COMMISSION RESUMES ON WEDNESDAY 9 NOVEMBER 2011 AT 9.30 AM

MR MILLS CALLS

DAVID HOPKINS (SWORN)

Q. Mr Hopkins, I'm just going to let you proceed, I'm going to sit down and you can just take us through, I would normally say more about his background which is quite distinguished but I know it's going to be covered by Dr Hopkins himself so I'll leave him to it.

A. Good morning Your Honour and Commissioners. I'm going to talk to the slides that you have in front of you, I've since, since compiling them I've managed to make a few other notes which I will also wish to cover which result from some of the other papers that have been submitted since. I suppose – my name is David Hopkins, I'm a – I have qualifications in engineering, I'm a chartered professional engineer, I have 40 years experience as a consulting engineer, I was inclined to mumble that first bit, a specialist in earthquake engineering management, I've been over the last, well since 2003 a senior technical adviser to the Department of Building and Housing in a consulting role and part time, a mixture of part time and fulltime, I've been involved with engineering organisations including the international association and a former president of the Earthquake Engineering Society of New Zealand, I've had experience in a number of issues with earthquake related projects, when I say wild it's geographically and also discipline wise from a multi-discipline consultancy.

JUSTICE COOPER:

Q. Dr Hopkins, you're welcome to be seated, if whatever you're comfortable with.

A. I think I prefer to stand because I can actually feel I can see over the screens. But thank you.

EXAMINATION CONTINUES: MR MILLS

A. I've – I was a major contributor as part of a committee in developing the guidelines for earthquake risk buildings in 1985 and then in 2006 and I'll say more about those 2006 guidelines later. I had quite a large role in developing what was known as the IEP, the initial evaluation process and I was involved in pushing for the legislation that came about in 2004. Having done that work I found myself as an adviser to the department on earthquake prone building policy development and implementation and I played a strong role in writing their guidelines for TA's, Territorial Authorities. I happen to have done a benefit cost analysis for the Department of internal Affairs which was used in part to support the introduction of the legislation in 2004 and I did another benefit cost for department buildings in Turkey in 2005. For the Department I was the organiser of an EQC DBH combined workshop on earthquake prone building policies in July last year and we also had going a case studies project to, which I will describe further later. I was following the September earthquake of last year, I was a member of the Canterbury Earthquake Recovery Commission and following the 22nd of February earthquake, I helped with many others to assess buildings. At the present time I'm a project manager for the Department looking into the investigations into the CTV, PGC, Forsyth Barr and Grand Chancellor buildings. I'm keen to see lessons learnt from this Canterbury earthquake across the board, technical, economic and social for future benefit. Now about my submission, first of all I'd like to make it very clear that there's a personal – these are personal submissions and are personal views, they are not in any way to be construed as the views of any organisation, and particularly not the Department of Building and Housing although I will of course refer to work that I've been involved with on their behalf. I would also like to point out that this submission really came about because I made comment on a paper by Professors Ingham and Griffith and it was, the Commissioners decided to class it as a submission and I'm pleased to have the opportunity to present the points that I made in that comment.

I've taken the opportunity to look at other points, I express some reservations about the Royal Commission papers, that was rather early stage and we're now building up, but it did strike me that because it comes from a Royal Commission it's got authority. That was perhaps not intended. I was also mindful –

JUSTICE COOPER:

Q. Well they don't come from the Royal Commission, I'm intrigued by this comment, but they're reports that we've commissioned in the nature of advice but obviously, I mean, do you think people were misled that they represented our views?

A. I was really observe – actually I accept the point of course that there may be a perception that they are –

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Q. Well it's difficult to avoid that perception. I mean we made it plain that they were simply reports that had been commissioned and I think we used the magic word 'contestable' from the outset but we are confronted with broad terms of reference which we simply couldn't rely on a submission process to cover, unlike some other enquiries where there's an obvious dispute about something. We took the view that we would have to procure appropriate advice to make sure that we covered the ground that we had to cover and that if it were published the advice that we received would then be contestable in later hearings. I don't think there was any other way to go about it frankly.

A. Your Honour I'm sorry I didn't mean to give the impression, there's no, it was just an observation if you like. The value, I didn't detract anything from the value and I would have to say that, in this particular case, the very impressive addendum has really been quite, is very good to see.

Q. Yes.

A. And so I really wasn't wanting to dwell on those observations but the fourth point on this slide where I say that the paper is on URM buildings, as indeed is this session, that the unreinforced masonry buildings are, in

fact, the subset of potentially earthquake prone buildings, as you're well aware.

Q. Yes well, once again, I don't want to keep interrupting you but the breadth of the hearing is under-sold by saying it's about URM buildings. We are having a, in this two week segment, intending to cover what we need to cover in terms of earthquake-prone buildings or buildings which do not reflect current requirements and what should be done about them.

DR HOPKINS CONTINUES:

I've made the comment on the next slide that, and it refers to the original Ingham Griffiths paper that it's a valuable contribution - of course that's an understatement – but I would also point out that the addendum I think does a lot to some really good work to have a look at the performance of buildings of the Canterbury earthquakes of unreinforced masonry buildings. It provides some extremely valuable insights and it's great to see the comparisons of various things, particularly an attempt to compare performance levels or strengthening levels with performance. I think there's a need to drill deeper into some of those issues but it's very heartening to see that sort of analysis going on because that to me is the root to the lessons that need to be learnt from this earthquake. The second point I talk about here is historical perspective. I think it's worth reminding ourselves that New Zealand has had earthquake-prone building legislation for unreinforced masonry buildings since 1968 and many buildings have been strengthened and I would suggest have saved lives, possibly in Christchurch, as a result of that, albeit that they've strengthened to maybe half or two-thirds of the 1965 standards. I was intrigued to see that from the Ingham Griffiths addendum that some 60 percent of the 370 buildings that they surveyed it actually had some form of retrofitting and that the performance was monitored there. There were guidelines produced by the Earthquake Society going back to 1972. There was a thing called The Brown Book and I think you'll find that focused on parapets. In 1985 there were further guidelines and they actually included an interesting concession if you like. You were required if you like, well the

guidelines suggested that you could be required to strengthen to a certain level over a certain time but if you were to carry out what they called 'interim securing' – that is tying the floors to the walls and the roof to the walls – a relatively inexpensive and unobtrusive procedure then you could get a bit more time to reach your ultimate goal and then there were guidelines in 1996 and all of those guidelines were specifically aimed at unreinforced masonry buildings. The 2006 guidelines were really, the fundamental driver for those was the 2004 legislation, or the upcoming legislation, proposed to expand the range of potentially earthquake-prone buildings to cover all buildings except small residential without – that's shorthand for some words in the Act – so that, as I recall, the requirements in that, the section in that document on unreinforced masonry was seen as a sort of add-on to what previously existed. Professors Ingham and Griffiths quoted some case studies and I think they're very useful. As I hinted before I think an in-depth study of the performance of some of these buildings would be helpful and I made that comment before the addendum does some wonderful stuff to shed insights into what, how buildings performed, but I think looking at some case studies would be helpful. A careful correlation of strengthening level and performance, basically to get a better knowledge of what works and what doesn't in the New Zealand context. I've made the observation, and it may or may not be true, that such an in-depth study may show that our current assessments are, sometimes at least, conservative and if we could convince ourselves that that was the case it would be immensely helpful to people round the country trying to assess their buildings. So that underlines the value, to my mind, of moving along and doing further research and evaluation of the performance of buildings from this earthquake. I think the Commissioners do have, through another source, a paper that I wrote for a conference in 2009 which attempted to summarise the 40 years of earthquake strengthening in this country.

JUSTICE COOPER:

Q. Was that a conference in?

A. San Francisco.

Q. San Francisco, yes, yes I recall that.

A. And, yes, so that was an attempt just to remind ourselves that we have achieved. Whatever we may not have done that we're now looking at let's remind ourselves that strengthening has been done over the years to varying standards, to varying amounts but there has been value and I'm sure that that is of some comfort and let's not be totally abject in the way we regard these tragic failures of buildings.

DR HOPKINS CONTINUES:

The Ingham Griffiths paper comments on benefits and costs. It sort of highlights to me a huge challenge to the community. I think he's had a statistic that the estimated costs of doing up these buildings is actually more than their value. There's also the prospect that it would take a very long time to effect all those improvements. It can't be done overnight so there's a huge challenge. It seems to me when I look back and I see the events here in Canterbury that the legislation has had some success but its been limited and the challenge is now, that's over four decades, and the challenge is really how to improve, if you like, the legislative and technical settings and, dare I say, social settings to effect better improvement going forward. I'm suggesting that, and we've seen some evidence of market forces driving the valuation of buildings and certainly people are asking questions about the earthquake standards of the building. There is as part of the 2006 guidelines there was a table which introduced a grading scheme going from A plus down to E which is actually on the next slide but perhaps if I could have the next slide and then I'll come back. This is the representation of actually the scale and you can see that A plus if you like is more than 100 and I will come to the NBS definition. I'm wanting to talk to that one there. Going down the lower the score for percent NBS the lower the grade but the point that this slide emphasises is that and it was the view taken that if we have legislation to cover the worst buildings that's reasonable and it would be socially acceptable if you like that people could be required to do something if their building was down at that level but perhaps we should rely on market forces above that and of course I think there could be a lot of debate around the settings of that and –

0950

JUSTICE COOPER:

Q. Can you just explain the second column to me. It may be obvious to my colleagues.

A. The second column?

Q. Yes. The less than one, the one to two times, two to five times and five to 10 times?

A. This is a very approximate assessment of the relative frequencies of an earthquake that would cause a certain level of damage. Let's just sort of say it collapsed that if the ground shaking needed to collapse a new building was at this level and the ground shaking was needed that was needed to collapse an existing building was at a lower level then when you look at the probability and the seismology you find that the earthquake that, the stronger shaking is less likely and the lower shaking which would collapse a weaker building is more likely. This is a very approximate assessment of those two likelihoods of a strong shaking and a weaker shaking.

COMMISSIONER CARTER:

Q. And if my understanding is correct that the present as I understand is, gives a 10 percent risk of an earthquake of the design magnitude occurring within 50 years.

A. For a normal building yes.

Q. I find it hard to imagine how something could have 25 times that risk. It would mean that such collapses would be happening every year or two around the country and I don't think we have observed that so I am just puzzled by the magnitude. Those numbers are quite gripping in the sense that they're liable to be picked up by people and say well aren't 25 times the risk –

A. They were certainly intended.

Q. And what does it mean?

COMMISSIONER FENWICK:

Q. Can I just interrupt you here because there is a major problem with how you interpret this new building, 30 percent of the new building standard and it's very clearly that something 100 percent new building standard is not equivalent to a new building built to the standard and if you asked engineers how they handle that you get a whole series of different answers. If we look for instance at the ultimate limit state that is not the collapse limit state that is the state that you can achieve of a very high level of certainty. The failure rates are they low they're specified in the commentary or they're given, indicate in the commentary loading standards. Now as I understand it when you talk about 33 percent of new building standard you are really looking at 33 percent of an ultimate limit state but that is not defined as well as it is in when you're working through the material standards where you have the strength deduction factors, you have lower characteristic strengths, you have a margin on your material strains of 1.5 or thereabouts which take you to a collapse limit state which is a lot higher and I don't think that when you talk about 33 percent new building standards you're actually referring to a standard which sets out all those reserved strength and gives you that high level of certainty you've got. I think that, this is what I found in talking to engineers, different engineers so I think we need to have it clarified exactly what you mean by 33 percent NBS.

A. Yes I accept, it's, accept exactly what you say and I think the Earthquake Society in formulating this table was well aware of those things and there is a, it's probably a good point to cover this percent NBS demolition because I agree that there is difficulty with it and I reread Bret Lizundia's comments as well. In the simplest terms and I go back to the if you had collapse as your, and I appreciate exactly what you say there is a difference between – Professor Fenwick is absolutely right that we got to sort of defact those situations as in the way we apply the rules at the moment in that sort of ULS, the ultimate limit state, is taken as the new building standard whereas the measure for an existing

building of 33 percent is collapse but I'd like to point out the percent NBS to my mind and I was involved in it is actually a simpler concept than perhaps a lot of people understand. There needs to be some different settings I think but it is simply this what is the ground shaking that would collapse the existing building? What is the ground shaking that you would use to design a new building on that site? The NBS, sorry that I should say that's the difference between and that's the one, the point that Professor Fenwick is making it should be if you like what is the one to collapse that building and if you then said well look the percent NBS is the ratio of those two ground accelerations you have a measure of the performance of an existing building against a sort of expectation that you would have of a new building. Now to me it's a very simple concept which can be communicated and Professor Fenwick's point is absolutely correct. It's not a, it's not comparing like with like that you'd want but there is no reason why you couldn't have some performance criteria below that headline of percent NBS which says what is the life safety limits for this existing building and what is the life safety acceleration ground shaking intensity that you would need for a new building so you've still got what I believe in percent NBS is a very simple concept to get across to non-technical people and in behind, behind the scenes you can have more detailed criteria and perhaps more like with like criteria. Does that? But I'd like to come back to this. These are very, very approximate these numbers in that first column. If you were to look at the relative probabilities of particular intensity of earthquake shaking it's over 10 percent in 500 years and the lower level of shaking the ratio of those two numbers if you just took one third versus 100 percent in Auckland or in Wellington or Christchurch you get three different ratios so this is really quite a big smudge to communicate that the risk is getting up. It's not intended to be precise.

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JUSTICE COOPER:

Q. In the phrase 33% of new building standard what new building standard is achieved to the level of 33%?

A. What in, in –

Q. Well what standard, new buildings must meet a raft –

A. Yes.

Q. – of requirements.

A. Exactly.

Q. Which of those requirements is met when a URM building is strengthened to the level of 33%. Thirty three percent of new building standard is the phrase. Which of the requirements applicable to new buildings would be met were a URM building strengthened as to 33% of the New Building Standard?

A. I think it would be the ultimate state I think is the answer to your question of new building. Something where it's the limit of materials that take the strains imposed upon them above which you couldn't rely on those materials to sustain the loads that they're required to carry.

COMMISSIONER FENWICK:

Q. But therein lies the problem doesn't it because when we look at the new building you're using lower characteristic strengths on defined material properties, when you're looking to URM you have anything but defined material properties which may be stronger or much weaker, have very different characteristics. So when you look at the new building again you have a factor of safety on the, with the lower characteristic strengths of 1.5 it's a factor of safety more than 2 in fact in the ultimate limit state against collapse but with your new buildings standards you don't have that factor of safety so there's a big difference and I think there's a lack of understanding even amongst the engineers exactly what is meant by this.

A. I believe you're correct and in terms of the lack of understanding, certainly I've seen it in, in a number of cases but I would say that, bring, bring us back to the simplicity of comparing an acceleration which does

something to an existing building and an acceleration which does, or ground intensity, shaking ground intensity which does the same thing to a new building.

Q. No it does something which is different. At your 33% new building standard it causes collapse. At your ultimate limit state new building it does not cause collapse it causes a level of damage.

A. What I was trying to portray there was that you could, if you change the, to take your point that if you said, look, the percentage of new building standard for existing, the ground intensity to collapse an existing building compared with the ground intensity expected to collapse a new building that would be, I think is your point, is that that would be a fairer comparison. There's no reason why that shouldn't be the comparison but I'm, I'm really submitting that the concept of comparing the ground shaking to collapse an existing building and the ground shaking to collapse a new building as we believe it would be with the, with the standard settings that we have that ratio is a reasonable measure, certainly for the purpose of motivating people and getting some, some progress with reduction of earthquake risk.

COMMISSIONER CARTER:

Q. Would you then, having to listened to that exchange of thought, would you feel that it is, would be useful to develop a greater level of understanding of precisely what the standard is for these older buildings so that a more consistent application of the intent is achieved or do you think we've got an adequate description at the moment?

A. I think there's room for developing those to have more consistency. There always is but I'm saying that wouldn't it be a good idea to start with the base as the ground acceleration because it takes out of play – the thing that the new building standard, and let's take the point about ULS versus collapse but the point about the new building standard is that its, it takes into account the location of the building and therefore the regional variation of seismicity, it takes account of the soil type and it takes account of the importance of the building as well. It's kind of

saying, well if you can put an important, a building of this importance, the same importance here, a new one, how would it compare, how does the existing building compare with the new, what would be the new building.

Q. Yes I can acknowledge those, those various points that you've made are present in the way the codes are written at the moment. We're just trying to, I think, get at the potential for having a better and more consistent understanding of how to apply the intent of the descriptions that are used here – I think we can move on. Well I didn't really get a – the Chairman just asked me did I get clarity in my mind about the 25 times more, I mean that's quite a motive number for people to get the feeling and my understanding is that the one in 500 year likelihood of a building experiencing the design earthquake means that in any say 50 year period there's a 10% that that might occur –

A. Yes.

Q. – broadly speaking. So if you have 25 times that risk what does that actually mean. It would mean that, to me, that that risk is achieved every couple of years and if that was the, if that was really the level of weakness we would expect to be seeing buildings being collapsed within, you know, a few period, a fairly short period of time, every five or 10 years there would be a number of buildings that –

A. If, if we had buildings down at that level.

Q. And I don't, that's not the experience we have in front of us in New Zealand so I'm just questioning the, I think the wisdom of putting in a number as large as 10 to 25 or more than 25 in these assessments as to what the public might interpret that to mean.

A. I understand your point and can I just say how those numbers were derived.

Q. Well do you think they're correct. That's what I'm really asking you.

A. Right.

Q. That there's 25 times the risk of a building –

A. I think if you do the numbers that's really what comes out and there is, there's a wide scope for interpretation. Those numbers were broadly

derived from a relationship that was actually in the New Zealand Loading Standard which showed the shaking, ground shaking intensity if you like against return period and we simply took – well if you come down to the sort of lower levels of probability what is, how does the level change or, putting it the other way round, if you have 33% you have a third of what you had up here, what was the return period of that. Now those sort of calculations are, as I've mentioned before, subject to wide, wide variation. In fact the graphs that we've used, there were several curves that different researchers had derived so I really come back to the point that these –

Q. I don't question that there's been a numerical process by which the numbers have been arrived at I'm just questioning whether our life experience in the lifetime of the people who can observe what sort of earthquake damage has existed in New Zealand give credibility to that number and I'm doubting that it does so.

A. Yes I wouldn't, I wouldn't query your point. It may be that there's a conservatism in the assessments that we make but there's isn't anything …

Q. Okay, thank you.

JUSTICE COOPER:

Q. Well that's a lengthy excursive excursus I think is the word from your presentation Dr Hopkins. So if you can remember where you were I'd like you to resume.

A. Well I'll come back to the previous slide to this one thank you Your Honour.

EXAMINATION CONTINUES: MR MILLS

A. Which was really dealing with the market forces and as I said standing back over I guess the four decades we're talking about, that I've been involved in, happened by chance, how do we improve the impact of that and I was referring really to that, that if we wanted to make market forces more of a driver to get earthquake risk reduction done over time

in New Zealand then some sort of a scale, and that's not the only one that's around, could help to communicate to people because we would like to think that they could learn from the Christchurch earthquakes that asked the question, what is the seismic rating of this building, in other words put some sort of value on that the same way as other attributes of a building given value. The challenge is always that with earthquakes they are low probability, high consequence events and it's very hard, it's very easy to forget the sort of things that we've had thrust upon us here in the last year. But it seems to me that we could aim using legislation, market forces, combination of as we indicate there, maybe with different settings, maybe purchases and tenants have a role, they need to be aware of the situation and ask the questions. The challenge to me is not those sorts of things happening in 2011 or 2012, but keeping it sustained if we can and maybe banks and insurance companies have a role. I've mentioned there Taiwan example, I'm told that in Taiwan apartment buildings, very big apartment buildings are being built on Bill Robinson's lead-rubber bearings. Now the fascinating thing about that to me is that they use these, the fact that they are base isolated, to sell the apartments and the apartments that are base isolated fetch a premium in their market price that more than covers the small additional cost of that isolation. Now that to me is a very fascinating observation, it means that the market is actually putting a value on good seismic engineering and it's, to me it's a trigger that maybe we should be seeing why is that we haven't got it here as much as we might have it and how would we move towards it?

1010

JUSTICE COOPER:

Q. There's some anecdotal evidence that we've become aware of, or I have, that in Wellington there may be the beginnings of something as people, prospective tenants enquire about the extent to which old buildings have been strengthened, not have they been strengthened,

but to what standard. Does that reflect your experience, is (overtalking 10:13:02)?

A. I have similar anecdotal evidence, if we call it evidence.

Q. Yes.

A. I've simply heard, and it goes to that effect, and I've heard of examples of people breaking a tenancy at some cost to move out, but that was a person who was reasonably directly affected by the events of Christchurch, hence my comment about, it's kind of not too surprising that it's going on now.

Q. Yes.

A. I think the challenge I see for us, the community, is to see well how can we capture that mood and try and sustain it going forward with whatever as I say, policy, legislative, technical settings that we might devise.

