window lintel openings on the western side of the building.

I completed a level 2 rapid assessment form to record the result of my inspection. I took photos which were annexed to the assessment form. I concluded that the recommendations in the Opus report were reasonable. I recorded that the necessary works were to fill in cracks in the parapet and bricks with epoxy resin and to re-fix windows to the brick work once scaffolding was erected.

Maxim carried out these works in late November and early December 2011. I was not involved in the repair works. A level 2 rapid assessment form was retained on Maxim's files. It was provided to

Runacres as part of our ongoing commission. If my assessment of the status of the building had differed to that of Opus I would have immediately reported this back to Runacres.

I attended the building again on 15 April 2011, at this time at the request of the owners, to provide a second opinion on the fate of the building following the earthquake on the 22nd of February 2011. I completed a level 1 and level 2 rapid assessment form which recorded my assessment of the building as unsafe – red placard – and my recommendation for demolition. The building already had a red placard at this time and my report was sent to the owners.

Based on my inspection in September 2010 I can say that the building was in good condition for its age and type and had been well maintained with some initial strengthening work already completed. Overall without substantial strengthening works buildings of this nature could not have been expected to survive the intensity of the accelerations experienced during the February 2011 earthquake.”

EXAMINATION CONTINUES: MS PATTERSON

- Q. I just have one further question for you. Having regard to the repair works that were carried out by Maxim, do you have a view on whether those works brought the building back to the standard it would have been prior to the September earthquake?
- A. Yes I do. That was our brief from Runacres to assess damage caused by the September earthquake and to return it to its pre-earthquake condition.
- Q. And in your view that was achieved, as I understand it.
- A. Yes I believe that was achieved and would suggest that the repair works potentially improved the condition of the building.

CROSS-EXAMINATION: MR ELLIOTT

- Q. Mr Hamilton you've said in paragraph 5 of your statement that you weren't instructed to carry out the inspection and there was some questioning by the owner's insurance broker but nevertheless you were

carrying out some assessment to determine whether it would be safe for employees to do repair work, is that right?

A. Yes that's correct.

Q. Is the effect of that that you were carrying out an assessment of whether this building was safe on the basis that if it is safe for people to work in it would have been safe, from your point of view, for tenants to work in as well?

A. Yes you could conclude that.

Q. So how did you reach your conclusion that it was safe for people to work there?

A. We were undertaking an inspection based on works that were identified in the previous report, the Opus report, to determine what repair strategy would be required. One of the concerns we had was that to send our people into potentially damaged buildings needed a higher level of oversight from the point of view of our health and safety plan which is why we decided to undertake a routine inspection anyway. The type of inspection that we felt was appropriate was typically a level 2 which is basically why you see us proceeding immediately into that phase. That required us to spend time assessing the building both internally and externally so, in my view, we were undertaking a reasonable duty of care in terms of assessing visual damage.

Q. So you didn't rely upon what Mr Mohanaraj had identified in terms of damage. You arrived at your own conclusions based upon your own inspection?

A. That was the purpose of that inspection, because we were concerned that in a period after an emergency the type of reporting that could be undertaken could be quite variable and we wanted to personally establish that previous works that had been done, previous reporting that had been done, was reasonable and, in this case, we did believe it was. But, at the same time, we wanted to have that high level of care in terms of our own business operations.

Q. It appears that the focus of your inspection was to look for damage. Is that right?

- A. Yes it was.
- Q. And that was consistent with the SESOC document that you referred to in your evidence, is that right?
- A. Mhm. Yes it was.
- Q. That document that you referred to arose in the context of the City Council's post-earthquake inspection process, didn't it?
- A. Yes it did.
- Q. But this inspection that you were carrying out was not part of that process, was it?
- A. No, it wasn't strictly speaking part of that process but we were using the methodology to give some level of a basis to move forward from. I think the key point for us was the type of inspection that was considered a level 2 inspection was meeting our desired level of overview from the point of view of our own staff. So we decided to follow a methodology that had some basis in terms of the way other inspection work was being undertaken.
- Q. The Commissioners have heard a great deal of evidence from engineers who did exactly the same thing, even outside of the Council's post-earthquake inspection process, but one question on the minds of Mr Smith's family in particular would be why did you make that decision to adopt that process of looking for damage when you weren't doing an inspection within the Council's post-earthquake process?
- A. Well several reasons. Firstly, I am a chartered engineer. I do have a desire to work within the recognised frameworks that the profession feels are appropriate. We were undertaking other inspection activity where we'd been specifically commissioned to adopt that approach. It was very consistent for us to decide on a way of moving forward and then not to vary that so that our own benchmarking was able to be measured consistently from building to building. Secondly, we had been engaged and instructed to undertake repair works. In order to do that we needed to verify what those repair works may be. So we needed to not simply rely on wording in a level 2 report. We needed to have a

higher level of understanding as to what actual work was required, so that was why that approach was adopted.

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Q. My question was really directed to – you made a decision about whether it was safe for people to work in the building. Why not rather than looking for damage and making that assessment, why not consider the capacity of this particular building to withstand aftershocks?

A. That was not part of our brief. I think we were specifically engaged as the contractor to repair the building. The understanding we had, and that was reinforced to us when Runacres queried the copy of the report that we sent through, was that the engineer that had been engaged was the Opus engineer so we were simply following a process of engineering inspection. We were engaged to do the repair work. We needed to satisfy ourselves that sending our team was in was a safe thing to do and to scope the actual nature of the work that we needed to undertake.

Q. You said that you received a copy of Mr Mohanaraj's report?

A. Mhm. Yes.

Q. I'll just refer you to the recommendations which you've already seen probably, BUI.MAN265–271.0001.11. They were brought up earlier today and you saw them at the time. I'm just going to ask you whether or not they were effected. So while that's coming up I'll read out the first recommendation he made which was to repair the crack in the arch window lintel on the south side ASAP. Also repair all other cracks in the walls and ceiling. Do you know if that was done?

WITNESS REFERRED TO DOCUMENT

A. I certainly know the crack in the lintel was repaired. That was the photographs of that repair work we were shown earlier. The interior cracking work we didn't have any involvement with. I can't confirm whether that was repaired.

Q. Just a question on your involvement with the repair process. Did you oversee the repairs yourself?

A. Yes.

- Q. Did you satisfy yourself that the repairs that were required to be done had been done before reporting back to your person at Runacres?
- A. Yes I did. The first asterisk point referred to the crack work in the arch window, the photographs were shown earlier. The ASAP relates to the lintel crack work. The instruction we see we received from Runacres was to proceed with the immediate repairs related to that external brick cracking, so we undertook that work immediately. It was undertaken by my team and the methodology was discussed and agreed between my team and myself and the epoxy repair supplier and then when the works were completed they were inspected and signed off.
- Q. Does this first bullet point summarise all of the repairs that you carried out or were there others?
- A. There were others. We identified that the parapet had been removed around the majority of the building. However on the western side adjoining Bells Antiques the parapet still remained and there was a roof top water tank sitting on top of that parapet. Our view was that while we were undertaking that work it would be relatively easy to remove the rest of that parapet and to remove the tank from the roof because the water tank had – the water systems within the building had been damaged so it was sensible to undertake that work while we were there.
- Q. Just while you're discussing the parapet. Did you see a photograph earlier on this morning of what appears to be a concrete parapet hanging down from the corner of the building following the earthquake?
- A. Yes I did.
- Q. You've seen that?
- A. Mhm.
- Q. Did you see that when you were carrying out your inspections?
- A. Yes, the concrete ring beam was present. My view is that that wasn't added to the building as earthquake strengthening. It was that that ring beam would have already been part of the building and then when it's referred to as having improvements those improvements were that the parapet was removed. I don't believe that that ring beam was added as a part of the strengthening process.

Q. So based on what you saw do you believe the parapet was removed down to the level of that concrete ring beam –

A. Yes I did.

Q. – leaving the ring beam in place?

A. Yes I do.

JUSTICE COOPER:

Q. I'm sorry to interrupt, but you referred to the strengthening process. What did that consist of?

A. In my view the strengthening works that had been undertaken basically relate to the removal of the parapet down to the level of the ring beam and there were steel bands inside the window openings on the southern – on the sorry the western side.

Q. Right, so it was parapet removal and the insertion of those steel bands, only on the western frontage?

A. Yes.

Q. Have I got that right, on the southern frontage it would have been, Gloucester Street.

A. The strengthening that I am referring to relates to steel bands on the western side around in behind the building, not fronting the road.

Q. I see.

A. There has been other reference to strengthening concrete frames and the like. I did not observe that in my inspections.

CROSS-EXAMINATION CONTINUES: MR ELLIOTT

Q. So you didn't see evidence of any other strengthening to any other part of the building apart from what you've just described?

A. No I didn't.

Q. You've seen the state of that remaining concrete parapet following the 22nd of February earthquake. When you were carrying out your inspection did you give some consideration to whether it was acceptable for it to remain in place during an ongoing aftershock sequence?

A. My view I guess was the removal of the parapet was the primary issue, the parapet tends to just be brick work sitting on top of that concrete ring beam, so it's very easy for it to fall off. The concrete beam would typically have some reinforcing steel in it, meaning that you do have a level of security in terms of capping off the brick work. So on my view it would be beneficial to leave it there.

Q. Did you carry out any assessment of how it was secured to the roof?

A. No we didn't.

Q. Did you carry out any assessment of how the front of the building on the eastern side was secured to the floor and the roof?

A. No we didn't. We were primarily carrying out a visual inspection of damage to verify against the previous inspection reports.

Q. My question earlier on was whether the first bullet point from Mr Mohanaraj described the state of the repair work that you carried out and you've just given some evidence about some other repair work that was done. Was that all there was apart from what's there or was there more?

A. Yes, that's the only work that we undertook.

Q. The second of the recommendations there is "check arch lintel above dairy for any loose bricks. Remove/secure if found to be loose." Do you know if that recommendation was carried out?

A. I understand from Mr Claxton that as he was undertaking the works around the rest of the building he had had a very good look over it. We did discuss the works required with Mr Claxton and the Runacres team. Our team when they were up on the scaffolding were asked to a quick check around to make sure that there wasn't any other visual damage and they did not locate any loose bricks in that area.

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Q. Are you saying that you or one of your team physically checked the arch lintel above the dairy for loose bricks?

A. Yes, because I think if you – the brief we had from Runacres was to repair all cracking that was required to be completed in the façade of the building so we needed to identify where that cracking would be and the

only significant cracking that we identified was on the southern side of the building facing Gloucester Street.

Q. Do you know if someone physically got up and tested the state of the brickwork above the dairy?

A. As far as I'm aware they did. They were asked to and they reported back to me that it was okay. I wasn't there at the time.

Q. So they being –

A. My staff.

Q. An engineer or –

A. No, a construction worker.

Q. What about the third recommendation? “The support arrangement (for example, steel bands) to external arch lintels to be provided in consultation with a structural engineer”. Do you know if that was done?

A. As far as I'm aware that wasn't done. We were asked in our brief from Runacres to quote that work and we – our assumption was that Opus was the structural engineer so we were waiting for some kind of design or brief in terms of what that work may be.

Q. You provided a written quote did you?

A. No we didn't, because there was no further works provided to us to quote.

JUSTICE COOPER:

Q. Can I just interrupt again Mr Elliott. What did you understand that recommendation to be referring to? I mean I see the words but I'm not sure I understand them or what part of the building they relate to. How did you see that recommendation?

A. I saw it as a general description, it says eg steel bands of some further upgrade works that could be undertaken. The fact that it had consult a structural engineer in brackets implied that there was further input required to determine what that would be.

Q. So is the reference to lintel blocks a reference to the blocks around the edges of the windows? Is that right?

- A. I assume what he is referring to is in a window opening providing some kind of banding within the window opening to hold the immediate arch in position.
- Q. And you've said to Mr Elliott that you quoted for that work. Can you remember what you quoted?
- A. No, no to clarify, we didn't quote for that work, because we had no design detail to provide any costing around. So we were aware that it had been recommended but in our view we weren't commissioned as the engineer and our understanding was that Opus was the engineer so for that to progress as a construction firm we needed some further detail before we could quote.

MR ELLIOTT ADDRESSES JUSTICE COOPER:

Your Honour would a photograph assist just in identifying what the witness understood the lintels to mean?

JUSTICE COOPER:

Well he described it.

CROSS-EXAMINATION CONTINUES: MR ELLIOTT

- Q. Have you seen the invoices to the Claxton Family Trust from Maxim?
- A. I'm sure I have.
- Q. I can show it to you if you would like, but there's a reference in there to a Mr Simon Watson and Cymon Allfrey Architects Limited, building architecture, would you like to see that or do you recall it?
- A. I don't recall the detail. I would need to see it.
- Q. BUI.MAN265-271.0009.6.