Q. Well the Society for the Earthquake Engineering Grading Scale, which is illustrated on the slide that we were discussing before, is it intended that that would be applied to buildings and people would be – there would be some sign displaying, giving it a grade, is that the –

A. That's the intention of that scale.

Q. Yes.

A. And there's lots of debate, as Professor Fenwick has pointed out, about –

Q. What it means.

A. – what it means, and also how do you get precise numbers, I mean even two engineers evaluating the performance of one building will get two different answers for a start, but I don't think we're ever going to resolve that fully, we can only do our best to bring those like with like comparisons together, but yes, that scale was intended for that, there are other suggestions of scales that I've heard of, I think there was one from California which was a star rating scale, a bit like hotels, it's – the whole, the thrust of these things is really to get something which people can sort of relate to, this one is more your exam scale and the star scale is more your hotel or accommodation type.

Q. Well you, is it your evidence to the Commission, or your opinion that you're expressing that, whether it's this system or some other system or – should it ought to be adopted in New Zealand as a matter of policy to inform members of the public using buildings as to the extent to which buildings have or have not been seismically strengthened?

A. The short answer is yes, and the longer answer is that I think any of these things need to be explored and that the practicalities and the legal niceties of them need to be examined, but it's (inaudible 10:16:14) strong opinion it's very much worthwhile to look close at such a thing.

Q. Well, look, I suppose I'm asking you a little bit more than that, are you saying that we should devise a rating system for buildings as to their seismic strength?

A. Yes I am, I would say though that the Earthquake Society has devised a rating system, that is really only part of the problem, the other problem is I think having something that's reliable and accepted in the market place that would, that you would accept the number or at least a process of challenging it and assessing what grade your building is.

Q. Yes.

A. There are lots of other issues that are non-technical as I'm sure Your Honour is –

Q. Oh, yes, yes, I know but what I'm just wanting to know is whether you think that the potential difficulties as such a system were detailed, would mean that it was something that shouldn't be attempted or whether you think that's where we should try to end up?

A. Yeah, I think we should try and end up there.

Q. Yes.

A. I think the opportunity is there to adjust you know the idea we have here to take account of the points made by Professor Fenwick and others, there may be other things that we need to look at, that would give us a much easier way and more reliable and consistent way if you like, of arriving at a number which people would accept, say on their building, or on their lim. Without that I think it would be a struggle but still worth looking at.

Q. Well any system along those lines would obviously have to be robust and intelligible otherwise it would not have any credibility, or, and there couldn't be any guarantee that it would achieve what was intended, you agree with that?

A. Yes.

EXAMINATION CONTINUES: MR MILLS

A. The remaining part of the submission really comments on the conclusions that were in the original paper, by Professors Ingham and Griffith, yes there's a need to identify earthquake prone buildings and I think the addendum shows quite a lot of that work has been done in previous papers by those authors, there's a comment to review successful retrofits, I absolutely agree with that as I think I was indicating before, I think care is needed to be quite reasonably sure that you know when you're looking at a building performance in Christchurch, and this doesn't just apply to building, unreinforced masonry buildings, but you're reasonably confident about the ground shaking that it actually experienced and also know some of the details of the strengthening and make an assessment of that rather than rely on some numbers from the councils, so it just requires care so that when you make a conclusion that this building did a lot better than we thought it would have, for instance that there's a reasonable confidence in that conclusion, that's all I'd say there. I've mentioned about staged retrofit. I think I pointed out before that in 1985 we had the interim securing that was available. It struck me that it wasn't practical to impose specific staging, I mean it's really up to the owner but you may make it, may include that in some sort of procedure or whatever it is. I think it's important to involve the territorial authorities, owners, engineers in developing these ideas. These are the people at the sharp end of this who are dealing with it everyday, particularly territorial authority. There was a proposal to act on the first two stages. Look anything that helps reduce risk has got to be good for us but I just have some reservations

there about the practicality and achievability and, once again, these sorts of things are worth going ahead with but the normal processes are to involve a group of engineers from different backgrounds and experience, including overseas, and to work through and develop requirements in that way. There was talk in the recommendation of national requirements, and I may have read too much into it, but I certainly have reservations and would like to comment about the sort of earthquake-prone building policy situation. Certainly from my perspective - and here I reiterate that it is not the Department's view, not necessarily – that the TA policies that we have had over the last six years have been very, has advantages, very beneficial, in fact. I mentioned before that we had in 2010, last year, a workshop of TA's. They were due, this was all before September, of course, those territorial authorities were due to revise their earthquake-prone building policies and submit them to the department by the 31st of May this year and, in anticipation of that, the EQC and the department organised a workshop for territorial authorities to come together and share their experiences of the last five years, as it was then, and try and build those into the revisions to the policies. I must say I was thinking well when we went along to that workshop that there might be quite a lot of antagonism that, you know, why are you guys asking us to do these policies, whatever. In fact the reverse was the case. There was quite a high level of commitment and interest and people wanting to know how they could do things better. Now I'm not saying there's all sorts of levels of sophistication that people went to but everyone did have a policy. It may be that, so I would strongly urge that whatever national requirements were imposed through legislation or whatever, that we do try and retain what's been built up over the last six years. It strikes me that there are 70 plus groups of people round the country who have, to some varying degrees, had to confront what the earthquake, seismicity's of their neighbourhood, of their area, and also what the risks are and what they should do about it by way of policy setting, remembering that the legislation requires them to have a policy but it does not require

them to do anything. It does not say you have to, they, if a territorial authority is satisfied that a building is earthquake-prone under the rules then it may do certain things and it's the policy through which the 'may' is turned into the force of the law and it's important and I've stood up at a number of conferences where I've heard people say "The government says you've got to do this" and I gently stand up and say "Excuse me, it's not the government saying it, it's the local authority's policy that's saying it" and on at least one occasion it's been the TA the policy is theirs because if it wasn't working they could propose a revision, publicly consult on it and change it.

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JUSTICE COOPER:

Q. The policy has to have some content though which is designed to results in the upgrading, seismic strengthening of buildings, doesn't it?

A. I guess you'd say it's implicit but I do recall, and I think you said when Suzanne Townsend is presenting this afternoon, I suspect she will have an answer to that, but the legislation Building Act 2004 requires a territorial authority to have a policy, approach priorities and what are they doing about heritage buildings. They're required to publicly consult on those policies and then they're required to submit them to the Department of, to the Chief Executive of the Department of Building and Housing – full stop. Within the Department we had to ask ourselves well what are our obligations and how far do they extend into saying to a territorial authority oh no you should lift your, make some different setting, and it's not really for me to comment further on that but, certainly on the face of it, there was no prescriptive requirement. If there was a requirement, as you've suggested, then it was implicit.

Q. Well can I just, I want to understand what you're saying because you were one of the, I know you're not here representing the Department but you have told us that you were one of the designers of this legislative framework. Am I right?

A. Pushed for it to happen. I wasn't one of the (inaudible 10.27.20)

Q. Well under the Building Act councils must adopt a policy, amongst other things, on earthquake-prone buildings within it's district. That's right isn't it.

A. Yes, yes.

Q. And there couldn't be an argument or do you say there could be an argument that such a policy could say our policy is that nothing should be done. Would that be an acceptable policy under the Act?

A. That's the very, I'm glad you asked that question Your Honour, the, one of the questions that we pose in trying to, from the Department, was, a hypothetical question – can a territorial authority have a policy to do nothing? And the answer, without actually saying yes, was along the lines of yes but you would have to, the councils and the people that adopted that policy would have had to, first of all, publicly consult on it. So the policy to do nothing would have to go past the public and the policy to do nothing would also, I would suggest, certainly it's my view, that the councillors would have to be in a defensible position if a major earthquake occurred very soon after they adopted the policy.

Q. Well if the, the policy must set out, mustn't it, how the Council will perform it's functions under the relevant part of the Building Act. That's right isn't it?

A. Yes. The fact, I mean it's hypothetical in a way because the fact is that all councils, TAs, territorial authorities, did submit a policy with one exception – Chatham Islands.

Q. Yes. Well the functions of councils include taking actions if they're satisfied that a building or buildings are earthquake-prone do they not?

A. The wording of the Act I think is if, **if** a Council or territorial authority is satisfied that a building is earthquake-prone. I don't think it is clear to them that they have to go and do anything.

1030

Q. No but if they are satisfied that a building is earthquake prone they have policies they have powers that may be exercised?

A. Yes.

Q. So to that extent the policies that they adopted would have to envisage doing something wouldn't it because the policy has to say how the council will carry out their functions. One of their functions is to exercise powers in relation to earthquake prone buildings and it would be surprising wouldn't it if a council could adopt a policy which says we're not a policy which says we're not going to exercise those powers which have been given to us in the public interest. It may be just a question of law I'm asking you but as somebody who was sort of involved in the development of these policies I suppose I'm asking whether that was something which as far as you know was contemplated when this Act was written that the council might in effect sit on its hands and say that's our policy

A. Well I don't have any knowledge of whether that was in the minds of those policy makers. I think the questions you're raising are sort of policy and legal issues which are really not my domain.

Q. Not your no all right.

A. Professionally and nor the domain of the Department of Building and Housing.

Q. All right so far as you know there wasn't a thought that councils would be left by these provisions to do nothing?

A. I very much doubt. I think the whole thrust of the legislation and that's covered in the guidelines of TAs and lots of publicity that the Department of Building and Housing put out that it is to promote awareness of risk and to reduce risk throughout the, earthquake risk throughout the country over time and that was the main driver of it so certainly although one can have arguments about you know the technicality of a do nothing policy for instance I don't think it's really in line with those overall claims.

EXAMINATION CONTINUES:

A. So I was advocating really that whatever changes are seen as necessary as a result of the Commission's deliberations and any follow up that the Government might do is that there was benefit in that

devolvement if you like of policy making and responsibilities and that we should build on the benefits of the last six years and that there are if you like as I said 70 groups of people out there who've had to wrestle with this. I think they're probably ready to carry on doing that. It may be that there needs to be stronger and clearer national requirements over the top that for instance a higher strengthening level that would in the Act and again and it may be something to do with access policies, requirement to access policies. I'm only making these as suggestions for consideration but I know that after the Gisborne earthquake there was concern about parapets, gables and frontages and that, and you'll be hearing from I think someone from Gisborne District Council who's very firmly of the view I think that we need to have some specific requirement for these to be fixed over a limited period of time.

JUSTICE COOPER:

Q. Pardon my ignorance but what does ANAIRPE?

A. I was hoping you would ask that.

Q. Well I have fallen for it.

A. There is some very nice words in the Building Act which are as near as is reasonably practicable.

Q. Well Doctor Hopkins are you, what is your, it would be more value to us I think if you told us what your opinion was rather than just saying question mark 100 percent NBS. What is your view?

A. Well the, I believe that that's what we should aim for but there is, there's quite a lot in the words as near as is reasonably practical. First of all that for instance you might end up accepting 60 percent because it's different practice but the difficulty with that of course and I think you'll hear from the TAs it was those words gives the interpretation and the settings and consistency of interpretation of something like that so but certainly that would be. I feel it's a starting point and it's one of the reasons though in cases you are in particularly where I was mentioning before that the study of the performance of distinction that we've already done in the Canterbury earthquake if that were to lead us to believe that

some of the ways we assess and the results we get are a little bit conservative it may help but certainly the Earthquake Society has always said 67 percent. I think returning to Professor Fenwick's point that if you, it would really depend on if you got a sort of a different setting, a different way of comparing things say collapse with collapse then you might have different numbers that you would have for your setting.

COMMISSIONER FENWICK:

Q. If I can just add a comment there I think you better not go beyond 67 percent. The proposal from GNS is that our seismic hazard coefficient will go from .22 to .33 which is two thirds, .33 in Christchurch which means if you require than 67 percent all our new buildings would have to be registered.

A. Yes well I prefer not comment on that. I think when we're setting design standards for new buildings it's really important that we understand what happens to the buildings in Canterbury before we make settings, new settings. It isn't simply a matter of setting these in accordance with the calculations of how often earthquakes occur and to what extent for ground shaking. There are, there is issues of building performance. There are as much as we focus on the buildings that didn't perform well in this earthquake there are buildings that did perform well. Maybe they got lucky for certain reasons but there are lessons available of these as well and when we're setting earthquake standards we should take the opportunity to understand very carefully just what the implications are for those buildings that survived well and learn the lessons from them as well.

EXAMINATION CONTINUES:

A. And I've mentioned about involving you know the various groups that are affected by these bits of legislation. I've also in item six of this by picking up on a recommendation that Ingham and Griffith made about the need for more technical capabilities and of course that's the case

and we need more resources as well but the driver of the need for resources is actually people wanting to sanction buildings. If people don't want to sanction buildings there's no point in having a lot of resources and technical capabilities. I made a brief comment there about in the next slide the field testing of masonry. I think that's a good idea. It's useful but in my experience when you're looking at a particular building, masonry building especially it's very important that you know the properties of the masonry in that particular building and so you're going to have to do tests there anyway so it would be useful to have some sort of generic understanding of the way the concrete masonry strength vary and take the opportunity but in my view it would be better to if there was a shortage of funds to actually review the performance of past replicas and see what we can learn from that. On the, there was a comment in the paper about budgeting constraints that caused me to just make the point that, I did two benefit type studies. The first one was for the Department of Internal Affairs and it without wanting to bog down in detail it used annual probability as a basis rather undershoots the benefits. The one that was done in Turkey was done on the basis that you assume the earthquake occurs the year after you finish your retrofitting or second year or the third but not, and, of course, as you go out into the future the benefits you get are discounted back. The point about that is that if you took a building from say 100 percent replacement value, estimated loss, its going to be destroyed but your retrofit took it down to 20 percent, you would have an 80 percent of replacement cost as a benefit. But when will you see that benefit? You will see it when the earthquake happens, the major earthquake. But if you assume that that earthquake will occur in the first year you will get that 80 percent back in your benefit cost analysis straight away and, therefore, if your retrofit costs less than 80 percent you've got a ratio of more than one. But the difficulty is the time element of it all. So, in a way, they're quite instructive and helps one think around the issue but that's what leads me back to this market driven, market forces valuing good seismic performance. So in the closing comments I think a public

awareness initiative is needed to underline the value of good seismic performance. You may think that that's already happening and to some extent it is but it would be my view that that needs to be picked up and, as I said before, efforts made to sort of sustain that. Almost once it becomes part of our psyche, I would suggest, that we don't like to spend top dollars for buildings that are not good seismically and I'm suggesting that the Royal Commission supports moves to bring about market driven seismic strengthening and I'm suggesting, for consideration, a grading scheme, owners to ask questions, owners and tenants, and exploring these bank lending and other approaches that might assist and also incentives for owners. When we did the job in Turkey there was almost a, the government was unwilling to put any money in towards strengthening because the owners own the building, they're going to benefit from it. But I think I've read in the paper recently here, and it was the same thought that we were having is that when someone reduces the earthquake risk of their building they're not only benefiting themselves they are actually, there is some benefit to the community, they're helping make the mess less, the disruption and all of that and I think, myself, that there is justification for some incentives if we are going to be serious about reducing earthquake risk over time and, in a broad sense, I talked about defensible position before in relation to councils. I think the same applies at a national level that we're obliged to understand the seismicity of the country, we're obliged to understand, as best we can, the risks that that involves and I think we're obliged to do what is reasonably possible to reduce this risk over time so that when further earthquakes occur at least we can put our hand up and say we did as much as was reasonably possible and that probably sums up what is a very difficult challenge but thank you.

1040

JUSTICE COOPER:

Q. You've got further material in here that you're going to come onto –

A. I wasn't intending to speak –

Q. – or would you, you're going to leave that with us?

A. I wasn't intending to speak to that unless you wanted to ask questions about it.

Q. Well we probably will have some questions for you. Would you mind stepping aside at this point 'cos I'll just ask if Mr Newman is here. Yes. Would you like to present now Mr Newman? Mr Hopkins, if it's all right we'll come back to you.

A. Sure.

DANIEL STEVEN NEWMAN (AFFIRMS)

JUSTICE COOPER:

Q. Sorry you've had a bit of a wait but we can only be approximate in giving people times.

A. Oh no thank you Your Honour. I'm just wondering, because I did have a statement of evidence to read into the evidence of this submission. Would you like me to read the, or given the passage of time would you like me to truncate it by really going to the grist of the matters.

Q. I'm happy for you to read it. I think it would be good if you could read it.

A. You'd like me to read it, okay then, all right.

Q. If you're happy doing that.

A. I'm comfortable doing that.

MR NEWMAN CONTINUES:

Thank you for the opportunity to appear before the Canterbury Earthquakes Royal Commission. This hearing provides an invaluable opportunity to examine the issues in the Christchurch central business district. My name is Daniel Newman, I'm the Policy Director for Property Council New Zealand. I'm a graduate from the University of Auckland where I gained a Bachelor of Arts and a Master of Arts degree in geography. I've worked in public policy development and analysis since 2000. I have been employed as the Property Council's Policy Director since 2005. Property Council is a not for profit organisation that represents New Zealand's commercial, industrial, retail property funds and multi unit residential property owners. Property Council represents all forms of commercial property and property investment. Property Council's members collectively own and manage $30 billion of commercial property investment in New Zealand. Property Council is actively involved in central and local government and other government associated bodies. It promotes the views, goals and ideas of its members. In October 2011 Property Council made submissions on the report titled 'The Performance of Unreinforced Masonry Buildings in the

2010/2011 Canterbury Earthquake Swarm" co-authored by Associate Professor Jason Ingham and Professor Michael Griffith. We address the particulars of that report later below. Property Council supports excellence within the built environment. Our organisation is a signatory to the urban design protocol. We're generally supportive of the Green Building Council of New Zealand and applaud excellence in design and construction. We also support a public policy environment that is sympathetic to the delivery and maintenance of that type of building works. Property Council supports the need for a safe building environment in New Zealand and deplores the loss of life that has occurred in Canterbury. In addition to the 182 people who died many others were deeply affected physically, emotionally and financially. Homes and livelihoods have been destroyed. Many parts of Christchurch will not be rebuilt. Although Property Council is not able to provide evidence that directly relates to the Commission's enquiry and to the Canterbury Television, Pyne Gould Corporate, Forsyth Barr or the Hotel Grand Chancellor buildings we commend the government's decision to establish terms of reference that require the Commission to examine the failure of those buildings. Property Council supports a regulatory regime for the built environment that promotes public safety and which minimises the risk of loss of life. property Council supports practices that promote the construction and maintenance of buildings that are safe, efficient, enhance the character of the built environment and which are economically viable. The 2011 Human Development Report commissioned by the United Nations Development Programme recently rated New Zealand fifth in the world in the Annual Human Development Index. Relative to other countries New Zealanders live long and healthy lives, have access to knowledge, have one of the best education systems in the world and enjoy a comparatively favourable standard of living (measured by Gross National Income). Property Council is concerned at the adequacy of Schedule 1 of the Building Regulations 1992 (the New Zealand Building Code) and standards. Property Council looks forward to contributing to debate relating to the

regulatory regime affecting the built environment both now and in the future. Property Council wishes to present it's submission relating to the legal and best practice requirements for the design, construction and maintenance of buildings in the central business districts in New Zealand. It is not possible for Property Council to comment on the issue of why the specified buildings failed. It is also not possible for Property Council to comment on the matters that address issues such as the land associated with the buildings or previous certification and consenting issues involving Christchurch City Council. However this Commission has wide terms of reference which allow it to examine the legal requirements for buildings that are earthquake prone. Terms of reference including enquiring into the extent to which existing buildings are and should be required by law to meet requirements for design, construction and maintenance of new buildings as well as the enforcement of legal requirements. It is on these issues that Property Council seeks to be heard. When dealing with existing buildings there are a number of relevant sections to the Building Act 2004 that need to be considered in relation to the structure and strength of a building. Section 112 of the Act requires, it deals with the alternation of the existing buildings. It requires that a building consent must not be granted for the alteration unless the building consent authority is satisfied that after the alteration the building will comply with the provisions of the code. This essentially means that a building may not be made any weaker than it was as a result of the alteration. Section 115 of the Act deals with change of use. It requires that a Territorial Authority, in this case Christchurch City Council, be satisfied that the building in its new use will comply with the relevant sections of the building code as near as is reasonably practicable. Section 131 of the Act requires all Territorial Authorities to adopt a specific policy on dangerous earthquake prone and unsanitary buildings. Property Council understands from the Council's earthquake prone dangerous and unsanitary buildings policy 2010 that in relation to the buildings earthquake strength, this section will be interpreted as requiring

earthquake strengthening to a minimum level of 67% of that required for the equivalent new building. Section 122 of the Act deals with the meaning of an earthquake prone building, it deems a building to be earthquake prone if it's ultimate capacity or strength would be exceeded in a “moderate earthquake” and it would be likely to collapse causing injury or death or damage to other property. For the purposes of section 122 regulation 7 of the Building Specified Systems Change of use and Earthquake prone Buildings Regulation 2005 define a moderate earthquake is one that would generate shaking at the site of the building, that is of the same duration of, but that is one-third as strong as the earthquake shaking that would be used to design a new building at that site. Section 124 of the Act deals with the powers of Territorial Authorities, it states that an existing building is found to be earthquake prone, the Territorial Authority has the power under section 124 of the Act to require strengthening of work to be carried out or to close the building and prevent occupancy. Property Council understands that after the Darfield earthquake in September 2010 Christchurch City Council adopted under urgency the second version of its policy. Amongst other things the policy has been amended to include a section on the repair of buildings damaged by earthquake as follows, 2.3.6 Buildings Damaged by an Earthquake, buildings may suffer damage in a seismic event, applications for a building consent for repairs will be required to ensure structural strength. The council will follow section 2.3.1 and 2.3.3 of this policy in determining the level of the strengthening required for each building. If a building consent application for repairs is not made and / or the repair work is not completed within the timeframe, that the council considers reasonable, the council reserves the right to serve notice under section 124 subsection 1 of the Building Act 2004, to require the work to be done. Property Council understands that under section 2.3.3 of the policy essentially requires that the building is required to be repaired to a level equating to 67% of code loading. The technical requirements for determining earthquake prone status are done with reference to the

New Zealand Society of Earthquake Engineering guidelines, assessment and improvement of the structural performance of buildings in earthquake. The definition of an earthquake prone building is set out in section 122 of the Act as having the capacity to resist moderate earthquake equivalent to 33% of current code, is therefore directly related to the current design load level as required by the code and policy. Property Council understands that the seismic design load levels for Christchurch have been increased as the result of the Darfield earthquake. The Department of Building and Housing, DBH, have increased the zone factor Z for Christchurch from .22 to .30, a 36% increase. This became official on the 18th of May 2011. This has implications regarding the strength of existing buildings as a percentage of current code where a building is deemed to be earthquake prone or where the works are undertaken to require an alteration or addition or change of use. In its 14 October 2011 submission on the Ingham and Griffith report, Property Council made a number of points as stated in paragraph 4, Property Council supports the purpose of the Building Act 2004, section 3 of the Act states that the regulation of a building work, the establishment of a licensing regime for building practitioners and the setting of performance standards for buildings is designed to ensure that (a) people who use the building can do so safely and without endangering their health, and (b) buildings have attributes that contribute appropriately to the health, physical, independence and wellbeing of the people who use them, and (c) people who use the building can escape from the building if it is on fire, and (d) buildings are designed, constructed and able to be used in ways that promote sustainable development ensuring public safety, means designing and maintaining buildings that are survivable, the building code must ensure a building and design outcomes that protect against the loss of life. In paragraph 8 of the submissions Property Council believes the Commission should recommend to the Government that a review of the building code should be widened to include a review of section 112, alteration to existing buildings, and section 115 code compliance

requirements a change of use of the Act. Such a review will require wide stakeholder participation given the significant financial implications of moving to a higher minimum standard against the code. At paragraph 9 of the submission 2010, 2011 Canterbury earthquakes have implications for the viability of both the Canterbury region and the wider New Zealand economy. Property Council supports changes to tax policy to facilitate improvements in the performance of buildings. These changes include allowing an immediate deduction for all or part of the cost of rebuilding, allow a special depreciation deduction for repaired new buildings and a permanent deferral of any depreciation recovered on new buildings. The reports recommendation is a single national policy for unreinforced masonry building maintenance and seismic strengthening justifies a national approach to tax reform as opposed to a change that is specific to Canterbury. Property Council would support a national approach to tax changes that facilitate improvements in the performance of buildings. If a single national policy for unreinforced masonry building maintenance and seismic strengthening is to be introduced, it should only be in conjunction with a policy allowing for deductibility of earthquake strengthening expenditure. Historically the treatment has been that such costs must be capitalised, effectively meaning no deduction arises with the removal of tax depreciation on buildings. Given the requirements of an increasing number of councils for buildings to be earthquake strengthening to meet modern standards as well as general social good element in doing such work, there are strong arguments for making these costs deductible. Such a recommendation to the Government would go some way to providing the cost effective strategy referred to in the report. As set out above Property Council supports practices that promote the construction and maintenance of buildings that are safe, that are efficient, enhance the character of the built environment and which are economically viable. From the Commission we seek a series of recommendations to the New Zealand Government about the necessary steps to achieve those objectives. On the 10th of October 2011 pursuant to the order in council

dated the 11th of April 2011, the Commission issued an interim report. The interim report set out a series of recommendations which are relevant to the current and the future building owners which include the owners of unreinforced masonry buildings, and it should read URM. While the Commission is still considering evidence made by interested parties, it has already recommended actions that should be taken as a matter of urgency including local authorities should ensure that registers of all URM buildings, their location and characteristics are compiled, or where they already exist are brought up to date, and through New Zealand URM buildings should be improved by bracing parapets, installing roof ties and securing external falling hazards in the vicinity of public spaces, and in areas where the hazard factor in the NZS 1170.5 is .15 or higher, additional steps to provide ties that all floors should be implemented at the same time as work referred to in recommendation 6 and these recommendations should be implemented as soon as practicable. Property Council endorses these recommendations. The need to minimise the risk of loss of life is paramount. New Zealand's built environment must reflect best practise and promote construction and maintenance of buildings that are safe for people who use them. The recommendations in the interim report reinforce the obligation on every territorial authority pursuant to section 131 of the Building Act to adopt a specific policy on dangerous earthquake prone and unsanitary buildings. Territorial authorities post the Christchurch earthquakes are grappling with their obligation to enforce provisions that enhance the performance of URM buildings. These debates have only just begun. Now the Ingham and Griffith report is outlined in the interim report on page 38. It recommends a four-stage improvement process for the strengthening of URM buildings as follows.

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JUSTICE COOPER TO MR NEWMAN:

Q. Now you can take that as read if you like.

A. Take that as read. Thank you. So can I just move through to paragraph 35?

Q. Yes.

EXAMINATION CONTINUES: MR MILLS

A. The Ingham and Griffith report at paragraph 5 on page 115 states the estimated cost to upgrade all 3867 URM unreinforced masonry buildings in New Zealand to a minimum 67% of the New Zealand building standard is roughly 2.1 billion which is more than the estimated total value of the URM building stock of 1.5 billion however a multi-stage retrofit improvement programme has been recommended and it is anticipated that the cost of implementing stage 1 and stage 2 improvements will not be excessive and should be within the budget capability of most building owners. There is currently debate about how this process is going to work and how New Zealand will arrive at a situation whereby we have the ways and means to improve the performance of URM buildings and what public policy changes are necessary to deliver that outcome. It is not possible to accurately assess for the purpose of today's hearing the actual cost of upgrading all of New Zealand's URM buildings. It is also not possible to anticipate whether in fact stage improvements will be within or in excess of the budget capability of affected building owners in New Zealand. This is a challenge that confronts this Commission, every territorial authority, the Department of Building and Housing, the New Zealand Government and the owners of URM buildings. In 2009 the Tax Working Group posed a series of questions and researched the appropriateness of various tax reforms. The tax working group analysis and recommendations was a key driver in persuading the New Zealand Government to make a series of tax changes in budget 2010. The budget 2010 tax changes included removing depreciation on buildings, including commercial and industrial property although as I discussed later this appeared to be for more pragmatic as opposed to principled policy reasons. In its advocacy to the Government in the lead up to budget 2010 on tax issues Property

Council reiterated (a) buildings do depreciate at least in the context of non-residential buildings, eg commercial and industrial property which was the focus of Property Council's analysis. (b) International evidence including the various economic studies since the late 1970s concluded that commercial and industrial properties broadly depreciate at rates of between 2 and 4% each year. These studies were noted in an Inland Revenue and Treasury issues paper on tax depreciation released in 2004 which concluded that tax depreciation should not be removed. (c) More recent international evidence also supports the officials 2004 analysis with these studies suggesting that depreciation rates for commercial/industrial buildings could be higher, coupled with that the useful lives of buildings appears to be shortening. Importantly Property Council did not find any studies that suggest buildings do not depreciate. (d) If the New Zealand Government were to deny depreciation for buildings New Zealand would be at the outlier internationally. We noted that the majority of our trading partners including Australia, Germany, Japan and the United States allowed depreciation on some or all non-residential buildings. In the race to attract and retain capital we noted that New Zealand would be at a significant disadvantage. Qualitative factors such as the high rates of redevelopment of commercial buildings, particularly in Auckland and Wellington CBD areas, changes in building technology, ie the need to comply with new building standards and changing tenant preferences, ie green building for Government and changes in configuration over time due to a move from individual offices to open plan means that more buildings can and do economically lose value over time. Buildings also move across different segments of the market over their economic life reflecting deterioration and income earning capability, eg a prime building in the 1970s would typically be sub-prime property today, all other things are held constant. The economic test of removing depreciation on buildings would be borne primarily by the New Zealand business sector and non-residential property owners. This was based on a break-down of what Property Council understood to be a

$1.3 billion revenue gain from removing depreciation. We understood that approximately 70% of this estimate related to non-residential property depreciation making it difficult for the New Zealand Government to meet its other tax commitments while excluding commercial and industrial property from the scope of any change, particularly as a revised revenue estimate was significantly lower than the original providing Ministers with even less room to manoeuvre and excluding non-residential buildings. The flow-on implications from removing the right to claim depreciation on buildings would be a lower quality of infrastructure as there would be less incentive to re-invest capital or higher rents as landlords looked to recover lost tax deductions. The reason why this commentary is important is it relates specifically to public policy decisions that were taken in 2010 which in Property Council's view now significantly constrains the ability of property owners to fund changes to their buildings. In effect any additional work to the building structure is not deductible or depreciable resulting in the additional cash cost to building owners. Depreciable property is defined in the Income Tax Act 2007 as property that in normal circumstances might reasonably be expected to decline in value while it is used or available for use either deriving use, either deriving accessible income or in carrying on a business for the purpose of deriving taxable income. A number of international studies that Property Council analysed separate out the depreciation attribute to physical wear and tear, ie the deterioration, the physical capability of the building asset, with so-called economic depreciation which relates to the ageing of the asset and is attributable to factors such as obsolescence. Depending on what type of depreciation is being discussed the economic profile of loss and value may vary. Property Council's definition of depreciation which was articulated to Income Revenue and Treasury officials advising the New Zealand Government emphasised the role of economic depreciation. As noted above environment factors can include changes in building technology, ie obsolescence, as well as changes in tenant preferences such as a configuration and internal

specification of a building which may affect the property's value over time. Property Council submitted that it is this economic definition of depreciation that Ministers should have regard to. Notwithstanding Property Council's and other submissions in budget 2010 the New Zealand Government announced the policy change denying depreciation deductions for buildings such as rental housing and office buildings with an estimated useful life of 50 years or more. This policy announcement took effect for all such buildings from the start of the builder owners 2011/12 income year. In no way is Property Council suggesting that the buildings that fell during the Canterbury earthquakes did so because of the public policy change relating to denying depreciation deductions. Many of the buildings that failed have stood for many decades and it is the responsibility of the Commission to enquire into the reasons for the building failure but it is nevertheless important to consider how the taxation rules may impact adversely on New Zealand property owners undertaking improvements in the future. From that perspective Property Council submits a series of proposals for the Commission's consideration which, in our view, should constitute recommendations to the Government. (a) Depreciation on non-residential property classes should be reintroduced to reflect the reality that buildings do, in fact, depreciation over time. (b) New Zealand should sit within the mid range of OECD countries in terms of the application of depreciation for non-residential property classes in order to compete for internationally mobile capital. (c) If the above recommendations are not accepted at a minimum there should be scope for losses on buildings, eg on the sale or demolition to be claimed. Currently losses can only be claimed in limited circumstances.

D) The 2010 and 2011 Canterbury earthquakes necessitate a new approach to the taxation treatment of earthquake strengthening. Historically earthquake strengthening has been treated as a capitalised cost effectively meaning no deductions arise in the removal of tax depreciation on buildings. The cost of strengthening buildings to mitigate earthquake related damage or loss should be deductible to

reduce the financial building of this building work on the individual property owners.

E) The timing of Canterbury's recovery is uncertain. The lack of momentum is unacceptable given the size and significance of Canterbury as a regional economy. Property owners should be allowed to claim an immediate deduction for all or part of the cost of rebuilding. The government should be prepared for a clear direct path for the rebuilding of Christchurch.

Property Council hopes that the wide terms of reference given to the Commission will enable it's members to consider not only the regulatory environment pertaining to the design construction and maintenance of buildings but also the public policy environment that will enable improvements to both existing and future buildings over time. Ingham and Griffith in their report acknowledge the significant financial cost of compliance in seismic strengthening of New Zealand's building stock. This issue has been identified and detailed by other submitters. Property Council has come to the Commission seeking to outline a series of recommendations that would enable property owners and territorial authorities to progress work necessary to evaluate and enhance the performance of buildings in New Zealand. This process should start with URM buildings. At the same time the taxation obstacles identified in this statement of evidence need to be addressed. It will not be possible to address changes in the Act and the Code without consideration about how changes will be delivered and enforced. The Commission provides a unique opportunity for recommendations to be codified so as to inform the government's decision making. Property Council's forward advocacy programme will be shaped to respond not only to the changes to the Act and the Code but also other matters that affect the ability of property owners to fund works that enhance the performance of their buildings for the betterment of the New Zealand public. Property Council thanks the Commission for the opportunity to appear at this hearing.

QUESTIONS FROM COMMISSIONER CARTER – NIL

QUESTIONS FROM COMMISSIONER FENWICK – NIL

JUSTICE COOPER:

Mr Newman thank you for that submission and the trouble you've gone to with it. We'll take it into account to the extent we're able to and there are terms of reference, thank you very much.

DAVID HOPKINS RECALLED (ON FORMER OATH):

MR MILLS:

Q. There are a few matters really that I think have already been touched on in some of the questions I did have have already been raised with you by the Commissioners. But just a few questions to try and, at least for me, to get a bit more precision around some of the questions that are causing concern. Now I think Justice Cooper asked you about the role that you had played in the provisions about earthquake-prone buildings that are in the Building Act – and if you want to sit feel free – and I think you said in response to him that you pushed for those provisions to happen but you were not one of the policy advisors. Have I got that reasonably accurate.

A. (inaudible 11.15.47) when I say that was on behalf of the Earthquake Engineering Society, I was part of a group that was saying that but the particular focus of that change was really not URM buildings.

Q. Yes I appreciate that, yes. So even though you weren't one of the policy advisors at least at the time that the provisions went into the Building Act that deal with earthquake-prone buildings did you agree with the policy that they reflected?

A. Yes. I comment that I think there was a view about the 33 percent and without getting you know the other issues about its like with like comparisons, there was a view that desirably it could be greater, the 33, but that we did a study, part of this lead up to it was a study of an estimate, if you like, of the number of buildings that would be captured, of three stories or more that would be captured by that threshold and it was estimated at something like 10 percent, if I recall correctly, for Wellington and it seemed to be at a reasonable level. We were, I guess the comment was that if we were to have, as the Earthquake Society, sought a higher level it would perhaps result in no legislation.

Q. Yes, well what I'm particularly interested in knowing from you, at this stage at any rate, is whether there was any consideration of having a

separate set of standards for existing buildings rather than doing what was done, which is to use a reference point of new building standards.

A. No I think the, I refer back to the concept of the ground shaking and if you can assess a building performance against ground shaking using whatever tools you have available you can make a comparison.

Q. I think you've agreed though, haven't you, that you have two engineers who are both being asked to make an assessment of whether a building comes above or below the one third new building standard that they're very likely to come to different views on that. Have I accurately captured your position on this?

A. Correct.

Q. Have I also understood correctly that the decision to move to this reference point of new building standard and then taking a percentage of that had at least an element in it that I might perhaps describe as political. Let me just explain what I mean by that. The slide that you put up from the New Zealand Society of Earthquake Engineers I understood that to be looking for a legislative requirement up to a certain level but then beyond that the hope that it would shift the market. Is that what that was intended to do?

A. Broadly I guess yes. First of all that slide you saw was my modification of that basic table, colours etc , and the addition of market forces in those columns. There's probably a subtle difference is that its more, certainly from my perspective, would have been that look if we have legislation at this level where TAs can require things to be done, that's at least a step forward from where we are in terms of this programme getting spruced down. We will have to rely on market forces above that level but it's not, it's more or less the same as you said but not quite.

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Q. And am I right that one of the attractions of the 33 of new building standards here was that it suggested a level of precision to the market?

A. No I don't think so probably although one has to come to a number I don't think there's any suggestion of precision in there but if you were going to have a criteria at some level you have to make a number.

Q. Yes.

A. Albeit that you may have disagreement about amongst engineers as to whether you are at that level or not.

Q. Did I misunderstand you then? I thought that at least part of what you were saying was that the 33% was attractive because it could be clearly understood by the general public and I include in that the market?

A. I think I was referring more so the percent NBS concept rather than the 33 or whatever other number.

Q. All right so it didn't matter what the percentage was specifically but do the use of the percentage had an attraction?

A. It does.

Q. For communication purposes?

A. Exactly.

Q. You agree don't you that the, that there is room for significant debate at any given case as to whether a building is above or below the 33% new building standards?

A. There has been yes. There's plenty of evidence of that.

Q. One of the difficulties that it seems to me any rate arises from that and I'd just like your view on this is that the Building Act gives local authorities and territorial authorities specific powers that only come into existence if a building is below 33% of the new building standards.

A. Yes.

Q. You agree with that.

A. Yes sure.

Q. Now that again the lawyer in me says that if we move to the sort of suggestions that you've made about having a grading system for buildings essentially putting that on the LIM and so forth there is the potential for this question of whether or not the building is earthquake prone to become a much more significant one. Do you think that's right?

A. Well it certainly would, obviously it would be more significant an issue.

Q. And because there is room for such debate amongst engineers about whether it's above or below that level this is inviting among other things resort to the Court to determine whether it's above or below that?

A. Among other things yes I would say that the usual thing that happens is there's an attempt to resolve differences of view between engineers.

Q. But the issue is going to sharpen isn't it if this goes on to the LIM with the intention of affecting the way the market reacts to it?

A. Yes I believe that happening at the present time in relation of earthquake prone or not.

Q. And as long as we deal with this in the way in which it's currently dealt with in the Act by reference to a specific percentage of the new building standards the potential for that is inevitable isn't it?

A. The potential for?

Q. The potential for disputes over whether it's above or below and potential resorts to legal challenge it's inherent in that use of that system isn't it?

A. Undoubtedly and one of the things in relation to the 33% setting though is that we didn't anticipate that is the Earthquake Society that it would matter too much apart from earthquake prone in terms of the performance of the building. Most engineers who would assess a building at less than 33% or less would recommend to their clients (inaudible 11:25:09) level much higher than that. Therefore in terms of their own risk management you know the precision of the 33 is not so important. What does become important is where a building is classified as earthquake prone or not and that's a very significant thing to have associated with the building in terms of its value.

Q. Did you listen to or are you aware of the discussion that took place yesterday with Mr Lizundia about this whole issue of whether it's wise to use new building standards as the reference point?

A. I read his paper briefly.

Q. Do you have any, did that affect at all your view on whether New Zealand has gone down the right route on this?

A. I think I would like to study his requirement a bit more before I gave a considered answer to that but it doesn't certainly as I said before the

percent NBS concept I think is a good one to have. I think that the US tends to be a bit more prescriptive in their requirements than we do.

Q. All right I won't pursue that further with you at the moment. The next thing I would just like to ask you about is quite a narrow point and it relates to the requirements that are in the Act about the minimum things that a local authority must have in its earthquake prone policy. Now one of them, one thing that isn't there is that a requirement that each territorial authority prepare a inventory of all the URM buildings or all the earthquake prone buildings within its jurisdiction and I'm wondering if you know why that wasn't included?

A. I don't, I don't know why.

Q. Would you agree with me that preparing an inventory of what you have is a critical first step in developing an earthquake prone policy?

A. Absolutely.

Q. So if you had your way that would be a requirement of every territorial authority would it?

A. It would be very helpful yes.

Q. Indeed without it you can't really begin to know what you're doing can you?

A. No in a more general sense I think a review of the seismicity of the region, a review of the risk represented by the building stock is obviously at, would be to my mind the first two steps in developing a policy and to require a TA to have a list of buildings would actually be a steer in towards an active policy in that they are required to identify even if they have a policy not to act on or so certainly it's an option open.

Q. You've spoken in support of the current structure which delegates significant powers back to the local community haven't you?

A. Yes.

Q. And as I understand it one of the reasons you say that is that enables local communities to make their own assessments of risk?

A. Correct.

Q. They're not really able to do are they if they don't know what buildings they've got that pose a risk?

A. No.

Q. Which brings us back to my point that having an inventory is essential isn't it as a first step?

A. Well as I said I would have expected that that would the first step in developing a policy and I believe to a great or lesser extent that's exactly what happened?