WITNESS REFERRED TO DOCUMENT

- Q. There's a heading – if the section “WC24 Consultants building architecture”, if that line and the next couple of lines could be enlarged please. Do you see the reference there to architecture and an architect?

- A. I can. If you could go back to the top of the invoice I think you'll see it relates to a different property. I think we need to be clear we were undertaking a range of services for Mr and Mrs Claxton.
- Q. I see, yes. Top left-hand corner.
- A. This relates to 80 Hawdon Street, Christchurch.
- Q. I see, so that's just been included incorrectly in this bundle?
- A. Yes, it must have been.
- Q. Thank you. There were no architects employed?
- A. No.
- Q. Just to ask you to identify the document that you prepared. I think you've referred to it, but we'll just get that up in front of you, BUI.MAN265-271.0001.13.

WITNESS REFERRED TO DOCUMENT

- Q. So is that the rapid assessment form that you completed?
- A. Yes, it was filled in by a Mr Townsend who inspected the building along with me, so the notes were – that's his handwriting but we did that inspection together.
- Q. And that was carried out on the 20th of September 2010 when you first came to the property, was it?
- A. Yes, that's right.
- Q. And that refers to your observations. Did you examine the whole building, that is the whole of 173 right through to 265 and –
- A. Yes, yes we did.
- Q. – 271?
- A. Yes we did.
- Q. And the next page of that point, 1.14. You've – although you're operating outside of the Council's inspection process you have effectively endorsed the green placard status of the building. Is that right?
- A. Yes I have.
- Q. Is it correct though that at that point none of the repair work had been carried out?
- A. No. Yes it is correct.

- Q. Can you say why you confirmed the green status before repair work had been carried out?
- A. The repair work that was recommended related to an ongoing requirement to repair the damage from the earthquake. In our view that that damage didn't pose any kind of safety risk. It was just literally repair and maintenance type work.
- Q. You've referred there in the bottom left-hand corner to some comments which appear to relate to proposed repairs. Were they additional to the ones you've already described to the Commission or part of what you've already described?
- A. No they're part of what we've already described.
- Q. You said in your evidence as a supplementary point that you reached the view that this building once the repairs were effected would be no worse than it had been before the 4th of September. Was that your view?
- A. That is my view.
- Q. How did you form that view?
- A. In my view the removal of the balance of the parapet and the removal of the water tank reduced the likelihood of that brickwork falling and in my view the repair works that we undertook with the epoxy strengthening or epoxy repair, potentially created a stronger area in that south wall.
- Q. So again that decision was made on the basis of the identification of damage, your assumption that that was the only damage sustained and the repair of that damage?
- A. Yes it was.
- Q. Have you read Mr Smith's report on this building, Mr Peter Smith, the expert engaged by the Royal Commission?
- A. Yes I have.
- Q. And have you seen Mr Smith's recommendation which I'll quote to you? He talks about, he is talking here about the rapid assessment process which you may have been outside of, but he says "there would appear to be a need for a central authority to assess the likelihood of a severe aftershock following an earthquake and determine minimum strength

requirements for occupancy of unreinforced masonry buildings in the period following a significant earthquake". Firstly you would agree would you that that is a different test for occupancy of a building than what you used in deciding that it was safe for people to work there?

A. Yes it is a different test.

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Q. Were you aware, or you must have been aware that this was an unreinforced masonry building?

A. Yes I was.

Q. Were you aware that it was likely to be earthquake prone?

A. Yes I was.

Q. And you're aware of the ongoing aftershocks that Christchurch was experiencing when you carried out when you carried out the inspection?

A. Yes I was.

Q. Would you agree that the test proposed by Mr Smith would have been a better test to have used in terms of determining whether the building should be occupied at all rather than the test that you applied?

A. My personal view in hindsight is that the inspection process relating to the level 1, level 2 certainly needs a higher level of rigor with regard to unreinforced masonry buildings. So I think the decision that we took to pretty much bypass level 1 inspections, reinforces that a little bit. I think the – only in the very early stages as a very quick once over does a level 1 give you enough detail. My view is that a level 2 is really the minimum level to start forming any kind of confidence in terms of how a building has performed. I think in this case though the level 2 procedure, given that it is only a visual assessment can really only determine anything you can see, so there are certainly higher levels of an inspection and assessment that that could be undertaken.

Q. You've given evidence that you were only there on the instructions of Runacres and not the instructions of the owner directly?

A. Yes.

Q. Do you think that you should have at least spoken to the owner about Mr Mohanaraj's suggestion that a structural engineer be consulted?

- A. I think in what is clearly some level of confusion at that time, our assumption based on the feedback we have from Runacres was that Opus was the engineer and that we had provided some documentation that could infer that we were the engineer, ie the copy of the level 2 report, and we were directly questioned by Runacres as to why we had undertaken that work. We took that to be questioning why we were stepping into a role that they already had commissioned someone else to fill.
- Q. But wouldn't Mr Mohanaraj's point that there should be consultation of a structural engineer imply that Opus were in fact no longer involved after he prepared that form?
- A. It could be interpreted that way, I think the process that an engineering firm is going through in my understanding is that a lot of these commissions are in order to assist things to move forward as quickly as possible. You're not necessarily being commissioned to go all the way through, but you need to be very clear in terms of what your brief is as you step your way through it. I think it's quite consistent for an engineering firm to limit what it had done in terms of where the brief stopped and started.
- Q. You can probably appreciate the concern that Mr Smith's family have which is that there appears to have been three engineers who looked at the building but all did effectively level 2 assessments and in your case you don't seem to have recommended a further more detailed assessment which may have led to an examination along the lines proposed by Mr Smith?
- A. No I don't believe there's any requirement for a level 2 inspection that is identifying a green position. I think there is an onus in terms of moving forward with review related to the wider requirement for these types of buildings which is typically something that is managed in terms of the building consent application et cetera. Clearly the damage that occurred in February has highlighted the fact that a higher level of assessment could have been undertaken to identify likely risk. However I suggest that that risk was already well understood and was identified

through the earthquake prone earthquake risk assessment which already had procedures around it.

CROSS-EXAMINATION: MR LAING

Q. Good morning Mr Hamilton. I just want to ask you some questions about the ring beam. I wonder if you could look at BUI.MAN265.0001.22.

WITNESS REFFERED TO DOCUMENT

Q. While that's coming up I perhaps could start by saying that Mr McCarthy will give evidence that there are Council records that a concrete bond beam was installed sometime in the 1960s or 70s. Now it's in front of you now. Is that the ring beam you're talking about which has fallen over on the corner there?

A. Yes, this is the beam. That beam there?

Q. In the bottom photograph.

A. Yes, that's the beam that we're referring to.

Q. Wasn't certain from your evidence, but is your view that that ring beam was an original feature of the building from 104 years ago?

A. Certainly the appearance from around the western side of the building, given that the parapet was still in place implied to us that the beam certainly in that area must have been there prior to the parapet being constructed in the beginning.

Q. Yes. It would be unusual though wouldn't it to have a concrete reinforced ring beam inserted in a building of 100 years old?

A. Yes, that was the view that we took in terms of what we could see. Now it's potentially the case that because the water tank was there that a ring beam was installed and then brickwork was repositioned to hold the water tank.

Q. But is it your evidence that the ring beam pictured there is – was 104 years old?

A. I can't confirm how old that beam is.

Q. No, so –

JUSTICE COOPER:

- Q. I think you're saying though that it is possibly that old aren't you?
- A. I don't have any evidence to confirm whether it is or it isn't. What we saw on the western side was brickwork above that ring beam.
- Q. Well are you saying it could be 104 years old or it couldn't?
- A. I don't know that I can answer that.
- Q. Well let me ask you another question, is it your evidence that we can't exclude the possibility that it is 104 years old?
- A. I don't think you can exclude it. It would certainly be unusual.
- Q. Yeah, but it might be?
- A. It could be.

CROSS-EXAMINATION CONTINUES: MR LAING

- Q. I'm not trying to trap you or something like that, but Mr McCarthy will say in evidence that there's evidence that a reinforced concrete bond beam was constructed to the roof level in 1976, but I take it from your evidence you can't help us in terms of identifying that ring beam or bond beam?
- A. What I can confirm is that it was there and on the western side we observed brickwork sitting on top of it.
- Q. But you can't really assist us can you?

COMMISSIONER CARTER:

- Q. Can I ask a question on that parapet in that western location? Is it possible to say whether the brickwork in that parapet was the same as the brickwork in the building, or could the parapet have been replaced after the bond beam was put in more recently?
- A. That would have to be the most logical conclusion given that there is evidence that the ring beam is not 104 years old, so potentially because of the location of the water tank there was a need to reinstate that area of parapet to hold it in its position.

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JUSTICE COOPER:

Q. Well now that you have been interrupted Mr Laing, did this beam extend along the full eastern frontage of the building?

A. Yes it did.

Q. And along the western front?

A. Around the return on that western side alongside Bells.

Q. So a beam like that existed along both fronts, the extent of both frontages of the building?

A. Yes it did.

CROSS-EXAMINATION CONTINUES: MR LAING

Q. I don't think we can take this any further, Mr Hamilton, but thank you for your answers. I just wanted to ask you one further question. You said in your evidence at paragraph 10, level two rapid assessment form was retained on your files. I'm assuming from that statement that it was not sent to the Council am I correct?

A. That's correct.

JUSTICE COOPER:

Mr Hamilton, we are going to take an adjournment for 15 minutes but then we have a witness who is to appear from another city via video link so you are going to be interrupted at this point if you don't mind and you'll be recalled to the box when we finish with that other witness.

COMMISSION ADJOURNS: 11.32 AM

COMMISSION RESUMES: 11.48 PM

JUSTICE COOPER:

Mr Mohanaraj, can you hear me?

MR MOHANARAJ:

Yes.

JUSTICE COOPER:

And see me hopefully.

MR MOHANARAJ:

Yes.

JUSTICE COOPER:

I'm Justice Cooper and on my right is Sir Ron Carter. Can I just ask you to promise to tell the truth in giving your evidence. If you listen to what I say and then answer me. Do you solemnly, sincerely and truly declare and affirm that the evidence that you will give to the Royal Commission will be the truth, the whole truth and nothing but the truth?

MR MOHANARAJ:

Yes.

EXAMINATION: MR MCLELLAN

Q. Can you state your full name please?

A. Puvirajaratnam Mohanaraj.

Q. And you are a structural engineer of Hamilton?

A. That's correct.

Q. Do you have your witness statement in front of you?

A. Yes I have.

- Q. Could you please read that at paragraph 1 and I will interrupt you from time to time so if you could just pause when that happens and wait for the question?

WITNESS READS BRIEF OF EVIDENCE

- A. "I hold a Bachelor of Engineering (Civil) and a Master of engineering studies. I am a member of the Institute of Professional Engineers of New Zealand and am a chartered professional engineer. I have 19 years experience as a civil and structural engineer. From 2003 to the present I have been employed by Opus International Consultants Limited and hold the position of senior structural engineer. I am a member of the Structural Engineering Society of New Zealand (SESOC).

From 13 to 17 September 2010 and from 7 to 11 March 2011, I was in Christchurch to carry out earthquake damage inspections. The building inspections that I carried out during September 2010 were commissioned by building owners or their insurers.

I carried out an inspection of the building on the corner of Gloucester Street and Manchester Street, 265 to 271 Manchester Street/173 Gloucester Street on 14 September 2010. I was directed by Opus personnel based in Christchurch to carry out the inspection. I understand that Opus was engaged to do this by building owner's insurance broker.

The purpose of the inspection was to identify damage caused by the September earthquake. My inspection was carried out internally and externally. It was a visual, non intrusive inspection and so it did not involve removal of wall linings or floor coverings. I did not have building plans. My inspections were not detailed structural assessments and did not involve calculations, structural capacity or strength. I did not have specific information from GNS about future aftershocks. I was generally aware of public information about aftershocks and I was experiencing them along with others in Christchurch at the time. I assumed that aftershocks would continue but in diminishing sequence. When

inspecting Christchurch buildings in September I took the likelihood of continuing aftershocks into account.

During my inspection I was joined by one of the owners of the building. He was there for a short while and then left before I finished. I took photographs during my inspection. I have provided all of these to the Royal Commission. I also completed a rapid assessment form level two. I had internal access to most of the buildings through the shops which were accessible except the takeaway shop at the northern end of the building on Manchester Street which was closed. I identified minor damage which I recorded in the form. Internally this was cosmetic cracking in a wall lining and the ceiling in a stairwell.

Q. Now could I just interrupt you there Mr Mohanaraj and can I take you firstly to your inspection report which is BUI.MAN265–271.0001.9? You have that form in front of you in hard copy do you?

A. Yes I have.

Q. And sorry if we can go to, that's the first page of your report, if we can go to the under comments on the first page if we could highlight that.