JUSTICE COOPER:

Q. Can you name councils that have done that?

A. Not off the top of my head Your Honour. I know there was one in the central North Island that had commissioned GNS to do a seismic -

Q. No I'm not talking about the seismic risk the list of buildings?

A. No you would have to ask the TAs about that.

Q. Have to ask who?

A. The territorial authority representative that will appear before you.

Q. Yes I see. Hasn't Wellington done it or?

A. Well yes I mean sorry I mean Wellington they went through a first screening process and I believe came to the conclusion that they wouldn't as a priority look at buildings before, built before 1976 and they attempted to get a first screen and therefore a long list if you think. They then did this initial evaluation procedure in order to really I would in my interpretation to actually decide which buildings were not potentially earthquake prone on that list. They were quite satisfied they weren't going to be. If there was doubt they would include it.

WITNESS STOOD DOWN

WITNESS INTERPOSED

COMMISSION ADJOURNS: 11.31 AM

COMMISSION RESUMES: 11.51 AM

JUSTICE COOPER ADDRESSES MR THORNTON

ADAM THORNTON (AFFIRMED) (VIA LINK WELLINGTON)

JUSTICE COOPER:

Q. Well now it's over to you how you wish to present your submission. We have read it but if you wish to you can read it to us or you can simply speak to it as you please.

A. I propose to make introductory comments and then speak to it rather than read every word if that's okay.

Q. Thank you. Yes.

EXAMINATION: MR MILLS

A. Well I am a consulting engineering with, with wide experience in seismic assessment and strengthening as in, as well as in the design of new structures. I do believe that it's important for this Commission to hear from consulting engineers, particularly on this issue because we are the practitioners when it comes to assessments and retrofit of existing structures and as engineers who interpret the legislation of policies relating to earthquake prone and earthquake risk buildings and it is primarily consulting engineers to whom building owners turn to for advice and retrofit expertise. In my view the general public has little understanding of relative risk. That is dependent on a probability, that in turn is related to a return period and which can be realised at any time. I do think this Royal Commission has a unique opportunity to enquire with, into the general understanding of seismic risk within society, that's the understanding of seismic risk, to determine society's appetite for risk and the cost of mitigating it and then recommending legislation or policy to address that appetite for risk. Look my submission talks a little bit about the description and observations relating to this existing legislation, earthquake-prone policies, existing assessment and retrofit

practice and some observations relating to risks for existing building and then I've got some, if you like, recommendations for legislation, policies, training and practice and some points about heritage structures. So, firstly, description and observations relating to legislation, to existing legislation. Firstly, there are a number of clauses within the Building Act of course which address earthquake risk and earthquake-prone buildings. Section 122 defines what an earthquake-prone building is and I think it's fair to say that both regulators and designers generally feel that it has quite ambiguous or can be interpreted in an ambiguous manner. For example, it defines that an earthquake-prone building is one that would effectively not survive a moderate earthquake. The definition of that earthquake by regulation is defined as 33% new building standards but it, for example, does not say much about the implied ductility that a structure is required to have so that, for example, for modern buildings, buildings have to get to an ultimate strength requirement but then have an additional ductility to withstanding displacements beyond that. Some may argue that that is included within the legislation for earthquake-prone buildings but I would suggest that it's not implicit and so, and I think I have seen examples where buildings have been, brittle buildings have been designed to, if you like, the bare minimum. When they get beyond that point collapse is possible if not probable. I should say also that when we're talking about brittle buildings here I'm not just referring to unreinforced masonry buildings but also to more modern buildings and I think we've seen examples of that, of more modern buildings failing in a brittle manner, for example, the two that resulted in extreme loss of life, the CTV and the PGG buildings. In addition the, the word "and" between clauses (a) and (b) of 122 is, is also I think ambiguous and can put an onerous level of if you like proving earthquake-proneness on engineers and local authorities and of course the term "collapse" is often open to interpretation. Quite what does that mean. Section 133 relates to, for territorial authorities to adopt policies on earthquake-prone buildings but I would say that I think there's little evidence yet that that has led to any

systemic or systematic improvement in our building stock. In Wellington for example where, where most of our practice is the TA has been extremely pro-active. Probably of all the TAs around the country it has done more than others to identify and promote strengthening but even here there are, you find many examples of buildings with the strength assessed as less than 10% of NBS where people effectively can keep on living and working in for maybe up to 20 years. A minor point about altered buildings. I guess it's my belief that the Building Act is relatively silent on that and so that buildings can be altered, in fact added to, while still maintaining a relatively low level of strength. And, finally, the change of use requirements has that clause of near as reasonably practicable. I mean it is to some extent workable but is very much open to interpretation. For example, within Wellington within the 90s where the change of use provision was in place but earthquake-prone legislation only related to unreinforced masonry buildings. For the most part of that decade from '91 through to about, in fact, 2001 the local authority interpreted "near as reasonably practicable" as meaning at least up to the 1965 code which, of course we now realise is, well we know is a lot less than the current code requirements and in fact some of those buildings that were strengthened to that interpretation are going to have to be re-strengthened within Wellington. So observations relating to earthquake-prone policies. Essentially it is that they are very wide and varied and certainly for practitioners that's not an easy thing to deal with. I won't list all those but there are some of the issues that you have there in front of you where throughout the country the interpretation or the policies are quite different. Some observations on strengthening practice. Firstly that you know the practice of detailed assessment of structures, the older structures, is a very difficult and time consuming practice and if I can, in my opinion it is far more difficult and requires greater experience than for the design of new buildings. That's partly because new buildings if they're designed effectively to the verification method or cook book rules should result in structures with appropriate modes of response, mechanisms and levels of ductility if the

verification method is followed. By comparison for older buildings there are not yet any compliance documents cited in the Building Act or the regulations for seismic assessment. So by inference all retrofit designs are alternative designs under the Building Act but that can also lead if you like to a greater degree of engineering judgment being undertaken and I think we've seen varied results to date. As I said many of the technologies both assessment and retrofit are quite new. We've seen a lot of development over the last few years. Accordingly in practice the variance of skill and experience is also varied, it's the – and when you consider, if you like the resource available from consulting engineers and in regulators if you like, is quite small that I think that's going to put a challenge for all of us, particularly the design community to meet the resource that is going to be required over the next few years. The NZSW guide is generally well regarded and it's quite well used, but is also – can be quite widely interpreted and as I've said it's not a compliance document supplied by the Building Act and I think that is something which we should move to, so I've listed some observations about practice there that you can see, but I think that you know, engineers like ourselves are spending quite a lot of effort just to prove that a building has just made the 34% which in many ways I think would be regarded as a wasted effort, or a non-productive effort I should say. We have seen examples of obviously brittle structures being, justified as being not earthquake prone when they have only just met the threshold of 34% and also there are examples of both conservative and non-conservative assessments. Some observations relating to risks from existing buildings, I think no doubt you've heard of the relative financial effect of this event has had on New Zealand, effectively because we have a small number of strategic cities with a high percentage of our population within those and the example's been given of a much larger event in Japan costing a much smaller percentage of their GPD and so I say that therefore the proportionate risk of a major national disaster in a large city is higher in New Zealand than an international average and perhaps our threshold for earthquake prone buildings needs to reflect

this. I think also that reduced seismic form, it's from existing older buildings can be justified for the risk of material lost on an infrequent basis, ie I mean that is the basis of our philosophy, when a large earthquake occurs insurance will be there to mitigate the material loss, however for the extreme loss of life one structure such as the CTV building perhaps that was an outcome that was not anticipated by the people who promoted that philosophy. Heritage structures to pose a great dilemma for the structural engineers because we have been required to like balance the call for minimum intervention, from the heritage lobbies with the need for life safety and the protection of national icons, so that has been a dilemma for us in the past and I think perhaps not so much in the future from what we've observed from Christchurch. I guess in the past that this, the message is that engineers have given to legislators and regulators relating to seismic risk, have perhaps been excessively tempted by considerations of property values and other effects on material wealth rather than the need for life safety, and I guess perhaps this now is the moment for a more appropriately balanced view and following on from that I would say that prior to the Christchurch earthquake few building owners have been pro-active about strengthening their buildings unless there has been an economic justification for doing so, so I move to my – quickly run through my recommendations I have made, so my recommendations could include raising of the earthquake prone threshold, perhaps nationally, requiring a reasonable level of ductility within that, that could be required by effectively displacement demand requirement, for the strategic reasons I've said about our relative wealth and a few cities, that perhaps the threshold could be set higher for the main centres, that's not of course because life in the cities would be more highly valued, but because of the effect on the national wealth in the event of a major event, say in Wellington. Setting the target level for strengthening higher than the assessment level and I think there's a certain logic to this, that if a building has been assessed as earthquake prone and maybe that level still stays somewhere between 35 and 40% but if you

are required to strengthen the building, the owner should be required to take it to a higher level, maybe two-thirds or higher because only by that way can we progressively improve building stock over time. Perhaps set a higher earthquake prone threshold for higher occupancy buildings, you know the CTV is an example of that, too many people killed in one building, so the importance level which we have for new buildings could perhaps be extended to cover earthquake prone and older buildings. I guess from, certainly design practitioners would be very keen to see a single earthquake prone policy for the country, or at least a greater degree of consistency within the policies from the various TA's. Buildings subject to change of use or addition should perhaps just be required to go to 90% rather than the near as reasonable practicable requirement and effective timeframes should be set rather than allowing as has in some policies to effectively to be on the never, never time basis. Our recommendations for local authorities would be to allow for progressive strengthening, encourage adjacent owners, have mechanisms to encourage owners to work together, particularly in older heritage parts of the cities where you have pounding and party walls, it's very difficult to get a consistent approach across building owners. Maybe require strengthening when major refurbishment is taken, that has a value of a significant portion of the capital value of the land so it's a sort of a ratchet type clause for example if a building owner is going to spend more than 25 or 30% of the value of his property on a general refurbishment then strengthening should be required. There should be financial guidelines for dealing with heritage structures, particularly those in private ownership, and there should be, local authorities should consider timeframes to coincide with general urban regeneration programmes, I mean that is the time when strengthening becomes more affordable. A little bit about training practice, the, as I said we would like to see compliance documentation within the building regulations for strengthening, training in the CBD required, should be required for seismic retrofit, at the moment I believe there is very little training within, certainly the graduate courses for structural engineers for retrofit and

assessment. We should encourage and require in fact greater use of independent peer review and of course student research should carry on and a couple of points related to heritage structures, I think the communities really must be driven to decide which structures are to be (inaudible 12:09:03) in perpetuity, those structures should then be protected, given a high level of protection, maybe 130% effectively implying some form of base isolation, and accept that other structures maybe lost in an event, but of course be strengthened to give a reasonable protection for life safety. Thank you very much.

COMMISSIONER FENWICK:

Q. Thank you for this, there are a lot of brave valuable points in there, I certainly appreciate having them highlighted the way you have, that's most helpful. In your recommendation you're suggesting there should be a level of ductility implied in the design and I'd go along with that, but there's an inherent problem, isn't it, with URM's that the basic material is not inherent ductile so maybe one's limited to saying well under life safety conditions one can introduce a certain amount of ductility, but the structure will suffer a lot of damage in the process. What would be your reaction, would my interpretation be correct or should it be modified?

A. Well I think you are of course correct, but maybe the way to do this rather than require a ductility to require it to be able to withstand a certain displacement which maybe, effectively may lift the elastic demand on URM's to a higher level than for more ductile structures.

Q. That really ensures that you can take that higher elastic displacement in your URM though doesn't it, but that's – it's not a very elastic material to start with, I imagine you can hold it in place but suffer damage by some steel frames or something like this which will allow you to have that displacement without collapse but I don't think you could have the elastic deformation could you in your URM.

A. Well as you say I mean I think that's particularly an issue perhaps in Wellington where we do, where we are expecting higher levels and some buildings that have perhaps, equivalent buildings have been

justified as being not earthquake-prone or have been strengthened in other centres with lower hazards then in Wellington often that doesn't work and quite often we find that we do have to add significant robust structure, effectively to limit displacements and stresses within the URM. But I think it is, you know even techniques of structural weakening of masonry, for example, to allow additional displacement in some areas. Out-of-plane I think you can handle within reason allow reasonable displacements. So it is a challenge, I agree with you, but certainly the existing situation where, if you like, we practitioners in some instances have designed brittle mechanisms to just get to the minimum requirements is not desirable. I'm sure we can agree on that.

Q. Thank you very much. The idea of weakening so it can deform, yep that's a lovely idea, thank you.

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COMMISSIONER CARTER:

Q. Yes, again, I repeat, thank you for your submission. We have been hearing from Professor Ingham on URM buildings and also commentaries from our peer reviewers from the United States and we're being made aware of the Californian practice in regard to retrofit where there's more emphasis on recognising the nature of these buildings and having a more prescriptive way of determining the retrofit work that's undertaken. We're reminded that they have got a very high percentage, some around 70 percent of 28,000 buildings that have been retrofitted in California and I'm just wondering to what extent. I notice that in your work, I should say, you've related to percentage of national building standard as compared to the US approach which has developed a special code for those buildings with more prescriptive ways to deal with them. Have you considered the Californian approach and do you have any comment to make about the two different approaches that we seem to back taking in our respective countries?

A. Look I think, I think some practices within New Zealand have considered, if you like, wider international practices, and particularly some of the American and the FEMA type codes and the Californian codes. I would say that generally that's not widely practised in New Zealand and there may be a good case to deal with it but, Professor Ingham's policy I think, paper and the research that has been done at Auckland and Canterbury has generally tried to work from a basis of New Zealand, existing New Zealand practice and I think some aspects of that are valid and have been proven to perhaps work to some extent. Others have not. So I think it is certainly time for the industry to take stock of where we are and I think, I did make the point that, you know we don't have standards as such, certainly don't have standards that are cited in the Building Act as being appropriate. We do have the NZSEE document and I think that does go a long way to fill a void but that's certainly not to say that that is the last word. I think that's right and the work that Professor Ingham has done and is developing, certainly for URMs, will be very useful. Of course the guide that we have it goes far beyond URMs and, perhaps, that is the one area that needs significant upgrading from the NZSEE document.

Q. So I take it then you would say yes one thing we could do is to have a look at these other practices.

A. Well I think as long as they are based on you know sound and latest research. I mean I think, look I skimmed the report and the commentary from the Americans. I think, I mean there are some aspects I think which some people would say consider them. When we are dealing with URMs they're very difficult to strengthen and if they are not heritage buildings the cost benefit is a very fine line, particularly those buildings in private ownership, so we do, I think speaking on behalf of our clients, they certainly want us to get the best we can. So we do have to make sure that we're not just blindly following a conservative, what may be a conservative practice but to get the most out of it and I think people are looking at Professor Ingham's studies with some interest because they are suggesting higher capacities and perhaps better performance but, of

course, that needs to be accepted and verified across a wider community before it can be put widely into practice and certainly we look forward to that happening.

JUSTICE COOPER:

Q. Mr Thornton, just following on about the New Zealand Society of Earthquake Engineers Guide. Am I understanding you to say that it is useful for buildings which have been designed as reasonably, or structures with low ductility but at least some ductility, not so useful with respect to URM buildings.

A. Look I think that's probably a bit strong interpretation of what I suggest but I think within the design and academic community I think it was realised that that is an area that needs revision, could I leave it at that I think.

Q. You say it's not a compliance document and we should be moving in that direction. Could it, would that be a question of amending that document in some way or is it a case of needing to write a different document.

A. Well look all, perhaps all documents are sums of documents that have gone before them to a certain extent but I would have thought it is a little bit different to a standard and would need some revision to it. I'm possibly the wrong man to ask that question I think but we do need a document, whether that one could be adopted or whether we need to start afresh I think that's probably for others to answer.

Q. Well have you, in your practice, been engaged in the seismic strengthening of URM buildings?

A. Yes many, yeah.

Q. Yes, and in doing so have you endeavoured to meet the percentage of new building standard rules, I assume you have?

A. Yes, certainly in more recent times because it's only since, I mean the NZSEE document has only been alive for, effectively since the 2004 Building Act and the new earthquake-prone provisions that came with that. Prior to that predecessor documents of NZSEE were used,

currently called The Red Book, a similar basis type document had been used since the 70s.

Q. So when you're approaching the seismic strengthening of a URM building what do you take the reference to the new building standard to be? What's the comparator where you have a URM building and there are no rules around to which you can easily make a cross-reference?

A. Well I think, as of now, the default rule is that NZSEE document so depending on what level of, well first of all if you are assessing the building to determine what its strength or capacity or performance might be then it gives you guidelines and for masonry buildings it's the, as you probably heard, it's about face load, it's about in-plane loads of the walls, it's about the diaphragms and the way they're connected to the walls and it's about parapets and other bits of things that can fall down, balconies etc, and so you address each of those to see perhaps at what point they will fail and if you are then engaged in strengthening you must decide, usually in conjunction with your client while engineers will, of course, recommend going at least to two thirds as a minimum, the clients, when they are perhaps not going to receive any additional income or rental from their building, if it's a rental building, then they are often inclined to say, well they only want to pay for the minimum requirement, whatever that might be which can be just 34% and so then the strengthening methodologies, well those technologies which are included in Professor Ingham's book and in the research that has been carried out by his students, they do give us good guidelines for various retrofit technologies.

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Q. Just forgive me for persisting for this just for one further question and I have to ask for your forgiveness because I'm not trained as an engineer of course but when you say you have to, your client will chose between 67% and 33% or 34% rather, 67% of what?

A. I would say that that's the loads and effectively deformations that aren't prescribed in the, in the methods within the Building Code. So that is,

there's a loading standard which prescribes loads for New Zealand with some modification as directed by the NZSEE document.

Q. In relation to URM building, is that what you're referring to?

A. Yes I mean the Loadings Code effectively prescribes for earthquake design, it's basic terms, a level of ground shaking, ground accelerations which is reflected then in the response of the building and for masonry buildings they tend to be very brittle, very stiff buildings I should say so that they attract high seismic accelerations and forces within the structure. So that ground acceleration gets translated into a response and then into forces and moments and shears within the structure and we have to ensure that the various elements of the building, be it beams, columns, walls can resist those loads or pressures.

Q. Well with a, with a URM building with its typical structure and characteristics I find it hard to understand how there can be precision between 33%, 34%, 32%, 36%, I don't understand how that can be achieved with, with any precision but is it a matter of doing a calculation?

A. Well I think Your Honour you do understand because it is not a precise, it's not a precise method. It can't be because you are reliant very much on very variable materials. So I think many of us will actually, will not give you a precise number but give you a band of a range where you think it is but it is by doing calculations as you've suggested. So the earthquake imposes a load on the building, those loads we analyse to see what the stresses are by calculation and computer analysis, whatever, within the element of the building and we then can see whether effectively those stressors are what we consider to be allowable within those materials. So, for example, two bricks stuck together with mortar, it takes a certain force to slide them apart. Now we have numbers and the higher, the more bricks stacked on top the higher that force is the better the mortar. There's a whole lot of variability's but we, we can work out what the force is likely to be to shear those bricks or to fold them in and out of plane, fold them out of the wall and in an out of plane situation and then we apply some sort of factor of safety to that

and say whether that is within reasonable allowances and by that we say, well, if we want this force to be able to take a certain force but the code prescribes it can take, should take X, we think the bricks will slip or fail at .2 X, whatever, so therefore we derive, effectively, a percentage strength for that. Usually you work it out per element of the building and you decide. You may get some elements that are going to fail quite earlier but they may not initiate major failure or collapse within the building so you might say, well, we can accept some damage for there, let's look, progressively fail a few, some elements until we get to the point where we say the structure is unstable and collapse may occur. That's the sort of basis behind what you may have heard of a push-over analysis.

Q. Yes.

A. Which allows some elements to fail along the way until you get to a point of instability.

Q. Yes and in buildings which so far as you're concerned you've designed to seismic strengthening which is to meet your client's requirements just over the threshold, so it's 34 or 35% or whatever of the new building standard, have you ever had an argument with the council about that. I mean is the council able to police assertions made by property owners that a certain degree of seismic strengthening will be achieved if a proposal is adopted?

A. Very much so because if any strengthening should be a part of the requirement for a building consent, certainly in Wellington the council is quite vigorous in effectively peer reviewing, maybe not every consent but a proportion of them to establish whether, you know, acceptable design practice has been undertaken or been adhered to and they'll also quiz as to the level of strengthening. As I say, I'm not aware of any engineers who go and say to their client, look you only, let's just go for the minimum and that's all we want to go for –

Q. No, I wasn't suggesting that. The pressure might come back the other way though.

A. Yeah no well it does and I think, I would say to that I think there are some, there are some authorities, certainly in the past that have been prepared to rely on the engineer without any verification or peer review perhaps to a great extent and I think that's, certainly in retrospect that's unwise because it is a field that is, strengthening in some areas is not practised a lot by some practitioners, it's something they do now and then and it is an evolving process and because there aren't the sort of standard verification methods. So when something is open to interpretation of course, I think I've said this in my paper, I've seen, you know, assessments done by different engineers that can vary by maybe 200% or more. Now until they are brought together and forced to accept the reasoning of each other, until they can come to some agreement then that needs to happen on a wider extent to lift the performance and practise and if you like the reliability of this sort of strengthening work I think.

Q. Look they're very valuable answers thank you from our point of view and thank you very much for taking the trouble to make this submission and address us this morning. Thank you.

WITNESS EXCUSED

1231

COMMISSION RESUMES: 12.33 PM

MR MILLS CALLS

JOE ARTS (AFFIRMED)

JUSTICE COOPER:

Q. Good morning Mr Arts.

A. Good morning.

Q. Now we've got a copy of your submission before us, you can take us through that if you would thank you.

EXAMINATION CONTINUES: MR MILLS

A. The first one I've got here from memory is existing and new methods of seismic strengthening, retrofitting existing unreinforced masonry building. We have a family owned building with a family printing company inside the building. We had a discussion whether we wanted to earthquake strengthen or not because other parts of the Duncan's building had been earthquake strengthened by Shaun Stockman and the general view was yes, because eventually we'll be left behind and your building would deteriorate and other tenants would rather go an earthquake strengthened building in the future than not, and I always took the Californian attitude is that insurance was too ridiculously cheap here so therefore eventually we wouldn't be able to get good insurance so we'd have to future proof the building if we moved out and got tenants in, so that was the attitude why we slowly went through with the family to earthquake strengthen. Then we commissioned an engineer and the engineer was Barry Knowles, the discussion was like the previous one, 33%, 67 or 100%. We made probably a fortunate decision of going to 100% because getting to the walls was the biggest issue and once you cleared all the walls for a bit more steel to the cost

of the labour, it was you know the cost of the steel might have been only $50,000 more but the actual labour getting to the walls and the labour to install the steel was probably dearer so we took a thing just to go to 100%, I'm actually really pleased we did that because the earthquakes that followed we were sort of, um, a bit lucky, but we started before September the 4th, and what happened was went through, go through to get the consent process was a nightmare because every time you went to the council, once you finally thought you got the consent, they'd add another thing, emergency lighting, fire lining, wheelchair access, shower and we're in a 100 year old building, with a – for some reason there's a quirk of a 15, 20 centimetre step in the building, that's concrete floors, it meant ramps and all sorts of things so every time you had to argue with them and it was like having an argument, once I left the council I actually walked out and I didn't want to say anything more because I was really angry, and then when my sister came in with the consent the next day they said, "Oh you can sign a waiver to get out of the shower and the wheelchair access toilets," and they seemed to have lost sight the idea was to put steel in to stop the building collapsing on people, not actually wanting the building reinforced, it seemed to be a really weird attitude and finally, once we got consent, then we had to get resource consent, put the steel in and then you have the heritage people saying, "Oh, I think you should keep this fireplace, oh the tongue and groove looks nice," and we were going to rip the whole thing apart to get to the walls and I think people just lost sight that the actual object of the exercise was that to put steel into the building to make it stronger and to make it last a lot longer so it would last another 50, 100 years and do maintenance. So the City Council was a hindrance in a lot of ways and in the end they only really would have signed off the fire line gib, not the steel, that's all on the engineer's here. So that was the first real issue, the second issues you can see here which is a real major one, is the party walls, we're in a 1905 Duncan's building, I assume the party wall legislations 1905 when that building was built, we happened to be a butchery

beforehand so the walls had render on, render is solid plaster. When we chased out the first piece of render to put the steel on the walls, all our mortar was shot, we had loose bricks, so this is the photo of the party wall after the render's off, we could see through to our neighbour. Now the City Council just, or the Government, just doesn't think party walls exist for earthquake strengthening, so we do all this work and the other side were thinking, "Oh great, this side's doing work, we don't have to do anything." As you can see this mortar was shot, it went, raked all our bricks out to five centimetres and put new mortar in to the modern building code, this wall was just done before September the 4th, about five days before September the 4th. You can see the new patches of bricks we were replacing large areas on this wall, this wall's only two bricks thick here, and again you know that the neighbour's side is shot and there's no, seem to compulsion or anything to force the neighbour into doing anything, it's all waiting in the next 50 years of the next submissions, he goes to the City Council. So that was the start of it, you can see just to the right the steel strapping and stuff, because the back was rebuilt later than the front of the building, so the back had been taken off so somewhere we think in the forties, the back was made so that's why you'll see the concrete columns strapped and everything, and I was in the factory at the time and I was really impressed, I watched the whole roof move, the walls move, and I thought well, I'm praying to the God the engineer looking at his steel, you know this was a live report to him and I was thinking, he's doing the job, stuff falling around, and I was really, really impressed. Everything was moving, no – we have got no damage in the factory, except for the guillotine's come off its perch but that's sort of can be fixed. If the – if CERA gave us power we could run and if we weren't in the red zone we could still run our business, so actually to us it is worth earthquake strengthening and at the same time during the earthquake we had two – a brickie and a student raking out our bricks on the parapet with the scaffolding on we'd just finished putting all the steel up the front of the building and the brickie said the front of the building

moved a metre over with the scaffolding, they dived over the top watching the neighbour collapse and I totally believe that we saved the two builders at the bottom and the two brickies on the top, the surviving, they basically survived the earthquake. Neighbour collapsed, pulled the scaffolding off everything because he had no steel, so the steel is worth it and secondly about the steel there's an argument about the cost, the building might have been worth $1.1 million, a million, $700,000, we've only spent 300,000 so actually it is worth doing it without pulling the building down. Can you bring up the next photos please. This is the total shambles of the party wall legislation, you can see the big timpinole or pediment, I think it's the timpinole or pediment, is tied back on our side to a 100% of the 2004 building code. You can see the steel over the top with the pods going into the roof, that was the quality, well that's after we re-bricked the top of the buttress that runs through the whole centre of the building, it was I assume original fire wall, so the other side one (inaudible 12:40:53). That was completely shot, we re-bricked it, we didn't even ask permission from our neighbour because he was so hard to deal with, he just wanted nothing to know about it, so we did actually pay out for strengthening. Now see where the steel runs down the roofline if you go further along the same Duncans building those bricks projected off the top of the party wall so we held the wall down at the stake so, but you can see the other side of the (inaudible 12:41:22) isn't tied back at all which is like half a pyramid and that's what killed people because those parapets went through the canopy, ripped the canopy and landed on the ground so have a big beef that first the neighbours don't want to actually pay for any work done on a party wall yet there's legislation but every time you talk to someone oh it will cost you 20, $30,000 to get $5,000 back and that's where I think there's need to be compulsory works orders especially when you find a wall like ours that was in bad condition. We had one wall that had seven different holes in it but that was actually our wall. Once you get past out of the cladding you realise these buildings need work because they've been hacked

around so much. That's part of it. The other part of the submission I made was Councillor Sue Wells had a earthquake, the City Council did a earthquake policy just before September and I gave an oral submission and when I left that oral submission and went away I was totally horrified at people saying things like Australia doesn't have any earthquakes so we need a building code like theirs. England doesn't have any earthquakes so we need a building code like England and it left me wondering if we had the Southern Alps behind us or not and one major property (inaudible 12:42:52) in Christchurch said they did not want to spend any money that triggered compliance or earthquake, any building consent that triggered earthquake strengthening. They wouldn't do any work on their buildings and I thought that was a real scary proposition. I sort of felt like people just did not realise what New Zealand was made of and I thought we'd been living in a quiet time now it's got a bit busy with earthquakes and that was basically my personal feelings but I was quite shocked that people were just trying to avoid the issue. So that's the party wall and the pediments. I've gone through that.

JUSTICE COOPER:

Q. Mr Arts, you occupy, you've given us the building address 137 to 139 High Street.

A. High Street yes.

Q. Is that your part of the building? Okay so what's the neighbour's address?

A. The neighbour is 135 and that building has been partially deconstructed and pulled down. The other neighbour is 141 but Duncans Building is 16 titles built by the same builder under the same conditions every title so it is a complete one building and the City Council doesn't, they divide it in titles. They don't actually look at it as a whole building in its scene. We have one problem looming if 135 is completely deconstructed there's no sort of saying that he will have to strengthen his party wall completely along because the building's been made in one unit so the,

all the floor joists run this way so if he gets pulled down and his top second floor falls down we lose our sideways, what's left of any sideways rigidity.

Q. It may be worth you taking some legal advice on that if I may suggest it.

A. Yes that's more to the council to deal with now I think it's a problem. We have got problems now with this party wall and the other party wall we've had to put a 25 ml, 250 ml sorry by 250 ml box section hot tip (inaudible 12:45:11) space to hold up a common, two common new beams that run the whole 16 shops so we're propping up our end to stop it moving and we've got to do one on the other party wall but there's no sort of way to try and get people to force payment without going through you know the time you go through the legal costs it's probably cheaper to just go and do it.

Q. It will have to be work for another Royal Commission.

A. Oh yes. Well I don't know because it means that the work you do now is the work that makes life easier for other people.

Q. And this is a very interesting issue that you have raised.

A. It's a huge issue to us because it's been simmering for the last you know two years, year.

Q. Just on that photo that is displayed I take it 135 beam is to the left?

A. No that's 139, 141 is that one to the left.

Q. I see.

A. 135 is the other side we did exactly the same to the other side but his front is now completely deconstructed.

Q. All right. Is there anything else you want to tell us Mr Arts?

A. Yeah I've got some other photos could you please put up of Mount Eden? Okay this is the corner of Mount Eden Road I'm not quite sure of the other roads because I don't live in Auckland. This is a 1905 building same as us. Can you, large parapet could you please keep moving on next photo please? Okay you can see it's the same style building, unreinforced masonry built the same time and then there's another photo of it. Here you can see the obvious already this building is weaker than probably 10% of the code that the engineer would have

set out because of the crack and it's a busy café. This is a busy shopping centre. If this parapet went there's a photo can you please move round? This is the other side of the road busy intersection, buildings in better condition. I'm just personally looking at it. Now you can see the height of the parapet this is about twice the height of our one. If this parapet let loose it will kill everyone on the footpath and yet this building really when you look at the cracks upstairs in one of the shops further along the mortar's falling out of it this building should be red stickered now not after an earthquake. There needs to be a, not a timeframe of 40 years like Christchurch. I don't know what Wellington's timeframe is now but Auckland lives on volcanoes. What preludes volcanoes is earthquakes and so there needs to be a national stock because it's cheaper to repair or do something now than wait until see what happened to Christchurch because the cost benefit for us was still cheaper to say do the work on the building and it's proved it. We've just been unfortunate because of the neighbours collapse ripped part of our front off. That wouldn't have happened if we had managed to finish. We just had bad timing. So I've talked about party walls, legislation. The strengthening problems we can go to City Council. They treat you very hard. The heritage department is an interesting one because they look at you as you have to keep all these things when really the aim is to strengthen the building and say if you look at the Cathedral of the Blessed Sacrament which is probably the most beautiful building in New Zealand I would rather see steel on the outside and make it cheaper to strengthen than lose the building. There has to be a change of attitude to how you're going to approach to keep an old building in a seismic country. In Europe where they don't have so many things you know like that parapet or whatever you might not put it on the outside but in New Zealand you might have to and it comes back to the letter lack of understand of communal I-beam which is the problem with our building it runs 16 shop. There seems to be a lack of understanding that the building should be treated as one not as individual titles.

JUSTICE COOPER:

We have no questions thank you very much for coming along and I, you have raised some valuable points thank you and your photographs have illustrated them very well. I thank you for coming.

WITNESS EXCUSED

MR MILLS RE-CALLS

DAVID HOPKINS

MR MILLS

In light of the cross running and the need to get back on schedule for this afternoon perhaps to highlight some of the issues I think can be raised with the Department of Building and Housing so I think I've probably only got maybe one or possibly two things

JUSTICE COOPER

Yes, yes, I'm sure that's right.

EXAMINATION CONTINUES: MR MILLS

Q. So I think I've only probably got just maybe one or possibly two things where I'd particularly like your own opinion on this and the first one of them does relate to this issue that was raised or ready about this division between what's local and what's national in terms of the earthquake-prone policies. When you were being asked questions about this by the Commissioners you made some reference to your views about where you thought the line might be but I'd be interested to see if there's anything further we can get from you really about your views on what is national, what's local. You made some reference to the Gisborne earthquake-prone policy so I take it you're familiar with what they're now doing there?

A. Yes I am.

Q. And so would you support the position they have taken on the issues which should have more national standardisation?

A. Yes, yes, yes, short answer yes. I think in relation to the first sort of question you raised was that what would be the sort of national perspectives I think I've actually listed them in one of the slides where I talk about its actually, whatever the slide it is, the higher strengthening level, maybe in the Act. I see that as maybe a national requirement.

Q. Can I just make sure that we're clear on what you're talking about when you say the higher strengthening level.

A. At the moment we have a threshold which is used to define whether a building is earthquake-prone or not. At the present time the default position is that the strengthening level from the Act is 34 percent, you don't have to go any higher. The local government in New Zealand very early on in the process took advice on that and they were advised that they could not, that a territorial authority could not insist on more. They could put it in but they could expect argument. In fact I think around a third of TAs had a requirement for one building type or another of 67 percent in spite of that advice and Gisborne was one of those. The particular reference I made to Gisborne when I was talking though was in relation to parapets and exactly what we've just heard from the previous submitter.

Q. Yes so you'd favour a national…

A. A strong view that there should be some national requirement and perhaps more closely time bound.

Q. Yes I was going to ask you that as the next question.

A. Yeah, yeah.

Q. So you'd favour a time limit as well.

A. Well I think so. I mean when you think what happened here the fact that we've identified, if you go back to the 1972 Brown Book, which was the guidelines then of the Earthquake Society, that was looking at exactly these things so in 40 years we've still got these things sitting there. It seems to me, as I've said, the legislation hasn't kind of built the consciousness of people in the way we thought it would and there's more action necessary.

Q. Anything other than parapets that you'd have on your list?

A. Well I've mentioned here gables and frontages and I think there may be other things but they, I think, stand out from not just the Canterbury earthquakes but from many other earthquakes that we're aware of.

Q. And have you given enough thought to this to have an opinion at this stage about the time period that you would permit for this national roll out to be complied with?

A. I have not.

Q. Don't want to hazard a view?

A. Well not really. I mean the time frames that we had in the back of the Department's guidance document to TAs was of the sort of 10, 20, 30 years. I would certainly think it would be less than 10 and possibly even shorter than that if only to emphasise the importance of it. These are very precarious elements and they're very dangerous.

Q. Given that we've still got three minutes to lunch or four minutes to lunch I will ask you one further question around the same issue. The delegation down to the local level, as I understand it, was, at least in significant part, to allow there to be a community decision reached on what is an acceptable risk from buildings that are below the earthquake-prone standard. Is that a fair assumption?

A. Um not quite, it's not quite (inaudible 12.56.24 – overtalking)

Q. Well how would you put that?

A. Well I think the 33, or the one-third of ground shaking in the Act that's required in the regulations that defines a moderate earthquake is basically setting the benchmark. The policies are about what you do about whether a building is earthquake-prone or not and that is what is devolved the actual standard setting and so it does mean you can have, if you like, national settings. It might be minimums and they might be more stringent than we have now but you could still leave, it seems to me, the implementation. It might require more implementation probably and it's the policy that's devolved not the setting of the minimums.

Q. Well what I'm really most curious about, in the short time we've got left, is the success or otherwise that, if you have any knowledge of it, of engaging these local communities in an effective discussion about appropriate approaches in the local communities.

A. Are you talking about the sort of consultation with the public?

Q. I'm talking, that's exactly what I'm talking about and if its not something that you've had sufficient involvement in to be able to give an opinion on how effective that has been and what its involved then we can all go to lunch.

A. Its not really something that I could comment on authoritatively. Obviously I've got views from what I've read and seen but I think it's not appropriate to comment on that.

Q. That's an issue better directed to the Department itself I take it and to the territorial authorities.

A. Yeah. I would only say that it's important that there is a consultation process.

Q. All right, okay, I think we can leave it there.

COMMISSIONER FENWICK:

Q. We, in Christchurch we suffered one of these rare earthquakes return period 10,000/20,000 years, no-one knows. We know its more than 9,000, very vigorous. We're also informed that, well as far as we understand it, similar earthquakes could occur in other low seismic zones, moderate seismic zones but could occur in low seismic zones – possibly Auckland, quite likely Dunedin. Of course, given the return period of two or three times the recorded history we're not likely to strike it. how do you feel about one-third of seismic hazard co-efficient to .13 for Auckland or a nearly similar value for Dunedin given that order of occurrence of the sort of thing we've had here?

A. Yes I think that they're kind of two separate issues there. One is the, first of all for Auckland, as you will know the seismic co-efficient is .13. the actual precise calculations of probability, as I understand it, yielded .09 but there was a feeling on the Loading Standard Committee that that was too low and that there should be some superimposed conditional probability if you like. There could be an earthquake, I think it was 6.5, at 20 kilometres away.

Q. Just to correct that its at two thirds of 6.5 at 20 kilometres away.

A. Yeah thank you the point is that it wasn't, it was a conditional probability that yes we've done some calculations on the basis of probabilities of shaking. We think they've yielded too low a result for safety in a significant urban area. We want to raise it. So that's the first point. The second point is that, and I think this is to me the fundamental simplicity of the SANT MBS concept is that it takes account. If you're happy with the way you design new buildings to a certain level and you can get a reasonable comparator, as we were discussing earlier, with old and new, and I think that's possible, then the 33 percent is going to be as appropriate for Auckland on the face of it. If your point is that maybe that could be different then I would certainly acknowledge that and I think Adam Thornton was pointing in that direction when he singled out concentrations of populations in urban centres for maybe special requirements.

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JUSTICE COOPER ADDRESSES COMMISSIONERS CARTER AND FENWICK

JUSTICE COOPER TO DR HOPKINS:

Q. Dr Hopkins thank you very much for your contribution to our work and for your patience this morning.

A. May I make one more observation?

Q. Certainly.

A. That I failed to actually cover in my presentation. It was part of the slides and it was really to do with the, I mentioned the EQC/Department of Building and Housing workshop.

Q. Yes.

A. In parallel with that and it was really going on at the time of the earthquake was a, quite a, a nationwide survey of consultants to bring together case studies of what strengthening had been done throughout the last four decades if you like and how they'd got on. Now that's been put on hold for higher priority things that consultants are now doing but I

thought its worth mentioning that the sort of case studies that Mr Ingham is now bringing, they were contemplated. At the (inaudible 13:02:29) time I think we would have had quite a large resource of case studies. The purpose of those case studies was to actually disseminate to consulting engineers so they could see examples of how a particular situation had been resolved. One of the things about existing buildings is that they're infinitely variable and every one has its own unique circumstances and it's very difficult to set rules to say do this and do that but at least if you can get out how people have dealt with it that's going to be helpful. I hope we can proceed with that at some future stage.

COMMISSIONER CARTER:

Q. That was an initiative of the Department of Building and Housing was it?

A. In conjunction what the Earthquake Commission.

WITNESS EXCUSED

COMMISSION ADJOURNS: 1.03 PM

COMMISSION RESUMES: 2.15 PM

SUZANNE TOWNSEND (AFFIRMS)
MIKE STANNARD (AFFIRMS)

MS TOWNSEND:

My name is Suzanne Townsend. I am the Deputy Chief Executive of Sector Policy at the Department of Building and Housing. I thought it might be helpful to begin by providing the Commission with some background on the current earthquake-prone provisions. I'm then going to provide some information on the review the Department will be doing as a result of information that's coming out of the Commission and then I'm going to summarise our submission to you. Then I am going to take some time to make some comments on some things that have already been raised to date and I'm happy to answer any questions you have at any time and I have Mike Stannard, the Department's Chief Engineer, with me to answer the technical issues. The Building Act 2004 is one of the core pieces of legislation administered by the Department. The earthquake-prone building provisions in the 2004 Act are similar to those in the 1991 Building Act. There are, however, two key differences. The first is the definition of earthquake-prone buildings which was significantly extended under the 2004 Act resulting in more existing buildings becoming earthquake-prone. This was because previously only unreinforced masonry buildings were able to be called earthquake-prone. Under the 2004 Act all buildings, including residential buildings of more than two stories with three or more household units, could potentially come within the definition if they fell under the 33 percent threshold and under the 1991 Act the threshold was effectively 16 percent of today's building standard so the 2004 regulations increased that to 33 percent of new build standards. This was a significant increase in the number of buildings which could be defined as earthquake-prone.

JUSTICE COOPER:

Q. Now you're not reading from something that's in front of us I think.

A. No I'm not.

Q. That's all right.

A. That's fine, no it just helps me to know what exactly I'm saying.

Q. Yes, that's fine but I'm confused now about the 2004 regulations that you've just referred to.

A. Yes.

Q. Which are those?

A. Oh sorry the regulations made under the 2004 Act, I should be more precise, thank you.

Q. So these are –

A. The reg-, the 2005 –

Q. These are, these are the ones that rejoice under the simple name of 'Building Specified Systems Change the Use and Earthquake-prone Building Regulations'.

A. Absolutely, very simple.

Q. 2005.

A. They covered a range of issues including earthquake-prone buildings.

MS TOWNSEND CONTINUES:

Second, the requirement for the territorial authorities to adopt a policy on dangerous earthquake-prone and insanitary buildings was introduced in the 2004 Act. Given the increase in the number of buildings subject to the earthquake-prone provisions it was hoped that the requirement for local policies would encourage communities to have ownership of these policies and would provide some transparency around how the territorial authorities would exercise their powers under the Act. In the previous legislation the way in which powers were exercised was not at all clear or transparent and often councils had differing ways of doing things and no-one ever knew quite why that was. So the policy was an attempt to try and make them be clear about the way in which their powers would be exercised. As it has been noted by the Commission it is left to the territorial authorities to determine their policies.