A. "Minor cracks in brick wall (south side), crack in arch window lintel (south side)".

Q. And if we can go to the second page which is .10. We can see there that you have ticked minor or none for damage to the items on the left-hand side of the form, correct?

A. Yes.

Q. And could you read your handwriting on the right-hand side please?

A. "Minor cracks in joint between the brick wall and large windows on the east side. Minor cosmetic cracks in gib wall lining and ceiling in stairs area. Minor vertical crack in joint between bricks and block wall in rubbish room. Fish and chip shop – minor cracks in gib ceiling. There are minor cracks in brick wall, mainly on the south side and also minor internal cracks in timber wall and ceiling. No damage in shoe repair shop and in dairy. No access to the takeaway shop".

Q. Now I'll just take you back to your brief and you've just read the sentence in paragraph 10 referring to cosmetic cracking in a wall lining

and ceiling in a stairwell. You've attached a table to your brief of evidence which is an appendix, Your Honour. Can you go to that Mr Mohanaraj?

A. Yes.

Q. And you'll see that you've given a paragraph reference on the right-hand side of that table. So for paragraph 10 you've referred to minor cosmetic cracks in gib wall lining and ceiling in a stairwell and then I'll take you to the photograph that shows that which now has a Commission reference and that is MOH.0001.15, no WIT.MOH.0001.15. You've got that have you Mr Mohanaraj?

A. Could you please, would you please repeat that again?

Q. In your brief, in the photographs attached to your brief of evidence and in the red numbering on the top right WIT.MOH.0001.15.

A. Yes.

Q. So that is the minor cosmetic cracks in gib wall lining and ceiling in the stairs area?

A. Yes that's correct.

Q. Right and in your brief you then refer to finding a minor vertical crack in a joint between brick and block walls in the rubbish room of the Map World tenancy?

A. Yes.

Q. So if you can stay with your table, that is the photograph ending .13?

A. Yes.

Q. Just wait for that to be brought up for the Commission. Is that the, you can see a horizontal crack can you running along the top of the block work. Is that what you were referring to?

A. I believe that the vertical crack between the block wall and the brick masonry.

Q. All right just to be clear. So is that on the right-hand side of the photograph?

A. Yes.

Q. Now if you can go back to the body of your brief of evidence to paragraph 11 and carry on reading.

WITNESS CONTINUES READING BRIEF OF EVIDENCE

A. "I found similar minor cracking in the ceiling of the fish and chip shop on the Manchester Street side. I found no damage in the shoe repair shop or the dairy on the same side of the building. There was minor cracking in some of the internal timber partition walls and ceiling in first floor."

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Q. And I'll just stop you there. We'll go back to your table and there are two references to paragraph 11 there. You didn't take a photograph of the damage that you saw in the fish and chip shop. Is that correct?

A. Yeah, no photos there.

Q. And the photograph reference for the final item in the table which is minor internal cracks in timber wall and ceiling now has a document reference of 265-271.0013.1. And Mr Mohanaraj, because that's just been uploaded your reference is your image reference which is P1070863?

A. Yes.

Q. Do you have that with you?

A. Yes I have.

JUSTICE COOPER ADDRESSES MR MCLELLAN

Mr McLellan, can we be told where this photograph was taken please?

EXAMINATION CONTINUES: MR MCLELLAN

Q. Yes, so you say in your brief that this was in the first floor. Can you be more precise as to whereabouts in the first floor of the building this was taken?

A. I'm sorry, I can't exactly remember where it was taken, but I believe it was taken in upstairs.

Q. Right, now can you carry on reading from paragraph 12?

WITNESS CONTINUES READING BRIEF OF EVIDENCE

A. "Externally I identified a minor crack in a joint between the brick wall and one of the large ground floor windows on the east side of the building."

- Q. Stop there please. And if we could go please to WIT.MOH.0001.12. Do you have that Mr Mohanaraj?
- A. Yes I have.
- Q. And can you just describe where the crack is that you've described in your brief?
- A. That is on the eastern side close to the, close to the door of the Map World building, and there's a crack between the wall and timber frame, a minor crack.
- Q. If we can have your report back which is 265–271.0001.11. I'm going to take you to the third page of that report. Under your recommendations I'll just ask you to read your handwriting into evidence please.
- A. "Repair the crack in the arch window lintel on the south side ASAP. Also repair all other cracks in the walls and ceiling. Check the arch lintel above dairy for any loose bricks. Remove/secure if found to be loose. Support arrangement (eg. steel bands) to external arch lintels shall be provided to prevent sudden failure of lintel blocks. (Consult a structural engineer)."
- Q. And I'll just take you to one further photograph of the south side and this is WIT.MOH.0001.7. So that is the south-western corner of the building. Is that correct?
- A. Yes.
- Q. And can you just identify the damage to the arch lintel?
- A. Yes, minor cracks in the arch.
- Q. Can you just describe exactly where you're talking about as best you can without being able to point to anything. In fact if you hold up your photograph so that we can – so that the camera can see it and can you just use your finger to identify the crack, the cracking that you're talking about.
- A. There were some minor cracks here –
- Q. So at the –
- A. – close to the apex.
- Q. Just above the top of the window in the brickwork?
- A. Yes. That's correct.

- Q. Thank you. Now go back to paragraph 14 of your brief and just read paragraph please?

WITNESS CONTINUES READING BRIEF OF EVIDENCE

- A. "I also recommended that the owner engage a structural engineer to check the building and provide appropriate crack repair details. One of my recommendations for repairs was a support arrangement for the external arch lintels to prevent sudden failure of lintel blocks. As an example of a support arrangement I referred to the possibility of using steel bands, which would be fixed to the underside of the brick arch lintel. This was not for the purpose of repairing earthquake damage but as a recommendation to the owner to improve robustness for the future. My report notes that I recommended that the owner consult a structural engineer on this recommendation.

I recorded a damage intensity on the level 2 form as light damage, low risk, and gave the building a green placard and a usability category of G2, occupiable, repairs required. I have annexed a table setting out the general areas of damage that I observed, cross referenced to photographs. When I returned to Opus's office I believe that I was asked to call the building owner because he wanted to know about the building's condition. I rang him that evening and summarised what I had written on my inspection form."

- Q. Do you have any recollection as to whether you advised the owner in that conversation about the recommendations on the third page of your report?

- A. I can't remember what we had, but I thought I summarised, I read what I had written on the inspection sheets and I can summarise what I have written on the inspection sheets.

- Q. Did you have the inspection sheet with you when you made that call?

- A. Yes. That is correct.

- Q. Do you know how the work – well, we know that the owner's insurance broker received a copy of the report. Do you know who provided it to the insurance broker?

- A. Could you please repeat that?

- Q. Do you know who provided your report to the owner's insurance broker?
- A. Do you mean was done for the insurance broker?
- Q. What did you do with the report when you got back to Opus's office?
- A. I was – it was very not clear actually.
- Q. Did you give the report to anyone?

JUSTICE COOPER:

- Q. Mr Mohanaraj, are you having trouble hearing Mr McLellan?
- A. Yes, that is correct.

EXAMINATION CONTINUES: MR MCLELLAN

- Q. When you got back to Opus's office you had your report with you, didn't you?
- A. Yes.
- Q. Did you give it to anyone at Opus?
- A. Yes, there was a co-ordinating centre there. I gave it to the people there.

CROSS-EXAMINATION: MR ELLIOTT

- Q. Mr Mohanaraj, can you hear me?
- A. Yes I can.
- Q. Your inspection was carried out at the instigation of the insurance broker. Is that right?
- A. At that time I didn't know but I came to know that later.

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- Q. Were you given any specific instructions about what to do?
- A. Yes, we were asked to carry out a level 2 inspection, that is check for damage and provide any recommendation for follow up action.
- Q. Who asked you to do that?
- A. That is from the Opus person in the office.
- Q. And did that person also give you the form and say this is the form to complete?
- A. That is correct.

- Q. Was that a standard practice within Opus when it came to working for loss adjustors or insurance companies or brokers?
- A. At that time we had a co-ordinating office in Christchurch carrying out level 2 inspections so this was the procedure there at that time.
- Q. Your inspection was focused on the particular damage to the building. Is that right?
- A. That is correct.
- Q. And the reason for that was because you were given the form to complete and the form requires an examination of possible damage?
- A. That – I had been asked to carry out a level 2 inspections but the forms are based on the damage, whatever the damage was there or something like that.
- Q. Did you say that you had some discussions with the owner?
- A. Half way through the – one of the owners came, Mrs Claxton I believe, and she was there for a while during the inspection, and once I had completed the inspection I went back to the office and I was – somebody asked me to ring the owner because he wanted to talk to me about the building. That evening I rang the owner and I summarised what I saw – I wrote in the inspections sheets.
- Q. Did you raise the possibility with the owner of a more detailed assessment of the building?
- A. No, not at the time because not my call for that.
- Q. When you did your inspection did you inspect the whole building –
- A. Yes I did.
- Q. – apart from the fish and chip shop?
- A. Not the fish and chip shop, one of the takeaway shops, we didn't have access to that.
- Q. Did you carry out any inspection of the state of the connections if any between the Manchester Street façade and the floor and roof?
- A. No. But I could see something above protruding through the brickwork showing that some kind of a floor connections are there.
- Q. Where was that?
- A. At the front.

- Q. At the front of the building as one faces the outside from the east?
- A. North-east, - south, south of the building.
- Q. What level was that at?
- A. It was at the floor level.
- Q. Did you see any connection, evidence of connections at the first floor level anywhere in the building?
- A. Not inside, no it was covered by ceiling, it was ceilings.
- Q. What about from the outside?
- A. Yeah, I saw that connection, that the bolts protruding through the brickwork from outside.
- Q. At the first level or at the ground level?
- A. Yeah, at the first floor level.
- Q. Where was that in relation to the shops. Can you name which shop it was near?
- A. That was Map World I believe.
- Q. I'm sorry.
- A. Map World.
- Q. Have you seen photographs of the building following the February earthquake?
- A. I have seen about 10 days ago.
- Q. I can refer you to it if necessary, but have you seen a photograph of the corner of the building which appears to show a white concrete element which has fallen from the top of the building?
- A. Yes I have seen one of those photographs, yes.
- Q. That's been described in various ways here today, but I'll refer to it as a concrete beam. Is that the one you recall seeing or would you like to see the photograph?
- A. I believe that's a ring beam or something like that at the top of the brickwork.
- Q. Yes, and that appears to have failed during the earthquake of 22 February according to the photographs. You've seen a photograph demonstrating that?
- A. Yes.

- Q. Did you carry out any inspection of that element in the course of your inspections?
- A. No I didn't have a chance to inspect that because most of the inspections were either from the ground level or from the first floor level and I didn't have a chance to go to the roof level.
- Q. The fact that you didn't go to the roof level and the fact that you weren't able to look in at least one of the shops, did you feel that that limited your ability to confirm the green placard status of the building?
- A. Based on the damage we have observed on that day, I didn't believe it was clearly necessary at that time.
- Q. Is it correct to say that you didn't see any damage in the vicinity of number 269 which was the dairy?
- A. Could you please repeat it?
- Q. Would you like to – do you have a photograph of the front of the eastern side before the 22 February earthquake. In fact I think you do because you took one. It's our reference 0001.6, WIT.MOH0001.6?
- A. Yes.
- Q. And I'm just referring you to the – do you see in, towards the right-hand side there are two bluish coloured cars parked out the front and there's a red sign, dairy, do you see that?
- A. Yes.
- Q. And I'm just asking you to comment on whether you saw any damage either externally or internally in relation to that particular section of the building, ground or first level?
- A. I haven't seen any damage as such but I kind of recommended whether there was any loose bricks over one of these arch lintels, whether that's meant to be, have – needs to be checked and secured if there was any loose lintel, sorry loose brickwork.
- Q. That was the second of the recommendations you made in your report, wasn't it, check the arch lintel above dairy for any loose bricks. Remove, secure if found to be loose. That's what you're referring to?
- A. Yes that was correct.

Q. What was it about the arch lintel above the dairy that caught your attention?

A. From the ground level I took some photographs. I saw a small gap in between brickwork and the frame, arch frame, but it appeared to me that was historic rather than earthquake damage. There was no evidence on the ground level that any bricks falling down, but I wanted to be safe than sorry but that's what I advised that it would be better to have a close inspection at high level to check and secure if there is any.

Q. I may not have understood but you've referred earlier on to a photograph of some damage to an arch lintel, so is that you're referring to, the one above the dairy?

A. Yes.

Q. You also made the recommendation that there be some sort of support arrangement to the external arch lintels to prevent sudden failure of lintel blocks. What was it that prompted you to make that recommendation?

A. That was not for the purpose of the earthquake repair work, but it is conceivable that in future any large earthquakes can happen and that may cause any issues, so it's standard prompting to use a robust fixing in supplementing the repair works they are going to do.