This was because the territorial authority and their community were considered to be in the best position to ensure that the policy adopted was right for their community in terms of the affordability and the risk. In 2005 the Department provided guidance to territorial authorities to assist in the preparation of their earthquake-prone policies. The Department received copies of all the policies from all territorial authorities and a summary of those is attached in our submission. In June 2010 the Department, EQC and Local Government New Zealand held a workshop to assist territorial authorities in their first review of the earthquake-prone policies. Following that workshop the Department began to prepare a guidance update to help territorial authorities in developing new policies. This was stopped when the Canterbury earthquakes occurred to ensure it included the learnings from the September event. The Department considers that a review of the earthquake-prone building provisions is more important and the guidance will be a part of that.

JUSTICE COOPER:

Q. So what was stopped?

A. The, we were working on some guidelines that would allow, would provide more input to the second lot of earthquake-prone policies so that they were, they were getting better as we went on and as we got more information. Those are the ones that Mr Hopkins referred to earlier in the day.

Q. Yes but the, whether it's for that reason or, I mean you haven't, the second generation of policies there haven't been many that have been provided.

A. No most, from what I understand, most of the councils are waiting to see what happens as a result of the Commission and whatever happens as a result of our guidance that comes out of our review.

Q. Are they entitled to do that?

A. I don't know the answer to that.

MR STANNARD:

They have to be reviewed within five years and they should have issued their first policies by the 31st of May 2006.

MS TOWNSEND:

Yeah that's right they were given 18 months.

MR STANNARD:

Many of them, of course, were late so probably some of them the five years isn't quite up for a number of them.

JUSTICE COOPER:

So the five years runs, is an anniversary date from when the first one's produced.

MS TOWNSEND:

Yes.

MR STANNARD:

Yeah, I mean there's a provision there but there's obviously no, but there is no penalty if you don't do it.

JUSTICE COOPER TO MR STANNARD:

Q. But then other councils, just going to the summary material you gave us, there are councils which include the Christchurch City Council who have adopted reviewed policies but not given them to you?

A. There have been a number of policies that have been, Wellington changed their policy, Christchurch has changed their policy. As to whether we've received them, we're certainly aware of them and I can't say physically that we have received them but we know, they're on the website and they're published.

Q. Well, Mr Stannard, if you look at your, the submission that we have from you I'd quite like this to be, page 15, you have said in the left-hand

column, Christchurch City Council adopted the 10th of September 2010, not yet formally submitted to the Department.

MS TOWNSEND:

That's right.

JUSTICE COOPER:

Same with Wellington they adopted a policy in 2009.

MS TOWNSEND:

We are aware of them but I think you're quite right, they have not been formally submitted to us.

JUSTICE COOPER TO MS TOWNSEND:

Q. And Gisborne, not yet formally submitted to the Department.

A. Yep.

Q. So what is intended to be the point of requiring territorial authorities to adopt their review policies and send them to the Department.

A. The role of the Department was just to ensure that a policy was made and that they had actually complied with that requirement. It was for no other reason then that. So we had no role in reviewing the quality or otherwise of those policies. We just had to ensure that they had complied with the Act to have them and that they had followed, they had all the bits that were required of them.

Q. So if you're aware that a review policy has, in fact, been adopted but not formally forwarded to the Department as envisaged by the Act you don't care.

A. I'm not sure that's right.

Q. Well why would you because you're just, the only purpose is to satisfy you that it's been done and if you can be so satisfied by other means I don't see why you should care.

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MR STANNARD:

A. I think it was – it was certainly quite useful the first time round because you know there were the first time they developed policies and then it was a chance for us to make sure that they all had done that and we actively followed them all up, you heard this morning from Dr Hopkins saying that they all were, they all of the councils did develop a policy and I just add including the Chatham Islands in the end, so it was a useful exercise in ensuring they were all done. I guess the second iteration, the ones I think we would have probably done the same exercise once we had got a number of them if there was – to follow up those that hadn't done it, that's really all.

MS TOWNSEND:

A. One of the other things that was useful for us in reviewing those policies was to use them to help inform what was happening, what people were doing and not doing so that we could actually look at whether our guidance was pitched right and what we might do to help councils improve or build on their policies and that's one of the reasons for bothering to get them and to bothering to read and review them and think about them as well.

JUSTICE COOPER:

Q. So does that apply to the reviewed policies as well?

MS TOWNSEND:

A. It will have applied to reviewed policies as well as were always looking to upgrade our guidelines as well, we're trying to improve ourselves as well as others.

JUSTICE COOPER TO MS TOWNSEND:

Q. But at the moment you're not concerned that you don't have this formal receipt from Christchurch or Wellington or Gisborne?

A. At the moment the department's focus is actually on a range of issues around dealing with the earthquake, our priority is actually around a number of things that we're doing quite practically on the ground in helping the council and the city with earthquake things, the policy's actually not top of our priorities at the moment. Secondly we're more interested now in a review of the earthquake prone policies which I'm just going to talk about now, it's in our submission. It's, we think it's more important that we actually look at whether or not we've actually got the legislation right, then have we got the regulations right, that's still underneath it, and then the guidance, and then we'll look at some of the compliance exercises. We're a small agency and we're prioritising our work at the moment and our work is actually focused quite on some very practical issues within Canterbury. But that leads me onto say the submission does include a terms of reference for a review of the earthquake prone policy. We intend on finalising those terms of reference as soon as we've heard the discussion and the issues that have been raised in evidence and already over the last two days I've heard some things that we need to take into account in terms of, have we got the right things in the terms of reference. We also won't be – we're going to start work on this but we won't finalise it until we've got your report because we think it's going to be a key input which of course means I'm not in a position to say where we going to land on some of this stuff until we've been through the process.

Q. Well –

A. And I can talk about some of the issues that are clearly going to be things that we need to consider actively.

Q. Well you're – you told us in your submission that you'll be conducting a review of the earthquake prone building provisions of the Act and –

A. Mhm.

Q. – that's what we have to do too really in part.

A. That's why we're waiting for you.

Q. It's part of our – but it occurred to me when reading that that we might have been assisted if we had actually known what your view was of the way the current regime is working, but that's an issue which you don't reach in these submissions.

A. No we don't, there's some things – if I just carry on –

Q. Sure.

A. – some of the things that I've heard about today, because there are some things that are issues that have come clearer even in listening to the submissions to you.

Q. Yes.

A. It's a bit of a circle really because half of this review, we know something has to be done as a result but it's, even as I said in listening to the two days that I've listened to now, I can see clearly some things that we have to really consider as a result of that.

Q. Yes, well I don't, I'm not saying it's critically at all – and it's good that our processes will be able to assist.

A. Yeah.

Q. And that obviously is one of the reasons why you have Royal Commissions.

A. It is.

Q. We may in the questioning process be asking you for some views on some things I think.

A. And there's some things that are already I can talk about today. What I can't talk about is where it's going to end up because –

Q. I understand that –

A. – (overtalking 14:29:27) but there's some things that are definitely things that we're already thinking of and some things that – I'll just get to it really.

Q. Well I've interrupted you I mean –

A. No, no, that's okay, I'm just trying to make sure I've covered all the things I've – one of the things, you've had a lot of discussion around the 33%.

Q. Yes.

A. And –

Q. We have a number of concerns about that and they're not – these are just things that we are thinking about too, one of them is how – what it means, especially when it's applied to URM buildings and whether it in fact conveys the idea that it is something which is capable of precise measurement and thereby sends a signal of certainty which may not be justified.

A. Well I thought – we talked a little bit about why we've chosen 33% and that's come up a few times. As I started at the beginning saying the actual percentage under the '99 to one Act was actually really quite low and we used quite an extensive consultative process to work out why you got to 33%. We looked at three different standards in those regulations and if you have a look at our regulatory impact statement we looked at costing some of those issues out as well, and it was the 16, 33 and 50. The reasoning for 33 was around the kind of - the concept of economic transition that actually you were moving to a change that was quite substantial, the number of buildings it applied to was higher, the standard was a lot higher and the economic impact of shifting up was something that was considered a lot in terms of that policy. We used – we used the engineer – what was the name of that one.

MR STANNARD:

A. New Zealand Society for Earthquake Engineering.

MS TOWNSEND:

A. Thank you. They were -

JUSTICE COOPER:

Q. Who was that?

MR STANNARD:

A. New Zealand Society for Earthquake Engineering.

MS TOWNSEND:

A. They were an important input into us deciding on the 33%. One of the issues that we were also thinking about was the economic issue which is what would happen to those buildings if you, if you actually set the standard too high, we recognised that there was an issue around people deserting and demolishing buildings, the fact that many owners were going to face financial stress over this and that there would be negative market impacts, so it was set at a level that was quite a big shift up, was done in regulation to allow us to shift it again when we actually had more information and when the community had started to recognise and deal with the shift. So it's – sorry just the other bits, and one of the other bits of reasoning that went through the setting of the 33% was that we viewed that would get the worst of the buildings, it was important to us that we get the worst of the buildings out, we start the community on a process of active improvement in the stock and that we looked carefully at what the next standard would be. One of the other things I want to talk around, and it's not our submission, is the difference between the policies and the powers, the Territorial Authorities actually have powers to require upgrades of earthquake prone buildings, it's quite clearly in the Act and it is not dependent on the policy. The policy is there – it talks around – I think Mr Hopkins talked about the (inaudible 14:33:27), the policy is about how those powers are applied. The powers are quite clearly in the Act and they're about them dealing with the most dangerous buildings in – and actually requiring upgrade of those buildings.

JUSTICE COOPER TO MS TOWNSEND:

Q. This is a – this opens up some more questions, I don't know if you want them now?

A. No, no, I'm happy to take them as we go.

Q. And whether you might be assisted by your lawyer because these are legal questions I think in the end, so I don't know, Mr Jagose, whether

you wish to come and sit here and help or how you intend to deal with this?

[Mr Jagose responds]

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JUSTICE COOPER TO MS TOWNSEND:

Q. Right well the council's powers insofar as earthquake-prone buildings are set out, section 124 of the Building Act and so a building has to be earthquake-prone as defined before they can – so that means they are powers which are given on the supposition that there is a building at the moment that would not survive a moderate earthquake, defined as shaking at the site of the building of the same duration but one-third is strong as the earthquake shaking that would be used to design a new building at that site. So one of the issues as I understand it which has affected, at least the perception of some councils, about the utility of this provision is that once it can be (inaudible 2:35:34) that a building is not earthquake-prone as defined the council can't require any steps to be taken in relation to that building. So that's –

A. No, I understand the point. It's been a point of contention with councils over some time actually so I do understand the point. There are two points of view in this, one is that the power can only be used in terms of where, that you can only upgrade to 34% because then it is no longer earthquake-prone. The other view of course is that the provisions talk about reducing and removing the danger and that that is a, would require an additional, or could require an additional upgrade. The law, there is no case law on this. It hasn't been tested. The department's view on this is that it is best practice to upgrade as much as technically possible and at least to 67% and that's what we've put in our guidance but we acknowledge and recognise that the law probably is ambiguous in this and the fact – I'm always of the view that if you can have an argument as to which is right the law probably needs to be fixed, particularly if Parliament or the Government has a view on it and that's

one of the things that I think we will need to consider actively in the review. And, as I said, the department's view is quite clear, that it is not 34% that we would looking for people to upgrade to.

Q. Well that's one thing, the standard that must be reached but looking at the law as it is and I know in Christchurch there's this 67% -

A. Mmm.

Q. As I understand it under the emergency legislation the definition of a moderate earthquake in Christchurch has been amended by order of council but for the rest of the country I find it hard to, well perhaps Ms Jagose will tell me, how there can be much of an argument that there's an ambiguity in these provisions which seems to be the stance that the Department is adopting because I think the argument that there are powers which can be exercised in relation to buildings that are not earthquake-prone as defined is very, is a very difficult argument to sustain. I don't know what the argument can be because in context the section if dealing with dangerous buildings, earthquake-prone buildings and insanitary buildings and when there's reference to reducing or removing the danger I would have thought the context was pretty clearly that that must be relating to buildings which can be said to be dangerous which is a category of building which doesn't include, or specifically excludes, buildings which are dangerous because of what might happen in an earthquake.

A. I think that there is ambiguity and that's the, the point in this, the point that's been raised.

Q. No, no it's not, at this stage of discussion I'm saying it's not ambiguous but I'm saying, well, what is the argument that it's ambiguous. I know that you're asserting that it's ambiguous but I don't understand the argument.

A. We've had, well I've seen, well not I personally but our lawyers have seen two different interpretations of the law both of which are the ones that I've just talked about today, one of which says that once you reach the 34 standard there therefore is nothing that councils can do and another that talks about removing the danger. So I think the main point

that I can talk, say to the Commission now, is that it's an issue that we need to reflect on and actually respond to, that –

Q. Well I agree with that –

A. Yeah and I can't say much more than that today.

Q. No, well I don't think that it would be very satisfactory if we, if the Commission were to finish our work without knowing what the Department's view is of what these crucial sections in this important legislation mean. I think that you've got to tell us that. I can understand why you say there are various policy issues that you'll be waiting for us to tell you about, what our opinion is and using our opinion as a hopefully helpful part of the policy choices that the Department will be wanting to recommend to the Government down the track but we've got to, under our terms of reference, say what we think about the adequacy of the existing law and I would have hoped that on that issue the Department of Building would tell us what it thinks the current law means rather than saying it's ambiguous. Is that, is that, you must have a preferred, you must have a view on how that ambiguity should be resolved?

A. We do, we do.

Q. And by that I mean the interpretative resolution under the current law.

A. The interpretative?

Q. Yes, I mean what does the Government say, what does the Department say section 124 means?

A. We think that the firmest view about what it means is that it, it can only, that, we're missing a standard which is the upgrade standard and therefore that the only thing that could be required is that it not be earthquake prone. That's one of the issue that we definitely have to resolve in terms of this Act. We, however, think that there is a best practice view that if you're going to bother to invest in upgrades of buildings that as that standard can shift and therefore your 33%, you can be 34% until the earthquake standard increases and you'll therefore have to continually upgrade we think it is of best practice to do as much as you technically can to get as close to 100% as you possibly can

within technical and financial constraints. And that's what our guidance says. By law that is not what the law provides for and that's one of the things that we will definitely be considering whether or not we need both a threshold as to when to, where's the bottom where a building is declared to be earthquake prone and where is it that we think a council can legitimately require it to be upgraded to and that's going to be something that we will have to change.

Q. Well how long has it been, the Department's view, that section 124 only allows action to be taken in respect of earthquake-prone buildings and has, does not authorise councils to require upgrading to a greater extent.

A. That's reflected in the guidance, that view is reflected in the guidance that we prepared, sorry I'm just looking at the date I've got it in my, just give me a second…. June 2005, the guidance that we prepared in June 2005.

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Q. So…

A. That ambiguity was in there but that's why we talk about best practice in the guidance.

Q. Well, well, you keep on saying an ambiguity and somebody may argue that it's ambiguous but you've told me, as I understand it, that your view is that –

A. Our guidance is clear, it says that, that's why it says it is best practice to go to as much as technically possible and at least 67 percent and we don't claim in that guidance that we can require it by law. That's what the guidance says.

Q. Well then coming back to s 124 here's, the Council's of the view that a building meets 34 percent of the new building standard but is not a well designed building and likely to be badly damaged in an earthquake. What are it's powers under s 124?

A. Sorry?

Q. Supposing a building is to be characterised as meeting 34 percent of the new building standard –

A. Yep, mhm.

Q. - but nevertheless is likely to be seriously damaged in an earthquake what can the Council do under s 124?

A. It's not earthquake-prone.

Q. Mmm.

A. That leads to the other issue that I think we need to clearly work through and something I'm sure the Commission will be working through which is is that standard of 33 percent the right standard given that it is meant to be dealing with the danger the building will pose. So I think it's very clear that Council's have no powers in respect of earthquake-prone. The question then is should they and is the standard right and that's a very legitimate thing that I think we now need to think about as a result of the Canterbury events.

Q. Okay thank you.

MS TOWNSEND CONTINUES:

Now I'll turn to policies, some of the questions that you've raised on policies. As I've already said the 2004 Act introduced policies because we found in a range of dealing with dangerous, unsanitary and earthquake-prone buildings different councils would take different approaches for different buildings with different offices and there was no clarity and transparency about how they were going to apply those powers and those powers are quite, when they're used you can require work to be done, you can charge a person, you can demolish a building so they're quite, draconian's not the right word but they're powerful powers, so it was important that there be a transparent way in which they would be approached. It also provided a lot of flexibility for councils about how they would deal with those. The flexibility was in order to look at the impact that upgrade would have on their community, both from a financial perspective. It was to consider the nature of the stock that was in the locality and it was to consider the heritage and community values that the heritage posed and those issues were to be taken into account by councils when they were working out how they would approach the use of those powers. We were hoping that in doing the policies that the concept of the consultation

process would allow them to get community buy-in and to develop an understanding of the risk that was posed by earthquakes so people would understand. I listened to the person who came before me and I thought that was a very good example of a fact you had one person within the community who understood and was dealing with that risk, because this is about building owners, sitting along somebody else who didn't understand it and that was what the process of doing the policies was hoping to get which was to raise awareness and get building owners to understand their obligations and the importance on the economic value of their asset that we were also dealing with. Which leads to another point I wanted to make which is I've heard a lot around the council's role and the government's role but actually there is the owners in here as well. Ultimately they have the role in here of maintaining and understanding the importance of upgrade to their building. It is their responsibility for the tenants and the users of those buildings and it is actually their asset that is being dealt with, that neither the policy nor the power is at issue here, that we need owners to understand about the importance of upgrade and law can only ever go so far in that space. I'm going to talk about some of the things that have been raised along the way and some of the questions that were raised at the beginning. I've talked a little bit already about how the 33 percent so I won't do that any more and I've already talked around the fact that the threshold probably isn't right now, we're going to be doing some more of that. One of the other issues that was raised was definition of building doesn't include part of a building. I went back and looked at the departmental report and went back and looked around did we intend that and the answer was no we did not. So we make mistakes in legislation sometimes and that was definitely not intended and that's the outcome so it's one of the things that's going to have to change.

JUSTICE COOPER TO MS TOWNSEND:

Q. Yes, yes, well I, with respect, think that's as sensible response. That may lead to other problems of course.

A. Oh there always is.

Q. We won't solve them this afternoon but….

A. And that's the issue, of course, in all of this is that every time we move on something we're going to have to think through the consequences along the way so….

MS TOWNSEND CONTINUES:

We've already talked about what level does the strengthening require. One of the other things that was talked around was should the earthquake buildings apply to residential buildings. One of the things I wanted to point out was, of course, it does, so that's two or more buildings and it's only individual houses. This issue did come up at the time of the earthquake we were doing the 2004 Act, it's actually quite a significant change and has quite huge consequences on people's wealth and we would need to carefully balance the risk of buildings and as my engineers were telling me before I came up here those buildings actually performed quite well, those houses.

MR STANNARD:

Yeah I think you could probably say, fair enough, that houses constructed well to the NZS 3604 provisions in the main performed pretty well, apart from the liquefaction issues. I mean there were a lot of chimneys that fell down and clearly that's an issue that maybe needs to be addressed.

JUSTICE COOPER:

Well at the moment there's not a lot the Council can do about a chimney is there under the legislation.

MS TOWNSEND:

No.

MR STANNARD:

There –

MS TOWNSEND:

And that's –

JUSTICE COOPER:

Because the danger arises in the case of an earthquake so the dangerous building route seems to be excluded under the law as it's currently drafted. You have to be, you have to say it's earthquake-prone and it's also affected by the part of the building –

MS TOWNSEND:

Yeah, that was your point before that I think is well made which is the connection between all of these needs to be thought through so that we come out at the other end with the right mix.

JUSTICE COOPER TO MS TOWNSEND:

Q. And we do have instances, one particularly tragic instance in Christchurch of where a family had removed a chimney to roof level after September and the young child was killed by the collapse of the earthquake below roof level which had remained inside the house and in a living room on the 22nd of February collapsed and killed and infant so there's another issue in a building that would not be able to be characterised as earthquake-prone but dangerous but, in fact, was in a lethal condition given the earthquake that occurred on the 22nd of February.

A. And one of the other points, well the last point that wasn't talked about and I'm willing to take more questions is the question about what we should do about existing buildings that don't, that are not earthquake prone. The Building Act 2004 and the 1990 Act, the one Act before it are intentionally not retrospective. A building owner who has built in good faith to the current building standards with a principle behind it should not be required to upgrade should those standards change. They've complied with the law and the general principle against retrospective law dictates that there has to be a really good reason to apply new standards retrospectively. In the Building Act that good reason is actually reflected in the provisions that we've just been talking

about. Is it dangerous? Is it insanitary or is it earthquake prone? So the issue for me is that we actually get those thresholds right rather than to try and apply a blanket requirement to go backwards across everything, across all buildings. We just need to make sure that we've got the right thresholds both for when something, when a building owner should be required to do additional work and then to what standard those works should be.