Q. When you said in brackets after that recommendation, consult a structural engineer.

A. Yes.

Q. What was the purpose of recommending that type of consultation?

A. A structural engineer need to decide what kind of a connection they are going to do and what size of bracket they are going to use, so it would be necessary to consult a structural engineer for that purpose.

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Q. On page 1 of your report you made a further recommendation, "Get a structural engineer's assistance to check and provide appropriate crack repair details."

A. Yes.

Q. What was it that prompted that recommendation?

- A. It would be necessary for the what kind of a repair works they are going to carry out and what kind of epoxies or what kind of system they are going to use so it would be necessary for a structural engineer's assistance or input.
- Q. Did Opus' role end once you had completed this form?
- A. I believe so.
- Q. The owner has given evidence that he didn't receive this form until quite recently and not before the 22nd of February earthquake. You didn't give him the form did you?
- A. No, not really. We have a co-ordinating centre in the office. Whenever we complete our inspections and hand over the forms to the co-ordinating centre, then they arrange to send it to the people who ask us to do the work.
- Q. I accept that you've said that you spoke to the owner and –
- A. That is correct.
- Q. – that you outlined what you had written in the form?
- A. That was correct.
- Q. Did you assume that someone would pass your form on to the owner as written confirmation of what you'd said?
- A. I would have expected that, and at the time I didn't know that they are working for the owner or the insurance company but I would have expected either the insurance company if they employed us then they would have sent a copy to him.
- Q. Was there any particular concern expressed to you about safety by the owner during those discussions?
- A. I cannot recall anything like that.
- Q. You, in effect, confirmed the green placard status of the building even though you weren't operating within the council's inspection regime, is that right?
- A. I believed we had been given authority to provide green placards.
- Q. Yet given that you'd identified some damage and given that some repairs were to be effected, did you consider recommending a yellow placard only to be changed to green once work had been carried out?

- A. The fact is we had a large earthquake and we have been experiencing hundreds of aftershocks at that time and the damage I have inspected were minor in nature but I didn't believe it was necessary to provide a yellow placard and there was any safety concerns at that time.
- Q. One of the concerns that Mr Smith's family has is that there appear to have been three inspections of the building, all of which were rapid, level 1 or level 2 and that no detailed assessment seems to have been carried out. Is it correct that you were not recommending a detailed structural assessment of the building in your recommendations on the form? You were just recommending an engineer focus on specific points?
- A. The purpose of my inspection was only the inspection of the damage and any follow-up action that I would have expected any detailed evaluation would have been a follow-up of the council and the owner's responsibility.
- Q. So you contemplated that there may be a more detailed assessment of the building and that the owner would do that or that the council would do that?
- A. If there is any then that would be the responsibility of either council or the owner to carry out that work to check the strength of the building or to carry out more detailed strengthening work.
- Q. But that's not a recommendation that you made to the owner at all that they carry out a detailed structural assessment of the whole building?
- A. That was not the scope of work.
- Q. Have you seen the report prepared by Mr Smith, Mr Peter Smith in relation to this building?
- A. Yes, I have.
- Q. He makes a recommendation about the post, about a post-earthquake inspection process and he suggests that central authorities should assess the likelihood of a severe aftershock following a significant earthquake and then determine minimum strength requirements for occupancy of unreinforced masonry buildings. Would you agree that's a

different test for occupancy than what you posed when deciding whether to confirm the green placard?

- A. I would agree with that based on the February earthquake's damage after that, but at that time we were working on limited knowledge and so it was difficult to provide that kind of information I believe.
- Q. You were working on limited knowledge about the possibility of ongoing aftershocks do you mean?
- A. No we were working on the assumptions that there was a large earthquake and in the future aftershocks would be in a small diminishing scale but the February earthquake proved the otherwise.
- Q. That's an assumption which many other engineers also made and –
- A. That was the general, yes. That was based on the general experience from the other earthquakes.
- Q. – and I think we heard evidence at some point that that's the sort of assumption that engineers are taught to make during their training or qualifications, is that right?
- A. I don't believe so but I mean if you look at the other earthquakes you would have seen that most of the earthquakes are like the first one is the large one then you will see is going in a very decaying sequence.
- Q. Would you agree in hindsight that the test posed by Mr Smith in determining occupancy and safety is a better one to use than the type of damage based test that you and others applied?
- A. Yes I agree with that.
- Q. Thank you.

CROSS-EXAMINATION: MR LAING – NIL

CROSS-EXAMINATION: MS PATERSON - NIL

COMMISSIONER CARTER:

- Q. There were no inspections by yourself at roof level as I understand it, is that correct?
- A. I had a chance to take some photos from one of the ladders but I didn't go inside as such to check anything else.

JUSTICE COOPER:

Q. Where was the ladder?

A. It was one of the tenancies inside.

Q. So that was an internal climb?

A. Internal one, yes.

WITNESS EXCUSED

GRAEME HAMILTON (ON FORMER OATH)**CROSS-EXAMINATION: MR MCLELLAN**

Q. Mr Hamilton, in paragraph 5 of your brief you said that Maxim was not instructed to carry out the level 2 inspection that you did. Do I take it from that that this was your company's own policy or initiative on this occasion to carry out an inspection?

A. Yes it was.

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Q. And while you had the Opus report, and you said in your brief that you generally agreed with its conclusions, I take it that yours was an independent review?

A. Yes it was. We were aware of the recommendations in the Opus report but for the benefit of my own team and to assess the likely repairs we undertook it with a fresh pair of eyes if you like.

Q. Yes because your firm had the responsibility not only of carrying out the inspection that you decided to do but also your firm was going to be responsible for the repairs.

A. We were responsible for the repairs but we weren't responsible for the inspection as such.

Q. You took on that responsibility. When you said in your evidence that you'd assumed that Opus was the structural engineer, we've had a look at the Opus level 2 report and it says, I think, or it recommends consulting a structural engineer so I don't take anything from that report to suggest that Opus was the structural engineer. Was there something else that you were told that gave you to understand that Opus was the structural engineer?

A. It was an assumption on our part on the basis that the feedback from the insurance assessor was that they hadn't expected we would be undertaking any inspection-type work which led us to conclude that there was another agency involved in providing those services.

Q. That was after you'd done your inspection I take it?

A. That's correct.

Q. In your report you say that you generally, sorry in your brief you said “I concluded that the recommendations in the Opus report were reasonable”.

A. I did.

WITNESS REFERRED TO BUI.MAN265-271.0001.11

Q. I'm just going to take you back to those recommendations. As I understand it the works that Maxim did were restricted to the south wall, is that right?

A. That's correct.

Q. So, and we're talking about the epoxying of the brick work.

A. Yes that's right.

Q. So in the first bullet point of those recommendations the works that you did would have addressed that item wouldn't it – repair the crack in the arch window lintel on the south side.

A. That's correct.

Q. Did you inspect those repairs after they'd been completed?

A. Yes I did.

Q. And you were obviously satisfied that they were, that they at least restored the building to its pre-September the 4th condition.

A. Yes I was.

Q. What about the next one – also repair all other cracks in the walls and ceiling. Was that addressed by Maxim's works?

A. No we didn't address that. The instruction came through from Runacres was to undertake the urgent repairs which, to our assessment, related to the ones indicated with 'ASAP' following the description.

Q. Did you regard the areas that required repairs on a pressing basis to be those in the external brick work?

A. Yes we did.

Q. In the next bullet point the recommendation was to check the arch lintel above the dairy and I think you've already said in your evidence that your understanding was that an inspection of that by your contractors was it, or your employees, didn't identify loose brick work in that area.

A. That's my understanding.

Q. Did you inspect that area yourself?

A. No I didn't.

Q. And in the third of these recommendations the recommendation was a support arrangement, for example steel bands. Would that be something similar to what was on the western side of the building that I think you've identified in your evidence?

A. It could be.

WITNESS REFERRED TO WIT.MOH.0001.8

Q. From your understanding of what Mr Mohanaraj meant in the recommendations would that be a steel beam fitted to the underside of that arch?

A. I would have to assume that that's what he was referring to. Without specific details, that's just an assumption.

Q. Did you not agree with that recommendation?

A. Ah, I don't, I don't disagree with it as a point to raise. I have suggested that the, which I think is consistent with Opus' comments, that there would be further work required to determine what actual work was undertaken.

Q. So what would you regard that as being something that was to consider for the future but wasn't a pressing requirement?

A. To my mind it's beyond the immediate needs of earthquake repair.

RE-EXAMINATION: MS PATTERSON

Q. Mr Hamilton just one question on the topic you were just discussing with my friend relating to that third bullet point regarding the repairs that could be carried out at some point, or the works that could be carried out at some point in the future. The Opus report referred to a need to consult a structural engineer, and I think you said in your evidence that you didn't have the information necessary to carry out those works. So what would you have needed from a structural engineer to go ahead with those sorts of works?

A. Any works that are intended to provide strengthening would need some kind of analysis to work out what the nature of that strengthening would

be and that would normally result in some kind of design and detailing that we would expect to receive sketches or drawings of what the proposals were. At that point we could arrange to have that work costed and provide a quote back to the owner or the insurer.

Q. And were you asked to look into that analysis at all?

A. No we weren't.

Q. Finally, I just want to reference some photographs that relate to points you've discussed in your evidence today.

WITNESS REFERRED TO BUI.MAN265-271.0001.13

Q. Now is that your level 2 rapid assessment form?

A. Yes it is.

Q. If we could pass forward a couple of pages to .15. Now this page and the three pages that follow it, are these photographs that were taken at the time of your level 2 rapid assessment?

A. Yes they are.

Q. And do the descriptions underneath those photographs accurately reflect what is depicted in the photograph?

A. Yes they do.

Q. Now there's some other photographs that weren't attached to your report.

WITNESS REFERRED TO BUI.MAN265-271.0010.9

Q. It's perhaps a bit difficult to see but you were asked some questions earlier regarding additional works you carried out over and above the works to the south wall and you talked about removing the parapet on, I think, was it the south wall of the building?

A. That's correct.

Q. Do these photographs relate to those works in any way or can you describe how they or what they depict?

A. They do relate to those works. What we see is the return wall adjoining the Bells building. We see a steel flashing that's been placed over the top of the brick work where the parapet has been removed and we see two new black plastic tanks that are the new water tanks that were relocated. The photo on the top right that shows the man standing on

the scaffolding previously directly in front of where he's standing there was a large water storage tank that was feeding the whole building. We felt that that water tank, along with the parapet that was in that area, posed a risk that was unnecessary and, given that some of the water systems inside the building had been damaged, we recommended that that work should be completed at the same time.

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JUSTICE COOPER:

Q. The risk that you're talking about there would have been to somebody in that passageway on the western side of the building. Is that right?

A. Yes, potentially the parapet and tanks could have fallen inwards. Alternatively if they'd fallen outwards they would have gone down through the Bells building.

Q. I see. And just in relation to that photograph where the man is standing. Is that part of the scaffolding that was put up, that he's standing on?

A. No, that is actually a separate scaffolding exercise that we completed. That scaffolding is actually on top of the Bells building roof, so those works were undertaken as a final stage.

Q. Would you see if you look at the gentleman's feet, and coming out of the photograph towards us, there's a gap there. Is that the gap that was between the west wall of the subject building and the Bells building. Is that about the size of that gap?

A. Yes it is.

QUESTIONS FROM COMMISSIONER CARTER – NIL

JUSTICE COOPER:

Q. This inspection that you carried out, I understand of your own initiative, was before you commenced the works. Is that right?

A. Yes. That's correct.

Q. And was there scaffolding already there, to some extent?

A. I don't recall exactly. I think the scaffolding was erected after the inspection.

Q. I see.

A. If there was scaffolding it was at the very far end of the building on the northern side.

Q. Down Manchester Street.

A. Yes. I'm hesitating on that because I know Mr Claxton was proposing to undertake the painting work.

Q. Presumably you had to be concerned for the safety of your own employees under the Health and Safety legislation. Is that right?

A. Yes.

Q. Would that be part of the reason for carrying out such an inspection of your own volition?

A. Yes it would. I'd emphasise that this wasn't a unique circumstance. It was an approach we decided to take simply because we were sending our staff into potentially dangerous situations.

Q. Well my question then is, what was the extent of that inspection in terms of coverage of the building? There was obviously damage that needed to be attended to on the southern part of the building but did you inspect the whole of the building?

A. The intention was to treat it as a fresh inspection, given the reality that Opus had already completed an inspection that we were referring to.

Q. Yes.

A. I would suggest that we probably didn't undertake it on a fully rigorous basis which you would do if you were being commissioned.

Q. Yes.

WITNESS EXCUSED

MR LAING CALLS**STEPHEN JAMES MCCARTHY (SWORN)**

Q. Your full name is Stephen James McCarthy?

A. Yes it is.

Q. You are the Environmental Policy and Approvals Manager for the Christchurch City Council?

A. Yes I am.

Q. And you've been in that position since 1 May 2006?

A. That's correct.

Q. Could you start reading your brief of evidence at paragraph 6 please?

WITNESS READS BRIEF OF EVIDENCE

A. "On 5 September 2010 a level 1 rapid assessment was carried out and the building received a green placard. The Council has no record of any further assessments being carried out on the building following 5 September 2010."

Q. Could you pause there please. You're of course now aware that both Opus and Maxim carried out level 2 assessments?

A. Yes, and those are not on our records.

Q. Yes, thank you. Could you just recommence from the second sentence there, level 1?

WITNESS CONTINUES READING BRIEF OF EVIDENCE

A. "The level 1 rapid assessment on 5 September 2010 did not recommend the level 2 assessment or a detailed engineering evaluation, but all buildings that had a level 1 rapid assessment had a level 2 rapid assessment. The process that was used to determine which buildings were to receive a level 2 assessment is detailed at page 13 of the Council's report into building safety evaluation processes in the central business district following the 4 September 2010 earthquake. The Council's report. I understand that the Council has not located any records which suggests that the owners of building had instructed their own engineer following the 4 September 2010 earthquake. I understand that the Council has not found any Council records to indicate that the

building was assessed after the Boxing Day earthquake. The assessment process following the Boxing Day earthquake is detailed at page 31 to 32 of the Council's report. The building was considered to be a possible earthquake prone building in terms of the definition of section 66 of the Building Act 1991, as it was built from unreinforced masonry. The building was noted in the Council's records as such. The Council files indicate that the work was done in the 1960s and 1970s to remove parapets, add a concrete bond beam, tie the roof and floor to the walls and add a concrete frame to the wall opening on the ground floor. Correspondence on the file dated 1983 indicates that this work meant the building was considered as adequately secured in terms of section 624 of the Local Government Act 1974."

- Q. Just pause there please. I'm now going to ask you to look at series of documents that you have provided to me. The first of them is BUI.MAN255.002.2.

WITNESS REFERRED TO DOCUMENT

- Q. The quality of this is not good Mr McCarthy, but it is a letter from Powell Fenwick and it's addressed to somebody who could be, this could be Mr Keith or some name like that, Royds, or, we can't quite tell.

A. Yes.

- Q. But I'd like you to look at the third paragraph. You see there "the following is a basic summary of the work necessary: remove parapets and chimneys, replacing parapets with concrete or filled block band, see our previous drawing 4583".

A. Yes.

- Q. And down the bottom at the bottom of the page, "copy for City Council or engineer's department".

A. That's correct.

- Q. Now the next document I'd like to refer you to is .002.3.

WITNESS REFERRED TO DOCUMENT

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- Q. And this is a Christchurch City Council document and refers to 255 Manchester Street.

- A. Yes it does.
- Q. Now do you have any idea as to whether 255 Manchester Street could also have been known as 265 Manchester Street?
- A. Certainly I believe from reviewing our file that this building permit applied to the address that we're looking at today.
- Q. And this is, in fact, Notice of Approval of the building permit application.
- A. Yes it is.
- Q. And under the heading of 'Conditions', 'Following Conditions', can you read that please, one?
- A. "A new concrete capping band being returned at least three metres along the north and west walls and anchored back at least three metres to the cross walls."
- Q. Yes thank you now can I take you down to the bottom of the page please, it should be enlarged. See there Mr K Royds as being the person who the letter is copied to.
- A. Yes.
- Q. Now the next document is 0002.4. Unfortunately it's very indistinct but can you tell me, let's get the top half of the document enlarged to begin with please. You'll see on the left-hand side a reference to detail of capping.
- A. Yes.
- Q. You see that, and we move across the page. Is that the beam that you understand was being installed?
- A. Yes and I believe that's consistent with Mr Claxton's understanding that there's four reinforcing bars running through that capping piece.
- Q. And if we could go down to the bottom of the form, plan I mean, and you see the words at the bottom, if you could perhaps enlarge it, 'New parapet to building at corner of Gloucester and Manchester Streets, Mr Keith Royds'.
- A. Yes.
- Q. And another similar plan, if I could ask you to refer to that is 0002.5, next document. Now if we could enlarge the right-hand bottom corner,

bottom part of the corner. And you see there 'Alterations to building at corner of Manchester and Gloucester Streets, Christchurch'.

A. Yes.

Q. And towards the right bottom you'll see a stamp there: 'Christchurch City Council' – I can't read the next line but – '5 November 1976 for City Engineer'.

A. Yes. Might I just refer to the fact that there's, to the left of that diagram there's some concrete columns and beams that have been installed I think to open up the tenancy, that's probably the Map World tenancy.

Q. Could you use the mouse please. It might be useful to... if you could just use that to show.

A. The left-hand side of the diagram and I guess its Gloucester Manchester Street corner, three-quarters of the way across the diagram there's a new concrete frame shown where I'm indicating with my mouse but there also appears to be a beam between two columns immediately to the right of that and that would appear to be to open up that tenancy.

Q. Finally, if I could ask you to look at 0002.1. Now on this one virtually all of the addressee block of the letter has disappeared but can I ask you to look at the first of 255 Manchester Street and you've already commented that that almost certainly is a reference to 265.

A. Yes.

Q. And can you just read the second paragraph of that letter please.

A. "In its current condition the building is regarded as having been adequately –"

Q. Sorry the previous paragraph please, sorry.

A. "The building was secured in 1976 under two building permits which included the removal of the street wall parapets and construction of a reinforced concrete bond beam at roof level, the attachment of the first floor and roof trusses to the load bearing masonry walls, the introduction of one laterally placed reinforced concrete frame on the ground floor and re-roofing of the entire building." Shall I carry on?

Q. Yes please.

- A. "In it's current condition the building is regarded as having been adequately secured under the terms of s 624 of the Local Government Act to prevent sudden collapse in a moderate earthquake. It is not regarded as having been fully strengthened sufficient to preclude damage to the building in a moderate earthquake".
- Q. Yes and to the best of your knowledge is that letter from 1983, from your own research?
- A. Yes it is.
- Q. So can I ask you then to return to your evidence at paragraph 12.
- A. "There is no record of any other earthquake strengthening work being carried out on the building. Therefore, as the work was carried out in the 1960s and 70s it would have continued to be regarded as a possible earthquake prone building."
- Q. Do you want to add a word there?
- A. Yes please – 'building'.
- Q. 'Building' after earthquake prone.
- A. "– on the introduction of the Building Act 2004 and for the purposes of the Council's earthquake prone building policy 2006. I understand that the Council's records indicate that no inspection or assessment was carried out by the Council in terms of the Earthquake Prone Building Policy 2006. After the commencement of the Earthquake Prone Building Policy 2006 if a building consent application for a significant alteration had been received the building application would have been dealt with in accordance with the policy (see in particular s 1.7), however no such building consent application was received.

JUSTICE COOPER ADDRESSES COUNSEL

COMMISSION ADJOURNS: 12.58 PM

COMMISSION RESUMES: 1.45 PM**STEPHEN JAMES MCCARTHY (REAFFIRMED)****CROSS-EXAMINATION: MR ELLIOTT**

Q. Mr McCarthy, I've asked you this before but you're here in your capacity as a representative of the Christchurch City Council answering questions about its conduct over the years.

A. Yes.

Q. And as before none of my questions are directed at your personal conduct but rather at the position of the Council generally. The questions I have for you today are similar to those which I've asked you in previous hearings, but Mr Smith's family have taken the opportunity to read the documents which were available before the hearing and have some questions which they'd like you to clarify so they can understand some of the history of this building and the Council's actions over the years. Starting firstly with a document I think Mr Laing had been referring you to, BUI.MAN255.0002.3.

WITNESS REFERRED TO DOCUMENT

Q. The middle section could be highlighted where it says the building permit application is approved, subject to the following conditions. That says, so it's a condition of the building permit application that the new concrete capping band be returned at least three metres along the north and west walls and anchored back at least three metres to the crossed walls. This is a question really arising from Mr Smith's enquiries and he'll address this in evidence. You may not be able to answer it but he will say that it appears to him to be difficult to anchor back at least three metres to the cross walls given the detailing on the plans. Can you comment on whether or not that anchoring back was effected?

A. I can't specifically say. I can only assume that that would have been done, but from the detailing I've seen I can't confirm that.

Q. Was there any final inspection process during that era?

- A. Generally jobs, there would have been a final inspection of sorts but there was no formal signing of permits in those days, so the job would have been finalised to a degree but there was no code compliance requirement at that time.
- Q. So a Council officer would not necessarily have gone into check whether the condition required by the application was fulfilled by the builders?
- A. That's correct. The only thing I can perhaps contribute is based on Mr Hamilton's evidence that the concrete beam seems to have extended round the western wall, albeit with bricks on top of it and it's been suggested to me that those bricks may have been put on top of the concrete beam as some sort of fireproofing, separation between the Bells building and this building that we're talking about, so, but Mr Hamilton's evidence I think was that the beam went certainly around that western wall.
- Q. Is it possible that there are any other Council records that you could look into afterwards that might help to clarify that point?
- A. We've done a pretty exhaustive look at our records and what we've, I think what we've provided to the Commission is as much as we've got.
- Q. Thank you. The next document is BUI.MAN265-271.0001.1. This is the seismic risk survey carried out apparently in 1991.

WITNESS REFERRED TO DOCUMENT

- A. Yes.
- Q. Are you familiar with that?
- A. Yes I am. I've looked at it.
- Q. So I'll ask for a section to be highlighted in a moment, and just before I do this appears to confirm that the building was inspected in November 1991. Do you agree with that?
- A. Yes.
- Q. And is it correct that the Council's estimation of construction date was about 1907? That appears in the –
- A. Yes it does. It doesn't entirely accord with what the owners or some of the evidence today, but around about the early 1900s, yes.

Q. In the bottom left-hand corner if we could enlarge the section under 'structural'. So the person carrying out the assessment has ticked 'fair' in terms of the structure.

A. Yes.

Q. Noted some securing in 1976, I think that says interior?

A. I think it might say interim.

Q. Interim?

A. Yes.

JUSTICE COOPER:

That's as I read it too.

CROSS-EXAMINATION CONTINUES: MR ELLIOTT

A. On the little one sure, but I read it as interim.

Q. I see so was the securing referring to the parapet area, do you think?

A. I think it was more broad, and didn't recognise that as much strengthening had occurred as actually did. That would be my observation from that.

Q. Do you know why that would be described as interim on this document?

A. I would imagine that they were looking in the future for further strengthening and certainly that was right through the 70s and 80s and indeed the 90s. The Council was looking to encourage owners to further strengthen their buildings.

Q. This document notes strengthening due in 1997. Why would that have been?

A. The record that, and some of the correspondence that I've seen on the file dating back to that was, they wrote to the owner and they said, look we recognise this doesn't bring it fully up to code, it brings it up to half of the then 1965, NZS1900 standard, or thereabouts. And they wrote to the owner and they said, in guidance terms, what we'd like to do is guide you to a further strengthening exercise in 20 years time, and so that's what you should be providing for, and so it was for, I think that notation was all about guiding them to doing further strengthening work.

- Q. And the parapet removed, BP, that would be building permit, refers to the evidence you've already given?
- A. Yes it does.
- Q. So the person who did the assessment categorised it as B?
- A. Yes.
- Q. And under that classification remedial action would be recommended within two years on that particular building?
- A. Yes.
- Q. But it appears that there was no further strengthening carried out on that building after that time right up until February 2011?
- A. Yes, and I think the evidence that the Commission has heard before is that the 1991 Building Act overrode some of these considerations. It became quite difficult for the Council in the sense of being able to push owners to actually undertake further strengthening work, so the legislation at that time said an unreinforced masonry building, that is has under 50 percent of the – at 1965 NZS standard, is considered to be earthquake prone. This building in fact was probably above that standard or thereabouts and so legislatively it became quite difficult to enforce from the Council's point of view. What we did was to continue on with these assessments right through to 1993 because the Council wanted a representation of its building stock at that time with the future in mind that there was going to be further strengthening required of all unreinforced masonry buildings.
- Q. I see, so there were some legal impediments which the Council felt, meant that it couldn't require owners to strengthen in particular cases?
- A. Yes, you've summarised what I said rather more succinctly.
- Q. And in fact the Council I think has filed a brief of evidence giving a lot more detail about that?
- A. Yes and that will be presented I think to the Commission at a stage in the future.