Q. Yes because I think I speak for my fellow Commisioners when we think that, by saying that it seems likely that there are or perhaps buildings that might not have qualified as earthquake prone but which have nevertheless collapsed and the implications of that are one way or another the idea that those buildings can escape regulatory intervention because they may have been built in accordance with the rules that applied at the time. It needs to be subject to some pretty sharp scrutiny.

A. I think that the issue is not whether they should, whether we should apply retrospective law that that special case be clearly defined and whether we've got that position right and I think that's a better way of looking at it than whether we should be doing blanket retrospective requirements from people. The question is as been shown in Christchurch is where is the right risk profile because and then have we got those standards right and then what are we going to do to ensure that there is better or more active enforcement of those standards and those are the things that are clear to the review and I think they're questions that we're all interested in asking now which leads to one of the last points which has been raised over the last few days and that's can territorial authorities have a policy not to have a policy on earthquake prone buildings? Our view is quite clearly they can't. That the Act says that they, that the policy covers their approach to performing its function and that means they have to do something active. It's about performing their function and their powers. It talks about the priorities that they're setting in doing that in which case our expectation would have been that they looked at the most dangerous buildings and work their way through and then it also required that they

be explicit about how they would deal with heritage buildings. None of those in our view suggested a no policy approach. It actually suggests actively turning your mind to and dealing with.

Q. Well I think you are unlikely to meet with much disagreement on that but can you confirm that from a policy because you were involved I understand as the policies were developed?

A. I, at the time of the 2004 Act I put the Bill through the Select Committee and was policy manager within the department at the time the policies were being worked on as well.

Q. Yes so you're familiar with the legislative history of the Building Act?

A. I'm very familiar with the legislative history.

Q. And as far as you're aware there would be no suggestion of councils being able to adopt a do nothing policy in response to these statutory provisions?

A. No in fact that wasn't the intention. It was quite clear that it was about and as I said we quite clearly worked through the three issues that we expected them to do and they're in the legislation it's just again I look at some of the, even if you took a passive approach, a passive approach still meant that when something was brought to your attention they had a duty to deal with their powers and that duty is quite clearly contained in the Act and ignoring those duties was not what, wasn't at all anticipated by the legislation.

Q. Yes.

A. We agree obviously. I think that's all I've got to say and more questions.

COMMISSIONER CARTER:

Q. Just one question around the precision of a number in this case 33% and the recognition that the degree of variability in the, in what we are measuring is really quite an issue. We take the material properties of these older buildings, the invariable nature of their materials and construction is such that there could be a huge strength etivity around the choice of the number. I just wonder if you are aware of any discussions about a range and in saying this I note that Gisborne has

introduced into their policy a provision that if the number it presented with is assessed at under 40 but over 33 they then expect a peer review of the calculation to be, have you got any observations about that absolute nature of a specific number?

A. I am going to ask Mike to answer that question.

MR STANNARD

A. Clearly you're absolutely right yes each building is unique and the properties it will depend on the strength of concrete that was poured which could vary. There would be construction tolerances and all of those sorts of issues could well impact in a final strength of the building. I guess we haven't had, the only thing I would say about that and I absolutely agree it's only ever going to be probably a range that you're going to get just like 33.3 or 34 or 32 making it one way or the other is going to be difficult but the, we haven't actually had too many disputes as a result of that level of, that level being said and there are a number of you know I mean the section 124 notices are being issued by councils. They seem to be able to resolve the issues. You know I think the Gisborne idea's probably quite a good one. Certainly the IEP process, the initial evaluation process is pretty broad brush but if it's within most councils are within that close range they'll say it's potentially earthquake prone and then require a more detailed evaluation which does provide greater provision but again you're absolutely right it's not going to give you exact but as I say they seem to be managing. The councils do seem to be managing the process in issuing earthquake prone building notices so you know there's obviously a lot of discussion between owners and the various engineers involved and often there's more than one lot of engineers involved in these decisions.

COMMISSIONER FENWICK:

Q. If I can follow up on that the very term new building standard concerns me as we went through with Doctor Hopkins 67% or 100% of new building standards does not mean it is 100% equivalent to a new

building built to those standards as the way it's determined. I think it's a very misleading term the way it's used and I'm really concerned about that issue. When you talk about 33% I'm still not quite sure what that means. It means you're going to resist, you're going to be able to sustain an earthquake of 33% of the shaking at the same duration without collapse but what's the collapse limit state. It's not the ultimate limit state and therefore it's not to one-third of the ultimate, the collapse limit state is one-third of an ultimate limit state and an ultimate limit state is something in a new building, which attained with a very, very, high level of certainty, you can attain that and this level of certainty is not defined to my way of thinking by saying it's one-third which would produce or might produce collapse. So I think there's, there's a lack of understanding or a lack of definition there, exactly what is trying to be achieved. I'm certainly confused by it and the people I've spoken to have also given me different answers.

A. I think you're right. I think, certainly, there is clarity that is required. I would say that, I mean the issue about the wording in the Act at the time was raised by engineers and there wasn't the opportunity to go back and change it at the time and we thought, well we would see actually what the response was from the engineering community and see if there were disputes about that issue. There haven't been to date but that's not to say that it shouldn't be clarified and I think you're absolutely right, you should be able to compare, if you're going to use that percentage NBS which I think is quite a good, it's a simple measurement, you do need to be able to compare apples with apples and so, as I think Adam Thornton touched on this morning, perhaps the idea of, of getting a displacement based consideration into the, into the wording somehow so that in fact it's not just the brittle failure at 33% compared with the ductile –

1504

Q. As I understand it 33% of new building standard has got a displacement concept of 33% of strength and deformation required for that particular structure. That's in there but it's the collapse -

A. Right, it's the collapse.

Q. Well in fact basically for collapse we have a factor of about 1.5, 1.8 between the ultimate limits they can collapse built into our material standards and that's required by the, indirectly by the loading standard.

A. Yes.

Q. But when it's applied to upgrading that doesn't seem (inaudible 15:07:13) into it.

A. Yes, that's right.

Q. So I think that's the major issue I have with the whole approach.

A. I agree that should be, that should be part of the, part of the consideration of any review, absolutely.

JUSTICE COOPER TO MS TOWNSEND:

Q. One of the recommendations that we made in our interim report was that territorial authorities should be required to, no, we said they should ensure that registers of all URM buildings, their locations and characteristics are compiled or where they already exist brought up to date and I'm wondering whether you have a view on the usefulness of that recommendation?

A. The Department's guidance in terms of doing policies quite clearly identified that we thought you should look at priority buildings and that you should identify them and work through them in terms of knowing where those buildings are so that you could do something about them and it's quite clear that the unreinforced masonry falls into that category of a priority building.

Q. I see.

A. Yeah, I think, well in my view –

Q. Right well I'm glad you explained that because I didn't think you were heading down that path.

A. No, but what does that mean in terms of the next stage. I think that the interim findings were, were useful and as you know Wellington Council has done that, it's been a, all of us in Wellington now know where those buildings are, it's been quite a publicity campaign.

Q. About 40 deaths in February, no, I'm not sure actually whether this – perhaps Mr Zarifeh can help me. How many people were killed by, in the street, by bits of building falling onto them.

MR ZARIFEH:

Thirty six.

JUSTICE COOPER TO MS TOWNSEND:

Q. Thirty six deaths in the February earthquake as a result of bits of unreinforced masonry buildings falling on them.

A. On them, yes.

Q. And so the, the elimination to the extent you can of falling hazards of URM buildings might be considered an area where there should be a real emphasis on, on improvement and it just seems to us that in order to go about that in a thorough way you'd need to know, you'd need to know what your stock of such buildings was –

A. Mmm.

Q. – as a regulator.

A. Mmm.

Q. Do you accept that?

A. That's the difference between the active approach to your, to the powers versus a passive approach and we, we favour the active in the Department, we favour the active.

Q. Yes well I suppose suggesting that what is, what is presently couched as a recommendation that local authorities should take up with, might in our final report become something that we would recommend, become a matter of legal obligation and I was just wondering whether you had a response to that idea.

A. It's, the level of how active and what that means is definitely one of the things that we're looking at in the review and that includes timeframes, what actions and, and how those actions might be undertaken. For instance notification, how you might let consumers know more, how you might – all of those things are things that we're definitely looking at. I

don't think we've landed yet because we've still got some work to do and what we're really keen to do is to see where you get to as a result of this, as a result of what you've heard as well and what you know from what happened in Canterbury. So definitely things that we're looking at but the active, actively identifying priority buildings is important and looking at that issue about part of a building because the bits falling off is one of the, the things that falls out of the part of the building, issue as well.

COMMISSIONER FENWICK TO MS TOWNSEND:

Q. An issue I took up when Dr Hopkins was speaking, I'm just wondering whether I can ask you again. How concerned are you about an earthquake which has a return period in the order of 10,000 years or so, the sort that we've had in Christchurch in a low seismic zone. We're told by the people from GNS and Jarg Pettinga, Canterbury University, that this type of earthquake can occur in a relatively low seismic zone, moderate to low seismic zone such as Christchurch is at the moment. It could also occur down through Canterbury, Otago into a lower seismic zone and possibly into Auckland. So we had a very shallow earthquake with a hidden fault which might occur in any of these zones, very long return period which would give similar sort of intense shaking that we had here in a 10 kilometre zone of the fault. Now my question is given that possibility even though it's probably got a very long return period do you consider that a seismic, one-third of a seismic coefficient of .13 for Auckland or .16 or whatever it is for, for Otago, for Dunedin, is adequate or is it just the case that in this event we can't really cover it. So what should be a minimum seismic design climate, is what I'm getting at.

1514

MR STANNARD:

A. Well, professor, certainly great –

COMMISSIONER FENWICK TO MR STANNARD:

Q. Much better you answer it.

A. Greater bones than me have contemplated that and I guess the consensus at the time was to set the Auckland level to the .13 which was actually slightly greater than the probabilistic requirements would suggest, I think maybe what you're also addressing is the fact one-third, if you're actually only addressing, if you're only upgrading to one-third of that level you're probably wasting your time.

Q. That's exactly what I'm getting at, apart from securing your veranda's and the other bits and pieces which could blow off at any rate. Thank you, I don't know if you've fully answered to my satisfaction but thank you for –

JUSTICE COOPER TO MR STANNARD:

Q. Well what are the implications of that, the implications of that the earthquake prone building policies as they are currently written are no use at all in Auckland.

A. Well I, you know perhaps – I wouldn't say that because I'm certainly, there will be some benefit in the securing of parapets and the like.

Q. But that, what – that's nothing to do with the earthquake prone policies is it?

A. Well if you upgrade to that level you will still be improving in a moderate or a smaller shape. If you probably –

Q. And that's dependent on there being an alteration of the Act to apply to parts of buildings. My question was really about the existing law.

A. Okay. Perhaps you can just remind me what the question was.

Q. Well my question is whether the earthquake prone building policies in the Building Act as they are currently written are of any usefulness at all in Auckland and I think also Dunedin, we would throw in, because I think the hazard factor in Dunedin is the same as Auckland, in fact the .13.

COMMISSIONER FENWICK TO MR STANNARD:

Q. Sorry, excuse me, just let me butt in there. Of course we have, we're considering here two different types of earthquakes in Auckland and in Dunedin you can get significant earthquakes from distant faults which are major faults which will not have the intense motion we had here, what I was referring to was the intense type of motion we get from the type of earthquake we had in Christchurch which came out of the blue to us because we didn't expect it and the knowledge now that that can occur now in certain other areas of the country, but yeah, there is a – obviously a benefit to upgrading for the distant earthquakes which can occur on major faults some distance away from these centres, so there are two parts.

A. Yeah, but that is a very rare event and I guess society has to decide whether in fact it's prepared to take the cost of a very, very rare event.

MS TOWNSEND:

A. I think that's the point of this policy review, and I know people get frustrated when we talk around this but actually there was a lot of debate about the earthquake prone provisions when we did them in 2004 and we've got an experience now which makes us to look at a community as to whether we've got the balance of risk and cost right, and I think it's important we take the time to do that but we still have to get that balance right because if we increase those levels it comes at a cost, it's the loss of some buildings, it's the destruction or desertion of some buildings and it's at an economic cost for building owners, it's part of the reason why we have to take a process around this and actually work through the issues one by one, and ask what is the event level that we're willing to tolerate, what risk are we willing to tolerate as a society and community and what are we going to do about it, it's why it's important we do this and do it well and engage with a range of stakeholders, and I, you know there's some of the issues that were raised by the property council this morning, all of these, there's a range of things that come into this, what does it mean for our tax laws, what

does it mean for some of the ways in which we allow people to upgrade or live in these buildings. I think it's not just as easy as deciding what the technical issue is, that's an input to the outcome. It's why we want to do this right.

MR MILLS TO MS TOWNSEND

Q. I just wanted to pick up with you one of the issues Justice Cooper asked you about which is the timeframe for the earthquake prone policies and I was just looking at the provision in the Act that deals with that and just wanted to perhaps remind you of how that works under the Act and then I've got one or two questions about compliance with it, and I see when I look at s 131 and I'm taking on board your comment about the fact that you're under pressure now on some issues with Christchurch which not surprisingly have been given priorities so I want to just back over the history of this a bit and I see that section 131 says that Territorial Authorities must within 18 months after the commence of the section adopt a policy on earthquake prone etc, and as you probably are aware, the date that that then triggered was that 18 months from the commencement date which is defined in section 2, took us to the 30th of May 2006. Now I think you've – you said earlier on that in your view any rate that the date which would be five years from that which would have been the 1st of June 2011, won't be applying to all local authorities because some of them were late with the original compliance and I'm just trying to get a feel if you can provide it, for how good the compliance was initially with what is stated as a mandatory requirement of 18 months so they were required by statute to do it by the 30th of May, and what steps if any the department took in relation to what I have the impression was a pretty substantial degree of non-compliance with that original date. It was back then there was no Christchurch earthquake to be concerned about so I'm just interested in what happened initially. That making sense?

A. Yeah, it does make sense, sorry I'm just looking for my pieces of paper that have some of that information on them, I don't know if I have it –

just having a look. Funnily enough as I said I went back over the select committee responses for the prep for today and that timeframe was one of – I have more submissions from councils on how long they should have to do that than any of it because it was quite a new provision for them and for some small councils putting in place a policy and then going through the local government consultative process at the time was quite a hurdle so I don't think it was a lack of goodwill by councils, it was just around actually doing it. I'm just –

Q. But I take it those issues were raised (overtalking 15:22:410)

A. Yep, what we did, I'm just looking –

Q. In the select committee process and this date was settled on.

A. Yeah, yeah we did and we – which is why in the original Bill we gave them six months.

Q. Yes.

A. And we extended it out to 18 months to help them deal with that.

Q. Yes.

A. Once we were in the department we looked at – we looked at how we were going to deal with it, we wrote to every council to remind them that that was coming up, and then we wrote to them to – and actually dealt – I'm trying to remember, but we definitely contacted all councils to ensure that they were aware of their obligation and then we continued to contact them until they actually provided the plans, the policies. We were quite active about making sure that the policies were done, that doesn't mean that we could make them do it in the timeframe, but we did keep – we kept contact with them (overtalking 15:23:33).

Q. So you have in that information that you've got there, in your memory of events -

A. I'm hoping.

Q. What the date was by which the final lag had complied?

A. I am just looking, I don't think I do, I think I've only got the ones that we've got coming through now.

Q. I don't want to press you unduly on this –

A. No, no, it's all right.

Q. – but I am interested I suppose in what this might tell the Commission about the level of seriousness that's been attached to all of this, both by the territorial authorities and, in fact, by the Department.

1524

JUSTICE COOPER:

I don't think Ms Townsend can really answer the question directly, is that the?

MS TOWNSEND:

No, I don't know the answer in terms of dates but I can talk around and I can't answer for councils, you'd have to ask them themselves about the level of seriousness with which they took it. I can answer for the Department because I do remember us having conversations at the time about the importance of these policies and what we were going to do to ensure that they actually happened and we did, as I said, did follow up. I can remember quite distinctly that we were well aware of the need for these policies and we actually actively followed up and, as I said, not only that, we also worked on guidance, best practice guidance, we've done workshops with councils, we've done workshops since in terms of the way we take, the seriousness we take it. Dr Hopkins noted that we were well advanced on another set of guidelines. We'd just carried out some workshops with councils around the guidelines and what the, and their new policies so we considered them to be, even prior to Canterbury, to be an important part of the framework, the Building Act framework. We, as I said we have new policies that were almost ready to go in September and we've stopped them to make sure that they reflect the learnings out of Canterbury.

JUSTICE COOPER:

Mr Mills I think also, I think we've probably been told this information. I think we've got a summary which dealt with every –

MR MILLS:

Have we?

MS TOWNSEND:

Yes.

JUSTICE COOPER:

Yes.

DISCUSSION WITH PERSON IN BODY OF COURTOOM (INAUDIBLE 15.25.59)

MS TOWNSEND:

That's what I was looking for, thank you.

MR MILLS TO MS TOWNSEND:

Q. I suppose my only follow-up question is whether the department would like to have some additional powers in relation to timelines not being complied with.

A. I think the timelines for the policy are less of a worry than the timelines for follow-up and activeness around dealing with the buildings and with the building owners. I think, for me, the issue was less around compliance and more around outcome and what we might actually have to put in the law about, either the regulation or legislation about making them, making councils carry out some activities in respect of at least priority buildings. I think that's something we definitely intend on considering very very carefully and consulting on.

Q. Yes okay. Let me, probably fits quite closely to that, I just wanted to ask you a question about an issue that's in the written paper about alterations, s 112 of the Building Act. Now I just need to find the passages that are referred to in here 'cos I'm just wanting to get a correct understanding of what seems to be being referred to here. So the submission document that we were given -

A. Mhm.

Q. – the one that's got the covering letter from Dave Kelly.

A. Mhm.

Q. First of all paragraph 4(c) –

A. Yes.

Q. – and then I see there's a similar reference in the appendix at paragraph 8(c), I think it's Appendix A, yes it is, similar, might be the same statement actually at 8(c) under that heading 'Critical Issues' in the appendix.

A. In the appendix?

Q. Mmm, its on –

A. Yep.

Q. Got that.

A. Yep I have, thank you.

Q. Now it says, of course, the opportunity costs of earthquake-prone building mitigation against other building improvements such as fire safety, disabled access and weather-tightness. The issue I'm particularly interested in is that, as you'll be aware, as a result of s 112 when earthquake-prone, well when steps are taken by building owners because their building is earthquake-prone s 112 triggers other requirements.

A. Yes it does

Q. And it is specifically the fire safety and the disabled access. Now we have heard from some in the evidence that we've had this objection that that's what it does, that somebody's trying to deal with earthquake safety issues and then because of the effect of s 112 they're compelled to deal with these other issues as well, they can impose significant additional costs and can be a real impediment to dealing with the earthquake issues which raises the question of whether we're correctly comparing the life safety issues with the earthquake issues with the other tail that's brought with it and I just wonder if you have any views on that?

A. Um, the point you're raising is the exact point we're talking about in terms of the terms of reference, whether that's right. In terms of why it's there it was something that was, that came out of the select committee

process where the people who have an interest in disability issues and fire issues were able to persuade the select committee that those issues were of such importance that they required dealing with in this manner. The impact that that has had on decisions such as whether a building owner would improve the earthquake strength of their building probably was not well understood by the select committee when that decision was made. So one of the issues we have to ask now, as part of this review, given what we now know, is there something we would have to change in order to do that. It was something that was very carefully worked through in the select committee but I don't think that they had thought about, that these issues had been clearly made. I think it's why it's in here.

Q. So do you, does the Department now have some fairly hard data on this that will feed into it's review?

A. We've got anecdotal data, the same as the Commission, where people have told us that they haven't done something as a result of the additional costs that would be imposed. I think hard would be not the phrase that I'd use, stories and anecdotes would be what I would say. We need to think about that and see whether we can actually get hard data to help us understand what the implications of that have been.

COMMISSION ADJOURNS: 3.31 PM

COMMISSION RESUMES: 3.45 PM

MR MILLS TO MS TOWNSEND:

Q. I've just got really one other question for you and this relates to the exchange that I had with Dr Hopkins this morning about the allocation of responsibilities between the national standards and between delegation back to local, the local community level and I think you were here weren't you and so you'll recall I asked Dr Hopkins about what view he had on what should be dealt with at a uniform national level and he gave

a response to that. I just wondered if either or both of you have a view on that at this point, even just a preliminary view, first of all about whether there ought to be more national uniformity that's mandatory across the country and if you do think there should be more whether you have any views at this point about what would go into that basket?