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- Q. Yes, but you do say that there, despite that, there were still some attempts on the council's part to persuade owners throughout the years to upgrade?
- A. Yes, there was, yes.
- Q. But not in this case, as far as you're aware?
- A. Ah, no.
- Q. Turning to the 2006 earthquake prone policy. Seeking here again, we've talked about this before but to give a bit more explanation around that and its effect.
- A. Yes.
- Q. Firstly, the 2006 earthquake prone policy was developed by the council as a result of the enactment of the 2004 Building Act which required it to formulate a policy?
- A. That's correct.
- Q. But I take it, it would have had some policies about how to deal with earthquakeprone buildings the 2004 Act came into force?
- A. Yes.
- Q. Was that policy articulated in written form?
- A. It was encapsulated in the Building Act at that stage in 1991 Building Act which said if there was a change of use then the council could compel building owners to upgrade to 100% of the then code. In addition to that where a significant structural alteration was being effected to a building we would require the building to come well above the building code requirements at that stage so that was our approach and it was supported by the legislation.
- Q. The effect of the 2006 earthquake prone policy was that there was no legal requirement for an owner to upgrade unless they filed an application for a building consent for change of use or for a significant alteration. Is that right?
- A. That's correct.
- Q. And that didn't happen in the case of this particular building?
- A. There was no such application. It wasn't until 2010 where the council reconsidered its policy and decided to impose time frames for different

types of buildings to get them up to above earthquake prone status and in fact the target then became 67% of the new building standard.

Q. The effect of that was that an owner could essentially refrain from seeking to change the use or carry out an alteration to the building if they wanted to avoid the obligation to upgrade. Is that right?

A. That's correct.

Q. We've discussed this once or twice before as well, but again just to assist Mr Smith's family in understanding the council's position at the earlier hearing on unreinforced masonry buildings, the mayor of Christchurch said that that policy, and I'm quoting from the transcript 20111114.38, "That policy was put into place in 2006," and has already been described this morning, "It could be called a relatively passive approach in that bringing of earthquake prone buildings up to the standard that was proposed at the time of 33% of the new design compliant buildings was really only initiated at the point at which there was a major re-build or renewal, renovation on a building or a change of use. That obviously with the benefit of hindsight seems to be entirely inadequate but that was based on the clarity of understanding which we had of both the legislation and of the seismic environment that we existed in at that time." So that's the council's position on that policy as articulated by the mayor to this Commission. The mayor referred there to the seismic environment that we existed in at that time, and am I correct that that environment was in fact described in the 2006 policy itself as saying, "That the city lies in intermediate seismicity zone some distance from a zone of high activity associated with the alpine fault. However known earthquake sources in particular the Ashley, Springbank and Pegasus fault zone exist within the region and are large and close enough to cause significant damage throughout the city."

A. Yes, that was very much based on GNS report that we received in 2005 and at that time that was the best of our knowledge that was the authoritative report that we based our policy on.

Q. And at the time that policy was adopted the council was obviously aware that it had a stock of unreinforced masonry buildings and in fact the

policy says that the city buildings comprise a range of types reflecting steady development over more than 100 years and range from wood, unreinforced masonry and brick buildings to more modern multi-storey steel and reinforced concrete buildings. Refurbishment and redevelopment for new uses has meant some of the unreinforced masonry and brick buildings have undergone some levels of strengthening?

A. Yes.

Q. So and as part of that policy the council decided to carry out an initial desktop evaluation to determine which buildings might be earthquake prone?

A. Yes.

Q. And then when it come to re-assess its policy in 2010 it would make a decision about what to do with those buildings?

A. Yes. Can I add, just so that –

Q. Yes of course.

A. – people fully understand. We were successful for the, I think, something in the order of 340 buildings were upgraded in through the 70s, 80s and 90s to a, with a form of strengthening. So parapet, it might have been as small as parapets being pinned or some level of strengthening. So there was quite a bit of activity through that period. A lot of it was driven by the development community so the council encouraging that work to occur but obviously people were progressively upgrading their buildings as well. Not always to the new building standard, sometimes it was just as pinning the parapets, or removing hazardous elements of the building but there were many hundreds of buildings upgraded during that time.

Q. During the desktop assessment contemplated by the policy, the council could have picked up the file on this building we're looking at today and seen the seismic survey carried out in 1991 and ascertained pretty quickly that this was potentially an earthquake prone building, could it?

A. Certainly by 2006 it was clearly under 33% of the new building standard so it would have been earthquake prone really.

- Q. Would you agree that one of the areas of inadequacy of the policy was say a failure to act immediately at least upon, at least in relation to unreinforced masonry buildings from 2006, given that they could be readily identified?
- A. In hindsight we would have, as the mayor has indicated, we would have liked to have moved quicker but the strengthening of these type of buildings it does it takes time. It requires obviously economic input, money. It requires designs, and the shifting of tenants out so that strengthening work, and I'm not trying to find excuses I'm just explaining that the years go by when you're doing those types of works and so the realistic timeframes for doing this, or compelling owners to do this sort of work are often in the 10 years, 15, 20, 30 years. They're actually quite long timeframes to get this done collectively across a whole city. I think we had something in the order of 980 unreinforced masonry buildings in the city prior to 2010, September 2010. So that's the picture that we were working with.
- Q. Who was the mayor at the time that policy was adopted?
- A. It was Garry Moore.
- Q. The owner of this property that we're talking about today gave evidence, I think, that there had been no notification from the council about the potentially earthquake prone status of the building. That would be consistent wouldn't it with the council's position which was that it was not notifying owners of that by course?
- A. When he bought the building, presumably his solicitor asked for a LIM report and it would have been clearly identified that this was a possible earthquake prone building under the 1991 Act. We went out in 2006 to the community and said we've got earthquake prone policies that we're reviewing and then in 2009/10 we wrote to all owners of all earthquake prone buildings or possibly earthquake prone buildings in the city and that involved us writing to around about 6500 owners. So all owners were then told about the policy and as a potentially earthquake prone building owner they would have received some sort of notification.

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- Q. But they wouldn't have been required to do anything.
- A. That's right.
- Q. And I think, for completeness, the Council also would have included that on the Lim report, which was a permanent feature of the Lim report, was it?
- A. Yes, yes.
- Q. Turning, finally, just to the inspection process following the 4 September earthquake and during the aftershock period.
- A. Yes.
- Q. So you've given evidence that there was a green placard allocated to the building.
- A. Yes.
- Q. Would that have been based upon a level 1 or exterior assessment?
- A. Yes it would.
- Q. And I think I'm correct in saying that the green placard says no restriction on use or occupancy as a heading.
- A. Yes it does.
- Q. So the effect of that on this and other buildings would have been that the building would be open and would remain open and there would be no further inspection unless the owner, or some representative of the owner, initiated one?
- A. That's right, the placard clearly says no restriction on occupancy. We recommend you do get an engineer to do a further check of the building so it shifts the responsibility back to the owner to undertake that work. The exact wording is –
- Q. I think I should point out the Notice does say "Owners are encouraged to obtain a detailed structural engineering assessment of the building as soon as possible. Report any unsafe conditions to the territorial authority. Subsequent events causing damage may change this assessment. Re-inspection may be required. Secondary damage may be hazardous. Electrical and mechanical equipment, gas connections, water supplies and sanitary facilities have not been inspected".
- A. Thank you.

- Q. It appears in this case, although the owner appears to have had a very proactive loss adjuster and that there were seemingly three inspections that they were all level 2 inspections and no, sorry level 2 and one level 1, and so no detailed assessment was done. It's the Council's understanding of the position as well is it?
- A. Yes it is.
- Q. And there was no inspection of this building after the Boxing Day aftershock.
- A. That's correct.
- Q. In your evidence you referred to the reason for that and you referred to the Council's report but, again, for the sake of Mr Smith's family could you just briefly summarise what the reason for that was.
- A. So the Boxing Day earthquake was whilst it was centred close to the centre of the city it was, I think, 4.7 magnitude earthquake, it caused some consequential damage to some buildings and the Council, at that stage it was Boxing Day, we were in holiday situation, limited resource. We focused on those buildings where there was obvious damage and we issued some Building Act Notices to the owners of those buildings. So where there was clear damage or reports of damage that's what we focused on. We went to the news media and we said, look we would encourage you as all building owners to get their buildings re-assessed prior to allowing occupancy again or for their own tenants' purposes and a lot of owners got that done.
- Q. So by 22 February the position in relation to this building, it seems, was that there had been one level 1 assessment, two level 2 assessments.
- A. Yes.
- Q. No detailed assessment.
- A. Yes.
- Q. But that it was a building of perhaps 100 years or so old, potentially earthquake prone and unreinforced masonry.
- A. Yes.
- Q. Would you agree that a detailed assessment of the building by an engineer could have yielded information about the capacity of the

building, for example the owner could have been told well your building is 10 percent of code and it may fare in a particular way during aftershocks of a certain force.

A. Yes.

Q. Would the Council agree now that it would have been better for this and other unreinforced masonry buildings to red sticker them until that type of detailed engineering assessment was carried out?

A. At the time in the circumstances we didn't do that. Like the engineers we expected a diminishing magnitude of aftershocks. If we'd known what we know now of course we would have acted quite differently but at the time, with the knowledge we had, we made some decisions and allowed the continued occupancy of buildings that were brought up back to the state they were in pre-September 4, 2010, yes.

Q. One of the features of the evidence today is that it has been focused to some extent on the southern area of building where there appears to have been more damage and less so on the northern where, in fact Mr Smith died, but the reason for that was that there were damaged-based assessments carried out by the Council and others.

A. Yes. I walked past that building often on my way to survey the demolition work on 160 Manchester Street so I used to go down there weekly. At the time I looked at the Map World building and I, personally, didn't consider it to be a risk. Just as a pedestrian, as a passer-by, I walked past and I looked at that building and I thought that building has remained remarkably undamaged through all of the aftershocks. So that was my personal observation.

Q. Finally, again you've addressed this to some extent before but Mr Smith's, one of Mr Smith's recommendations about the rapid assessment process: "there would appear to be a need for a central authority to assess the likelihood of a severe aftershock following any significant earthquake, say with a magnitude 6 and above" – I'm not sure if that particular feature of the recommendation has appeared before but Mr Smith can explain that – "and determine the minimum strength requirements for occupancy of unreinforced masonry buildings

in the period following a significant earthquake”, and the Council’s position on that recommendation?

- A. I think the Council would accord with Mr Smith’s recommendation in that regard. Certainly we’ll be making submissions on those types of issues and the Council is currently deliberating over exactly those types of issues.

CROSS-EXAMINATION: MS PATTERSON – NIL

RE-EXAMINATION: MR LAING - NIL

COMMISSIONER CARTER:

- Q. Just in respect to the fire protection provisions and the need for parapets. Are those requirements still part of the building requirements in the city? You know where you’ve got adjacent buildings with certain amounts of separation needed for fire reasons.

- A. I think the risk is the fire gets through the roof and so there needs to be some sort of physical barrier between each building and there would certainly be a requirement to have some sort of fire protection. Not necessarily made of bricks but some sort of fire protective mechanism between the respective buildings.

- Q. Did that also used to apply to party walls within the same buildings?

- A. Yes.

- Q. So that adjoining neighbours could have that protection.

- A. Yes, that’s the reason why party walls will often, had to go up to the, through the roof often and certainly to the underside of the roofing material, so that the complete apex was secured as well from fire spreading from one building to another.

- Q. Was that ever breached with the removal of parapets because of prospective danger through parapets falling? I mean when the Council approved the removal of a parapet did they then –

- A. They, they, yeah, no, you make a very good point and I’m a little unsure of that but, clearly, the removal of parapets did require a building consent so consideration would have been given to that type of issue.

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QUESTIONS FROM JUSTICE COOPER – NIL

QUESTIONS ARISING - NIL

WITNESS EXCUSED

MR ELLIOTT CALLS**PETER SMITH (SWORN)**

Q. Your full name please?

A. Peter Colin Smith.

Q. And you prepared a report for the Royal Commission dated January 2012?

A. Correct.

Q. I relation to this building. And on the front I think it refers to 255 to 271 but it was actually 265?

A. I believe yes that's right.

Q. I think there's reference in some council's documents to 255 as well. I'm just going to have a photograph brought up on the screen of the building in its post February state. And firstly I'm going to ask you just about the way that the building failed on the 22nd of February and in particular if you can describe that region above 269?

A. Yes the building is essentially of unreinforced masonry construction. Looking at that photograph it appears that the upstairs wall is of timber construction so that whereas behind each of the columns on the ground floor which are made of masonry there is a wall that goes back in through the building. It appears on the upper floor that the walls were of timber construction.

JUSTICE COOPER:

Q. The ground floor walls were bricks were they?

A. Yes that's certainly my understanding and, but they didn't penetrate above the first floor. There was a similar layout of timber walls above first floor level which supported a timber frame roof. In our report we, some of the earlier information we had led us to believe it was a tile roof. In fact it's a I think a lightweight metal tile roof that had been placed on the building as subsequent information. So the façade which went above first floor level probably had very little connectivity into the roof framing or ceiling framing at first floor level or to the timber partitions.

It's clear enough that the timber element which was up against the wall has remained in the position so there was very little connectivity I believe with that timber.

EXAMINATION CONTINUES: MR ELLIOTT

- Q. Just to explain that a bit more, when you say façade are you talking about a brick wall?
- A. I'm talking about the brick wall facing in this case Manchester Street which if you look at the pre-earthquake is the quite ornate façade which was of unreinforced masonry construction.

JUSTICE COOPER:

- Q. And a single layer of bricks?
- A. No I suspect it would be at least double.

EXAMINATION CONTINUES: MR ELLIOTT

- Q. And what did you mean by connectivity?
- A. Well if you are to restrain that façade from falling outwards you would need to have regular fixings from the façade into the timber partition and for that timber partition to have some integrity to restrain the masonry against base loading which the Christchurch earthquake in February demonstrated just how vulnerable the poorly secured façades are and how dangerous they are to public safety.
- Q. Did you infer that this façade was poorly secured?
- A. By observing the failure, the photos of the failure, it is apparent that the façade has been very poorly secured, and I think if you look at the details of the parapet, there was, I do note some concern over those, if you want to –?
- Q. Can we come back to that. We'll talk about the parapets in a moment. Just on over the securing, would it have been possible to examine the state of the securing if any by a visual assessment?
- A. During the level two assessment all that an engineer could observe would be any movement between the façade and the partition which would appear as a crack at the junction of the timber partitions that go

back into the building and the front façade. It's interesting that the directionality of the September earthquake could potentially have loosened the façade because it came from the east-west direction. From the evidence we've seen there doesn't appear to have been any significant separation of that façade under that particular earthquake.

Q. We've heard some evidence about some potential damage in the arch lintel.

A. Yes.

Q. Would that have been significant to you?

A. No I think any damage needs to be thought through as to what mechanism is behind the damage. On the south wall the crack which appears through the openings close to the west end of the south wall. Can we have a quick look at that? Maybe I think it's WIT.MOH.0001.5. Sorry that's other side sorry. I need one of the south wall.

Q. What do you need? South wall?

A. Yes.

Q. BUI.MAN265-271.0001.15. On the left-hand photograph?

A. Correct.

Q. Taken by Mr Hamilton I think.

A. Thank you. The damage which we've heard about was located above the arch window and below that arch window which connected with a doorway down at the ground level. Cracking through that area does raise concerns over the stability of the west wall because it does mean it's starting to separate from any support that that wall would have from the south wall and it allows a potential failure zone which could allow an outward rotation of the west wall, so all cracking needs to be really thought through in terms of just how it affects the performance of the building in an earthquake in either direction.

Q. If we return to the photograph of 269 please? 0001.33. So you've described the mechanism of failure, and is the effect of it that the wall at the upper level has rotated, fallen outwards across the footpath and at least the first lane of the street?

- A. That's correct. Perhaps if we look at photo BUI.MAN271.0001.8 which is taken closer to the tragic event.

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JUSTICE COOPER:

It's 0001.8.

EXAMINATION CONTINUES: MR ELLIOTT

- Q. Firstly before you comment on this, His Honour was asking earlier on about when that might have been taken. Did your enquiries give you any information about that?
- A. No, we don't know exactly when it was taken. It is probably after the initial USAR recovery, but it probably represents as close as we would have record of the failure.

JUSTICE COOPER:

- Q. There's a woman there in high heels and boots.
- A. Yes.
- Q. Who looks like a member of the public to me.
- A. Yes.
- Q. What do you infer from that?
- A. This could easily have been taken soon after the event. One thing that concerned me about the photo was the – it appears that the parapet which was – when they removed the brick parapet and built the concrete one, it may well have been that concrete parapet which stayed together as an element which hit it, contributed towards the fatal death.
- Q. Yes. And as we see it, it's been lifted off the car.
- A. It may or may not be, if it was taken after the rescue and the car doesn't – it almost looks as if that was straight after the earthquake, even before recovery, but I may be wrong. Very hard to tell Sir. I thought the car would have been cut to pieces, cut up more to extract the body. But essentially the façade above first floor level has rotated out including the parapet and fallen tragically on the side of Manchester Street and over the vehicle.

EXAMINATION CONTINUES: MR ELLIOTT

Q. Thank you, are there any other comments you'd like to make about the mechanism of failure of that wall?

A. I don't believe so. It's obvious from that the photograph that the north wall has equally collapsed outwards into that right-of-way.

COMMISSIONER CARTER:

Q. Mr Smith, the other diagram you showed us, you showed in your report the direction of the earthquakes in September and then in February, and it seems almost counter-intuitive that the east wall collapsed when the forces were more directed north and south. Do you have any observations on that?

A. Yes, sir and I don't believe you were present when we did, it was Joe's Garage hearing.

Q. Yes.

A. And there was a video which you may wish to review of the Landrover which was parked on the side of the road, and that video demonstrated the initial rocking was of a – I think an east-west direction and then it quickly changed to being both vertical acceleration and rocking in the north-south, and if you watch that vehicle it actually demonstrated the unusual characteristics of this particular February earthquake.

Q. So it would be possible that the wall fell in the first pulses of the shake were more east-west orientation?

A. Yes, possibly I suspect the vertical acceleration later in the earthquake may well have been a big influence. We've seen a large number of upper storey walls collapse as a result of that vertical acceleration or initiated by that as well as the reasonably severe lateral shaking, but I do believe that it has been a feature of the failures that occurred.

Q. And we know that the east-west pulses that were certainly occurred in September were not large enough to cause, you know, extensive damage to the point of collapse.

A. Indeed.

Q. As happened in February, so something happened.

- A. Yes indeed.
- Q. And was vastly different in February to what –
- A. Tragically the February shaking was extreme and it – whether this building had been strengthened or not may not have saved the collapse that finally occurred because of the severity of the shaking.

JUSTICE COOPER:

- Q. But the truth is that for whatever reason the earthquake, the energy generated by the earthquake can actually change direction, as that Joes Garage footage?
- A. Indeed it can, you get reflections, it's very complex. When it's shallow and underneath the city of course you get a much more complex action I believe and I understand the scratch plate, which is a mechanism of sort of tracing what's happening to the ground, was quite confused, whereas and often it will be sort of linear movement. This was quite large movement in both directions.
- Q. In all directions, yes. So these arrows that you've given us on the site map are – they're simply showing –
- A. The direction of the epicentre.
- Q. The direction of the epicentre.
- A. That's all.
- Q. How the earthquake was actually behaving on a particular site –
- A. It doesn't.
- Q. – is not so definite.
- A. It was more meaningful in September and I think while we're talking about that issue I think one of things about the assessments is that often an earthquake is directional and it's not to say that an aftershock won't – will have the same direction so buildings that have some strength in one direction but are weak in the other may well be fatal in the subsequent event which just comes from a different angle.

EXAMINATION CONTINUES: MR ELLIOTT

- Q. How that vertical accelerations. Do you think they played a role here as well?
- A. Yes I do, I believe it was significant the amount of vertical acceleration that occurred and we've seen across the city the upper floor of unreinforced masonry buildings very seriously affected.
- Q. So does that mean that the brick wall which is just bricks and mortar is thrown up and a tension also in different directions almost simultaneously –
- A. Bricks aren't underneath it when it lands, it – there was inertia involved too, to complicate that whole interaction.
- Q. Can I ask you why or how?
- A. It's just the response of the building and the result of the building moving with the ground and transferring the inertia to heavy elements.
- Q. I see so forces are thrown around the building, or transmitted through the building.
- A. Energy, there's a lot of energy involved in going on, transferring around the building as the result of an earthquake.
- Q. You wanted to comment on the parapet. Is that right?
- A. Yes.
- Q. And are you referring to the parapet it would seem, or the concrete beam which is sometimes referred to as a parapet hanging from the edge of the building, or are you talking about the historical removal?
- A. Talking about that whole process if possible.
- Q. All right, can we start with the 1976 –
- A. Could I start – I've got a series of documents if it's possible to go through.
- Q. Yes.
- A. The first is BUI.MAN265.002.2. I think I've got enough zeros. These are the documents which you've just introduced as part of Christchurch City Council's –

JUSTICE COOPER:

Q. By Mr McCarthy?

A. Yes. That's right.

MR SMITH CONTINUES:

A. It's interesting that that letter which was from a consultant has commented about "removing the parapets and chimneys, replacing parapets with concrete or filled block band, fix roof and ceiling framing to brick walls adequately to transit shear forces, and add bracing in ceiling. Fix first floor framing adequately to brick walls, and add three eight or half inch ply or particle board diaphragm over the whole of the floor or ceiling, nailed at approximately three inch centres to existing joists". If we go on I get the impression that a lot of that work didn't actually occur, but it is only an impression.

We can have document 2.3 please. That's the building permit and it's of interest to note that "the new concrete capping band being" in notes down under one, half way down the page, "the new concrete capping band being returned at least three metres along the north and west walls and anchored back at least three metres to the cross walls". Now I suspect when that was written the City engineer expected the cross walls to be masonry, and because they weren't, in fact no action was made to secure the parapet back.

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We'd probably go now to 2.4 and I think the, if you look at the original parapet which was quite tall, clearly it was preferable to remove that but the new parapet, which is reasonably significant, is sitting up on a fairly narrow band of brick work above the wall which is shown I think in that sort of width below the gutter. So, really, along that relatively long frontage to Manchester Street, that parapet was not particularly well restrained and I can see why the City Engineer was keen to see that secured by returns onto what they thought at the time were probably masonry walls. It's unfortunate, maybe, that that was not secured back at least onto the timber walls with some strengthening to hold it because

along that quite long façade to Manchester Street that bond beam had very little restraint.

JUSTICE COOPER:

Q. So what was restraining it?

A. Just gravity.

Q. Just gravity?

A. Yes, and it's off centre, it's not even symmetrical on the support so, you know, it had a tendency to tip before it was shaken.

Q. And if I'm following the diagram if it was going to tip it was going to be into the street.

A. The odds were it would go to the street, yes sir.

MR SMITH CONTINUES:

A. Um, if we can now go to 2.1 and if we could enlarge the first paragraph I think it is, well first line second paragraph. It says "the building was secured in '76 ... which included the removal of the street wall parapets and construction of a reinforced concrete bond beam at roof level; the attachment of the first floor and roof trusses to the load bearing masonry walls; the introduction of one laterally placed reinforced concrete frame on the ground floor; re-roofing of the entire building". The work of securing the façade is not referred to. The work of placing an overlay over the first floor or providing a diaphragm at ceiling level is also not referred to, so it appears as if a lesser amount of work was done in '76 than was originally contemplated by Powell Fenwick.

And if we could look at the final document which is 2.5 please. Now this is where my eyesight fails me. There's a note just at floor level on the elevation centrally which has been crossed out and it does say 'not included' just above the doorway in the centre of the building. Whether that's note about diaphragm strengthening or not I'm not sure. I'm surmising rather than anything more than that.

JUSTICE COOPER:

- Q. What did you say the words were?
- A. The last two words I believe are 'not included' and signed by Brian.
- Q. Brian whoever?
- A. Yes whoever. Now because it's at floor level I'm surmising that it may have said something about diaphragm work but I need Egyptian I think to.... I think we can only conclude there's some uncertainty as to what work was done in '76.

EXAMINATION CONTINUES: MR ELLIOTT

- Q. If this work in securing had been done do you think it would have made a difference in terms of the performance of the building at 12.51 on 22 February 2011?
- A. It's very much surmising. It's probably unlikely that the level of securing that would have been done in 1976 would have been sufficient to restrain that façade under the level of intensity of shaking that occurred in February. We have seen buildings which had more recent securing of the façades fail. We've seen some that secured the façade. I think it depends a little bit on the quality of the masonry and the mortar that's used in the masonry as to their success.
- Q. Was there a particular reason why there would have had to have been a concrete capping band in place?
- A. It was fairly standard at the time to, I think they felt that by tying, putting concrete along there it helped to tie the façade and make it more integral. It was certainly a feature of parapet replacements that were done in the 70s and earlier.
- Q. So it was put on to help with tying back the façade when tying back may not have been done.
- A. The intent was to improve a hazard of the building and had it been tied back at 3 metre centres it may well have, or at least at every cross-wall, it may well have been more effective. You can see the length of that parapet on that elevation. It's a long length.

- Q. Wouldn't its efficacy have depended upon the connection between the beam and the wall and you've said it was only gravity?
- A. It's just been poured onto the brick work at that point.
- Q. I'm sorry?
- A. It appears to have been only poured onto the brick work. There appears to be no vertical connection tying it.

JUSTICE COOPER:

- Q. Mr Smith could you just illustrate the location of the beam on this plan?
- A. It runs along at that level, sir.
- Q. All along?
- A. Yes.
- Q. And what happens where, let's say for example, in the middle is that more ornamental feature.
- A. I suspect that's a build up of the beam. The beam starts at that level and I think they probably decided to put some ornate feature –
- Q. On the beam itself?
- A. – into the beam itself to improve the visual appearance of the building. As a matter of fact when you look at the photographs, sir, I don't think that occurred. Maybe that's the original.

MR ELLIOTT - WIT.MOH0001.6

- A. Yep that's the one.
- Q. It doesn't look like it, does it?
- A. I don't think, I think that's the original parapet shown there on that elevation sir.
- Q. But it says in the legend 'Elevation to Manchester Street (altered)' doesn't it?
- A. Correct.
- Q. Well, anyway, what's drawn there is not what it was like in September 2010.
- A. Correct.
- Q. So the beam we're talking about now with this photograph displayed you can see it quite clearly under the roof.

A. Yes just the white beam going across at roof level. It appears to be a totally consistent depth.

Q. And that photo also shows the point you were making, doesn't it, about it overhanging its supports underneath.

A. Yes.

EXAMINATION CONTINUES: MR ELLIOTT

Q. The other observation is that according to the photographs that beam seems to have come down in pieces as well.

A. Correct.

Q. And it's still hanging in part –

A. Yes in the south end its still hanging, attached to the southern parapet.

Q. Were there any further comments, Mr Smith, on that issue?

A. I don't think so.

Q. Or on the parapet issue generally?

A. No.

Q. So we'll just turn to your recommendations now and you make three in your report.

A. Correct.

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Q. Firstly, in relation to upgrading of unreinforced masonry buildings, you make the comment that the damage that occurred to the building demonstrates the risk that unreinforced masonry buildings pose to the occupiers of buildings and people in the vicinity at the time of a severe earthquake, improved public safety in a significant earthquake relies on territorial authorities adopting and implementing meaningful programmes, strengthening and upgrading of unreinforced masonry buildings. Could you –

A. Correct.

Q. – explain that please?

A. Correct. I believe that in the future it's much more likely that the severe shaking of any area will occur in the initial earthquake and not as an aftershock, and therefore if we are to try and reduce the risk of loss of

life in a future earthquake we do need to undertake the strengthening of these buildings to a standard which at least withstand a moderate and hopefully provide some resilience against a severe earthquake and the mechanism for doing that is in the earthquake prone building legislation.

Q. The territorial authorities have some discretion about what their policy says?

A. At the present time they do.

Q. And you're suggesting that their policy should be active?

A. I believe that there needs, most territorial, I think all territorial authorities should have a more active approach. Obviously economics come into it but it gets very difficult for small communities where the commercial demand for spaces is not great and the return on space is not great but at present many of those unreinforced masonry buildings do pose a significant threat to the public and to a lesser extent those that occupy the building. It's worth here recording I think that the façade failures were the most serious aspect of the failures. There were very few people who were actually killed within an unreinforced masonry building. It was almost inevitably the façade failure which killed someone who was outside the building.

Q. And even in those cases I think where some people were killed inside buildings it was because an adjoining unreinforced masonry –

A. Yes, came through.

Q. – building collapsed through the –

A. Exactly, yes.

Q. – roof.

A. If you looked at the cause of the failure, the people in the building that that related to were rarely killed.

Q. Secondly, you talk about the protection of public spaces?

A. Well I think that's a continuation of that that it really, if one of the key issues needs to move from parapets which is perhaps where the focus was back in the 70s to the entire façade of these buildings, whether it's façade to the street frontage or whether it's a façade or a wall that actually is above and alongside another building where the failure of that

wall in an outward direction would land on the roof of another building and potentially endanger the public or the people in that building, I believe those are the areas we should concentrate on strengthening and upgrading buildings.

Q. And finally, you've made a comment about the rapid assessment process?

A. I think it's easy to criticise. I wouldn't like to make the comment that I think the assessment process was a very efficient and very effective and had it not been for the severity of the February earthquake I think it served the community of Christchurch particularly well. It was the unexpected severity of the February event which I think gives us cause for review of that assessment process. I think that just because a building withstands the initial earthquake doesn't mean that it hasn't been damaged to a point that a subsequent aftershock could be quite fatal in which case I think the level 1 assessment really does not go far enough in protecting public safety. I think it's important that a level 2 at least is undertaken to identify if there is any separation of façades as a result of the first quake or any other damage which is potentially a risk that people that occupy or people that will move around the building. I also think that if it is deemed there is a high risk of a significant aftershock, sort of repeat of the Christchurch event, then we do need to be thinking of minimum strength before we allow people in and around those buildings and the occupancy of these unreinforced masonry buildings.

Q. You make the comment about the rapid assessment process focusing on damage?

A. Yes.

Q. And you describe there the reason or the underlying assumption. Would you just explain what that assumption was?

A. Essentially the rapid assessment process was based on the premise that if the building was undamaged as a result of the earthquake then it was safe to occupy and if it was damaged as long as the damage was attended to then the building could then be re-occupied. If the

aftershocks are to follow a descending magnitude in severity of shaking that probably is acceptable. If the aftershocks could potentially have a more severe level of shaking or having shaking from a different direction, I don't believe that does address public safety.

- Q. So your recommendation is that a central authority should assess the likelihood of a severe aftershock after an earthquake of greater than 6?
- A. Yes I think that it's probably unfair to expect the engineer to be the assessor of the likelihood of an aftershock. I'm sure there are better people whose focus is on understanding the mechanisms of ground movements and seismology who can better advise nationally on the level of aftershock which engineers should be assessing buildings for. I believe that engineers are very good at undertaking that assessment but I think that it's inappropriate that each engineer makes his own assessment of the likelihood of an aftershock and then assesses a building for that. It would be much more consistent if there was a consistent view as to the level of aftershock that could be expected.

JUSTICE COOPER:

- Q. I was thinking, Mr Smith, as we've been listening to these cases there would be merit in there being some sort of statutory obligation that might kick in when there's been a state of emergency declared after an earthquake which obliges the authorities to, or obliges GNS to give and the authority to receive, a statement to that effect which actually gives some sort of map, as it were, or indication which could then be used by the people carrying out emergency inspections and I think that's the sort of thing you're talking about?
- A. I believe that is worthy of consideration. I'm sure we would have got it wrong in Christchurch if we'd done it after the September event so I don't think there is certainty that it will be effective but I do think it's a more consistent approach and one which in normal circumstances would assist in reducing loss of life.
- Q. One might expect by the time there is another serious earthquake that more pro-active steps might have been taken with respect to the

unreinforced masonry building stock as well. There is a lot that should be done before earthquakes rather than reacting to them. What's your comment on that?

- A. I believe that is the most important action. That is where we will have more effect on protecting against loss of life is by securing or strengthening or removing these buildings.
- Q. There might also be merit and I think you hinted this or say it in actually making sure that these buildings are not entered if they haven't been reinforced and are also subject to a wide cordon?
- A. I think it depends a little bit on the severity of the earthquake that occurs. You know it sort of steps according to severity. If you've had a pretty major earthquake somewhere I'd agree that those are the sort of measures that could be appropriate. If it's a lesser level of earthquake which only brings down one or two façades I think you've got, that probably is going to have implications which are economically not sustainable. It has to be a balance of the economic versus public safety issues that arise after an event.

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COMMISSIONER CARTER;

- Q. However when you've got a set of buildings that are demonstrably very, very likely to fail before any other similar, any other of your city structures, it has to take that more into account than just to guess the level of earthquake that might bring it down. The potential danger in these buildings wherever they exist particularly due to the deterioration I would have thought with a lot of the timber connections you've pointed out with unable to take the loads that they are imparted?
- A. I would agree. I think that it has to be one of the paramount considerations following an earthquake.
- Q. Just another question, of course we do have this state of emergency which is the first declaration that an unusual event has occurred so it would be possible to put legal processes in place that are triggered by a state of emergency being declared?

- A. Yes.
- Q. And one of those surprises me and I wondered if you could make an observation on is that the City Council had no power to direct owners to do more work to analyse their buildings and yet in an event in which just in this one class of building there's almost 1000 buildings. There's no way a council could investigate those within the period that it has allocated by its emergency powers to allocate it. So you know the only way I think is for the community to club together and for everybody to take their share of the workload and that would mean owners would have to go about getting directions from experts on their buildings.
- A. I would agree totally. I think there is still a need for a level one assessment by the local authorities which, or on behalf of it that identifies any severe damage or severe hazard to the public. I think after that the mere difficulty of gaining entry to buildings logically places the obligations back on to the owner but there needs to be timeframes placed on that obligation to have the building assessed.

EXAMINATION CONTINUES: MR ELLIOTT

- Q. Finally Mr Smith, you make the comment that once the authority's in possession of the sort of information His Honour is referring to from GNS then there can be an assessment of or comparison with the minimum strength criteria, the building can be assessed and –
- A. Yes.
- Q. Then it's fixed. And below that limit buildings would not be occupied?
- A. And a cordon placed around, correct.
- Q. Until?
- A. Until that central authority decides it's safe to lift the cordon, or the building has been demolished or whatever is considered appropriate.

CROSS-EXAMINATION: MR LAING

- Q. Mr Smith, just one matter I'd like to sort of follow up with you on page 6 and this is in relation to the recommendation that there be a level two on all URM buildings that are not at least 33% of code and you probably would have been aware from previous hearings and probably through

Mr McCarthy where he indicated that the council's records were in some disarray if I can put it that way following the September earthquake. I'm just wondering whether there is some better measure than trying to arbitrarily pick on 33% of the current code because this is really my question to you. That will often need some form of reference to plans which may not necessarily be readily available after a state of emergency.

- A. I would hope that by the next significant event councils will have buildings well classified into those that have less than one third and therefore earthquake prone versus those that have secured or have been demonstrated to have a strength in excess of that level. I agree one has to look at the information available at the time and make the best decision but I do think we need to identify those buildings that are likely to have a low level of strength and we need to take extra precautions before we allow the public in the vicinity of those buildings.
- Q. Yes I don't think I'm arguing with the general principle, I'm just wondering whether there is some better means. Is it by age or something like that? We know that buildings for instance were in excess of 67% of the code still collapsed anyway.
- A. I think you could take a broad brush and say all unreinforced masonry buildings because I think they offer the greatest risk. It doesn't mean to say that some other buildings don't have a risk but clearly if you're starting with a broad brush you can start with unreinforced masonry. I think if you have a list of earthquake prone which are those which have demonstrated to have less than one third then that's probably a better starting point.

QUESTIONS FROM COMMISSIONER CARTER - NIL

QUESTIONS FROM JUSTICE COOPER

- Q. This question that you raised about economic impact is an interesting one. This building unusually appears to have been pretty fully occupied although there were some for let signs that were drawn to our attention

but the pattern generally in respect to these unreinforced masonry buildings that we've looked at in central Christchurch has been with few exceptions they haven't been occupied above the ground floor level.

A. And that's very typical of many small centres in particular.

Q. And many of them have been in quite a poor state of repair?

A. Indeed.

Q. And having regard to the construction methodology used when they were built the fact that many of them are in uneconomic use now you wonder just how long they would last if left and whether as a society we need to be considering the fact that in the fullness of time many of them will need to be replaced anyway?

A. I think that's right. I think you'll find that the rentals of those buildings actually derive to the owner well below a renter you'd need after you've paid for the cost of demolition and reconstruction and that is really the difficulty. These areas are often quite depressed in terms of rental and if someone does demolish and rebuild they struggle to get an economic return on their venue property.

Q. And if they're left unstrengthened they'll kill people in an earthquake, won't they inevitably.

A. Hence a need for an earthquake prone building policy which will affect it, which may result in buildings being demolished.

Q. Well that may be the consequence, may it not? I mean I sense you're putting your finger on a fact that if you, that an effective earthquake prone policy may not be able to co-exist alongside the preservation of many of these buildings?

A. Quite possible and I think that's been one of the reasons that some territorial authorities have been hesitant to move decisively.

QUESTIONS ARISING - NIL

WITNESS EXCUSED

MR ELLIOTT:

Before we conclude may I just correct an innocent mis-statement by Mr Claxton earlier on. Mr Christopher Smith was not an Irish traveller although he may have travelled to some extent. He was born in Timaru and schooled in Christchurch, Commissioners. He lived in Perth for a time but he and his family were living here in Canterbury for some years before the earthquakes and he was 48 when he died on the 22nd of February, 2011.

JUSTICE COOPER:

Thank you Mr Elliott. Well that concludes this hearing. Our reflections on what we have heard will be included in our final report which will be released later in the year thank you.

COMMISSION ADJOURNS: 3.05 PM