A. We have done some thinking about that. Again, it would be the starting point, as you quite rightly say, of a process, because we'd have to consult on this before we could take it any further but I think it's clear that there is too much variability around how long people will give building owners to respond once something's declared earthquake prone. I think it's quite clear from the, from the legislative provisions that it is a lot, meant to be a lot quicker than 20 years. I think from the reading of the legislative provisions it's, it's meant, it's mean to be something done reasonably quickly so I think a view around how long people, once it's declared to be earthquake prone, how long people should have to respond. I think having a national view about whether passive versus active is the appropriate response. I think it is clear that there is a gap in terms of upgrade standard. I'm not sure whether, whether the view about, whether that should be across, that's, we've not discussed that but I think there's a missing point about what you should upgrade to. So what is your trigger versus what is your upgrade. That's missing and I think those should be set in regulation and then the policies should be what the policies are meant to be about which is approach not powers and outcomes. So I think we missed a bit there and I think our expectations were that councils would take a more serious approach at it than they did so. Mike do you have any additional?

MR STANNARD:

No I think, I think that covers it, I think certainly –

COMMISSIONER CARTER:

May I just ask a question there?

JUSTICE COOPER:

He was going to, Mr Stannard was going to – you're speaking very quietly Mr Stannard.

MR STANNARD:

Sorry I'm just repeating more or less what Suzanne's already said. I think certainly the, requiring an active approach and I think that would address some of the issues that you've raised about having, having registers of buildings –

MS TOWNSEND:

Prioritising.

MR STANNARD:

And certainly the timeframes as she's mentioned, you know, within a certain timeframe and, and I think the, yeah the important one is the ability to set some level of upgrade level rather than just –

MS TOWNSEND:

Trigger.

MR STANNARD:

Just the trigger point I think, I think those are the key, key things that probably should be said at a national level.

COMMISSIONER CARTER TO MS TOWNSEND:

Q. My question is around a matter that's been suggested to us by more than one of the submissions and that is the concentration of economic loss that has occurred because of the event in a major city of the country and the suggestion that perhaps the standards required in cities may, in city centres perhaps could be thought of as something that

could be considered in, in the future. Do you have any observations on that?

A. We already look at that issue, Mike's more able to talk about this than I but we already look at that issue around a number of what we call important buildings. For instance we have differing standards for hospitals and other important buildings. Is that right Mike?

MR STANNARD:

Yes, correct.

COMMISSIONER CARTER TO MS TOWNSEND:

A. And you might take that view for city centres as well. We haven't thought about it but I think it's a legitimate thing to think about.

Q. Yes, yes we're familiar with the importance level factors 1 to 4 but, yes, I take your point that perhaps that could be extended to city centre buildings.

A. Yeah.

MR ELLIOTT TO MS TOWNSEND:

Q. Ms Townsend you gave some evidence earlier on about the Department's position on whether a council could have a policy to do nothing under the earthquake-prone building provisions and I understood that your answer to His Honour was, "No."

A. That's our view.

Q. And that was your view as at 2005?

A. It was my view in 2004 when we did the provision in the Act. It's my view through, it's still our view and reflected in our guidance in 2005, yes.

Q. And you also gave evidence about whether, about what the Department's preferred approach was, active or passive and, as I understand it, your evidence was active?

A. Mmm.

Q. And that's been the position since 2004 or five as well?

A. As reflected in our guidance document to councils.

Q. The guidance document you're referring to is – Your Honour tab 8, document 5(d) point 2. Is that the document you're referring to?

A. Sorry.

Q. That'll come up on the screen in front of you.

A. Yes, sorry.

Q. It should be right there in front of you as well – on your, on your screen.

A. Yes it is, that's it.

Q. That's the one you're referring to?

A. Yeah, thank you.

Q. And does that guidance document together with the appendices include some contemplation of unreinforced masonry buildings as part of the problem that was to be addressed?

A. Sorry I'm not familiar enough –

Q. If we go to page 5(d) point 30 which is –

JUSTICE COOPER TO MS TOWNSEND:

Q. Now the copy you have may not have our –

A. No.

Q. – numbers on it which is the numbering which is in red at the top of the page. I'll tell you what, in that document it's page 27.

A. Thank you.

MR ELLIOTT TO MS TOWNSEND:

Q. So this is, this appears to be a draft policy.

A. Yes it is, Quake Town.

Q. And under the heading 1.2, Overall Approach, it refers at the end of that sentence to unreinforced masonry buildings?

A. Yes it does, yep.

Q. So unreinforced masonry buildings were on the Department's mind at the time this document and draft policy were being generated?

A. Yes, in particular as the 1991 Act already identified those buildings as risk buildings as they were already, because they were already defined

as earthquake prone so we extended that to a range of buildings but we knew that those buildings posed a risk which is why we felt that the policy should deal with how you would deal with those buildings.

Q. And in fact that risk has been known since at least the 1930s?

A. That's right.

Q. In New Zealand?

A. Yes.

Q. Have you read any of the report that Professor Ingham prepared for the Royal Commission?

A. Sorry I haven't. I haven't, no, sorry.

Q. I'm just going to quote a few sections of those reports and ask you about them. The professor gave evidence about parapets and said that parapets that are not properly secured to a building can fail by rocking and fall through the roof or over the side of building. He said that parapets typically fall outwards towards the footpath or street. In cases of two or three-storey buildings with parapet failures the parapets fall across the footpath and well onto the street. He also gave evidence about walls - unreinforced masonry walls are weak when subjected to forces other than compression. Gable walls can suffer out-of-plane failure and gable walls almost exclusively fall outwards. Are those things which the department was aware of back in 2004 and 2005 when it prepared these documents which were directed towards unreinforced masonry?

A. These documents 2005 we would have been aware of these – Mike?

1555

MR STANNARD TO MR ELLIOTT:

A. Yes I mean yes we certainly were aware of some of those issues when this was prepared.

Q. So the department was aware of those types of dangers?

A. Yes I think people have been, engineers have been aware of those dangers and I think Doctor Hopkins mentioned earlier that some of the legislations been around earthquake URM buildings since 1968 I think

so yes those issues have, were probably not quite as well, no I think we were aware.

MR ELLIOTT TO MS TOWNSEND:

Q. Is that the reason why you say that an active approach was endorsed?

A. Yes.

Q. This earthquake prone building provision document that is back on the screen.

A. I know which one we mean.

Q. Now is said to be at page 5B.4 guidance documents to assist territorial authorities in the development of their policies is that what it was?

A. Yes it was.

Q. And on page 5D.17 I think which is page 14 of the document a policy approach is set out and I appreciate that you're not immediately familiar with that. Mr Stannard might be but I'm just working off headings so that we can understand what the policy approach is described as being and it appears to be, you've got overall approach there with the heading and then at 1.3 is identifying earthquake prone buildings under which the first step is what you call a preliminary investigation and that includes what's described as a relatively simply desktop examination of building stock. And then the next step is what's called an initial evaluation process it's the IEP it's referred to and that leads on to 1.3.3 over the page to a detailed assessment of earthquake performance and 1.3.4 to a priority list from the information gathered throughout the assessment process the TA should establish and maintain a list of priority buildings requiring the earliest attention. In 1.4 is assessment criteria and then it's in 1.5 that we move on to actually taking action on earthquake prone buildings. Turning then to page 20 5D.23 on this page we have a document entitled "Approaches to Policy Implementation" and in the second sentence of the first paragraph it says, "The department considers that there are two principal approaches that TAs could adopt. We have an active approach and a passive approach". And under the heading "Passive Approach" it says, "If the IA were to adopt a more

reactive approach the IEP and detailed assessment and any improvement of such or performance would be triggered by an application under the Building Act for building alteration, change of use, extension of life or subdivision." And further on down the bottom of that paragraph, "However once an application activates the EPB policy a TA should require any necessary upgrading to be undertaken." And then on the right hand side, "The disadvantage that it relies on a haphazard order of remediation based essentially on an owner's intention for a building. This could lead to significant high risk buildings untouched for a long period of time. On the other hand costs of administering such a programme would be significantly less than for an active programme." So what do you say to the proposition that this passive approach described here in effect says to a TA you can do nothing unless an application is received from an owner?

A. The law as it says, as it currently says does not say which of these approaches should be taken and that's the point that is in contention for the review. We clearly are of the view that you were meant to prioritise and you were meant to work through the issues of earthquake prone buildings. This guidance recognises though that councils could take a more passive or reactive approach. That still requires them to take on the duties that they have in respect of earthquake prone buildings and for instance where we saw before there was a building, somebody who was in part of building was coming in for a consent to do earthquake upgrades I would have assumed that that would have triggered that whole building then having an earthquake prone assessment made of it. What I'm saying is that once you knew of an earthquake, that there was an earthquake prone building you had duties under the Act to respond to deal with your powers and that's, so a passive approach is about, is not the same as having no approach. It's about the speed and how you trigger those powers but the powers and the duties and the obligations are in the Act but we are quite clearly of the view an active approach is more appropriate but we are also, we're equally aware that for some councils there has to be a prioritisation and you had to work through it

because it needed to be done in an orderly fashion that they could manage so that was what we were trying to reflect in the guidance.

Q. Well let's just get it exactly clear what the department was saying to councils back then because no doubt councils will be asked to comment on this as well from their perspective.

A. Yes.

Q. What I'm suggesting to you is that this passive approach described in this document here contemplates the councils doing nothing more than an initial desktop inspection but then unless an application is received from an owner there will be no action taken by the council. Do you agree with that?

A. That's the reactive approach and it is allowed for by law. What our guidance says in the way that we, in the language used here is around the fact that we don't view as the best practice approach. The best practice approach would be the one that we outlined in front which was a desktop assessment of buildings looking at the age, the nature of the materials used and that would deal with the unreinforced masonry issue and then prioritise an active stock take in more detail an assessment. That's our view of the best practice but for guidance also provided in a way of dealing with it is that they chose and they were entitled by the law to choose a less active approach.

Q. This is the document that you distributed to councils and your guidance document?

A. That's right.

Q. Nowhere in this document does it say that we endorse the active over the passive approach. In fact it just says there are the two approaches.

A. I would agree that it doesn't say that but I think it's quite clear that we, the language we used is around you know the second approach has significant disadvantage and relies on somewhat haphazard order of remediation based essentially on the owner's intention for a building. That language is about as far as bureaucrats go in terms of sending clear signals of our intentions. We also have in this document and I'm not trying to be defensive of it but in this document we clearly then have

a view about what we think is best practice and that's our (inaudible 16:04:48) approach and that is active. So while I acknowledge that we've provided guidance of how you could do both it is done in a way that is trying to push councils towards the active approach because we believe that is best practice. Our second, and I haven't read, I'm sorry, I haven't read the upgraded one but we're always aiming towards councils taking on how we can best help councils take on their obligations and duties. Have you got anything to add Mike?

1605

MR STANNARD:

No I think the (inaudible 16.05.25) policy was also included as some, as a guide to TAs and thinking that it might be the starting point for many of them and, indeed, that was the case so that, in fact, we did get the majority of TAs actually endorsing a more active approach than the passive approach.

JUSTICE COOPER TO MR ELLIOTT:

Q. Mr Elliott, without wanting you to go over old ground again just on page 20 I think it is, but our numbering is suffix 23, with the passive approach the IEP, which is the initial evaluation process, in itself is triggered by an application under the Building Act for building alterations. It's not a feature of both the passive and active policy approaches. So that if you were adopting a passive approach as described by this document you wouldn't need to do the IEP until there was an application under the Building Act for Alteration, Change of Use, Extension of Life or Subdivision, as I read it.

A. The point, Your Honour, there is that the IEP is triggered by the application.

Q. That's right.

A. Yes.

Q. You described the passive approach in your question as one which was apart from the need to carry out an IEP would it be sufficient for a

Council to sit back and wait for a building consent. It looks to me like, with a passive approach you wouldn't need to do an IEP. That, too, would have to await an application, or could await an application of the relevant kind under the Building Act.

A. Your Honour I was distinguishing between the initial desktop assessment and the IEP. So that's referred to on page 14 so…

Q. Oh I see. So the desktop examination of the building stock applies either way.

A. Yes Your Honour but my point is according to the passive approach apparently the IEP, which is a more thorough process, is not triggered unless the application is brought and that's really my point which I think has been addressed.

Q. Right thank you.

MR ELLIOTT TO MS TOWNSEND:

Q. In fairness I should also refer you to, under the 'Active Approach' heading the document does say "Adoption of this approach will provide a TA with the best possible risk reduction programme as it's able to set and control the level of any work required to mitigate the risk.

A. Yes.

Q. And you would say well there is us advocating for an active approach.

A. Its, the language used in this really is us promoting what we view as best practices and active approach. What we set out in the front is our view about best practice and an active approach. I think the point Mike's made is very relevant and that's the no-one had anything in this stage and this is around a starting point and the need, for some councils this was quite an impost and what we were trying to do was to have them deal with it on a priorities basis. Some councils had differing views about the risk in their communities and I think that was reflected in the way they chose to, which way they chose to do it. But, for the Department, we were clear that an active approach is best practice.

JUSTICE COOPER:

Q. I suppose in giving this advice to territorial authorities you had to reflect the statutory framework?

A. The law. The law. That's exactly right and that, it allows for both approaches and that's a question that we, of course, should be asking and are asking is should the law allow for both approaches.

MR ELLIOTT TO MS TOWNSEND:

Q. Is that why DBH actually bothered to suggest a passive approach as well because you felt that the law contemplated that?

A. We did and, more importantly, what we wanted to do was say that, at best, if you are going to take that approach you should have a desktop view of your stock so that when a consent come through the door you knew enough to know that there was a risk, that you could then apply it. Because remember some councils didn't even know enough about their buildings prior to this, that when a consent come through the door they would know enough to start an earthquake-prone view so we were trying to say what would you do to at least manage your duties and obligations if you were going to take the most passive. So we were trying to make sure that at least there was something put in place to allow them to deal with their duties and obligations.

Q. All right well you mentioned earlier on that the Department's position on the law is that the Building Act can only, under the Building Act councils can only require an upgrade to 34 percent. That's right? Yes? But that the Department's position also is that best practice would require an upgrade to 67 percent?

A. Best practice would be an upgrade as much as technically possible. The phrase that is often used is as near as reasonably practicable to the level but at least to 67 percent. If you could get to 100 percent, which is difficult to do with existing buildings, but our view is if you're going to bother to upgrade make it as safe as you can with the technical and financial constraints you have and attempt to try to get to 67 percent.

Q. Why has the Department been willing to allow best practice to lag behind the law for six years?

A. Because the law, in this particular circumstance, when we, when we passed the regulations we put in a threshold, we didn't anticipate that it would then be used as the bottom line. We saw it as a trigger. We didn't anticipate that it would then be used by both councils and building owners as the minimum or the maximum standard they would get to. We saw it as a minimum standard, not the maximum, and the point being, as I said, now we need to reflect on whether there should be an upgrade standard as well. So why this long? Um, it was, um, we haven't amended the Act in this place before.

Q. Well your point you've just made about what might have been anticipated how do you reconcile that with the comment on page 16 (5) (d) (19) "However a TA will not be able to require a building to be upgraded to a standard significantly in excess of what would be earthquake-prone". You knew it back then –

A. Yep what I mean by anticipated is I'm wearing two different hats, I didn't write the review. The hat I was wearing in terms of anticipated was that when we were doing the legislation, taking it through the select committee, when you get something out of parliament it's then when you start to work with it you then start to find the issues with the legislation and this is one of the things that came out when we were trying to do these guidelines. It's the first time that this issue really come to the fore wasn't it Mike? *(Mmm)* It was the first time we had people pushing back and had legal opinions about what the law meant so we anticipated something when we wrote the legislation that as we implemented it was proven not to be the case.

JUSTICE COOPER TO MR ELLIOTT:

Q. Mr Elliott I couldn't pick up that reference I think you might have given us the wrong page number.

A. It's page 16 and document 5(d) point 19

Q. And I'm looking for?

A. Second paragraph, midway through starting with “However….”

Q. It was there all along, you were right and I was wrong. Thank you.

MR ELLIOTT TO MS TOWNSEND:

A. The issue came up when Local Government New Zealand got a legal opinion that that came through when we were going this guidance and consulting on it about what the provisions meant and that was the first time it had been brought to the Department’s attention that this could be the unintended consequence of the way the law had been put together. So that’s one of the, so when I say we didn't anticipate it I was using the legislative writer hat rather than the policy hat.

1615

Q. Have you answered my question about why nothing’s been done to change that since 2005?

A. Well, no, I'm not – the issue is, it's not been something that people have as a priority asked us to change up until now.

Q. Does someone need to ask you?

A. The earthquake prone provisions has not been something that people have – or that we've had as a priority change to the legislation until now.

Q. So it takes an earthquake?

A. It takes, yeah maybe it takes an earthquake, we need to think about priority around this, yes, and these provisions are, as we say, are now a priority for us.

Q. I appreciate that the department’s undergoing carrying out a review.

A. Yeah.

Q. Which is running along for a period of time but can I just point out one or two pieces of evidence that presented by Professor Ingham, around the issues of parapets and gable walls in particular, his research found that 44% of restrained parapets suffered from full or partial collapse and recommended further investigation, but I infer that right now there are parapets around this country which are restrained that may potentially be dangerous, especially in higher seismicity areas. Is that something which the department proposes to do something about?

MR STANNARD:

A. Yeah, I can comment on that. Certainly we have been in discussions with New Zealand Society for Earthquake Engineering, because I guess through Professor Ingham's paper but also as a result of the investigation we've been doing into some of the central city buildings, and there's some issues that have come up there that need to review the 2006 guidelines and that's been touched on this morning, Adam Thornton mentioned priority of, well a need to review the unreinforced masonry section of it, so certainly that is something we have got on our work plan, we are in the process of discussing with New Zealand Society for Earthquake Engineering to set up that panel again to review that document to help in the assessment of critical issues relating to buildings.

MS TOWNSEND:

A. I see this review having a package come out of it, which will be some legislative change, some regulatory change and guidelines and that we can – and some technical standards which will all needs to be put together to actually deal with all of the issues that have been raised. One without the other isn't going to get us there so we need a package of issues that will take us from the right piece of legislation with the right regulations and national standards through to some changes in the technical standards and guidelines and that will allow all of these issues to be dealt with.

MR ELLIOTT TO MS TOWNSEND:

Q. But does the department attach any urgency to the issue of parapets given Professor Ingham's –

A. Yes we do.

Q. – and the Royal Commission's interim recommendations in gable walls, or is that going to be dealt with just as part of the overall review of the evidence that's emerging?

A. We – a bit of both. We're going to work quite quickly on these, the one thing of course, the department can put priority in it, and I'm sure that the Government will too in order to get legislative change we have to get it through the parliamentary process and into that system there, but yes we put priority on all of these things don't we and in technical stuff, is that what you're looking at, Mike.

MR STANNARD:

A. Yes, yes very much. It's definitely, I mean yeah, there are many things to do as a result of the earthquake and certainly that's a priority issue for us.

MR ELLIOTT TO MR STANNARD:

Q. Have you set yourselves a deadline?

A. No, not yet.

Q. There's been some discussion around the issue of the appropriateness of percentage NBS as a measure, but on the basis that it's what's there at the moment, I'm just going to ask you a question about that. What is the department's current position about what the percentage NBS should be as a legal obligation on the reinforcement of masonry buildings?

MS TOWNSEND:

A. That as a – I'm sorry is this the discussion we've had now, because I think what I've said, and pardon me if I'm answering the wrong question, but what I've said is that rightly or wrongly the legal requirement is up to 34%, that's the legal requirement rightly or wrongly, and what we're saying is our view is that that's not best practice, but that's the legal, if that's the question you've just asked me, that's the legal requirement as most people, and as we see it.

MR ELLIOTT TO MS TOWNSEND:

Q. What's the department's position about what their legal requirement should be, is it 34% or is it something else?

A. No.

Q. What is it?

A. Our view is, I've indicated before, is that it should be as reasonably as practicable to the standard but at least up to 67 probably, but we do need to test that but that's what we've put in our guidance and that's what we say. Is that not right Mark, as best practice?

MR STANNARD:

A. Ah, yes, I mean I guess there'll be some – how practical that is in some circumstances but certainly the 67% I think, you know there have been buildings that have performed reasonably well, in Christchurch they were upgraded to the 67% and that would seem to be a good starting point as a bottom line, there may be cases where it's actually not, it's not practicable to quite get there so that's going to be – that'll be a – I mean the Christchurch City Council policy as I understand it is aiming at 67% but it's as near as reasonably practical so they have given themselves a provision that may, if they can't, if it's unrealistic to get there then they might relax it slightly.

MS TOWNSEND:

A. We need to consult on this and we need to work through what the implications are across the country of making such a wholesale change, but as quite clearly our view that you should aim for as much as you practically can and it's both economically sensible and it's the best outcome for the building and for safety, so yes.

MR ELLIOTT TO MS TOWNSEND:

Q. Let me just point out something that Professor Ingham, could I have slide BNG4.43 please. So this is a graph comparing damage with unreinforced masonry buildings of differing strengths and the darker

colour relates to what's described as buildings strengthening to between 67 and 100% NBS, that's the darker, and you see on the horizontal access we have an account of the amount of damage and as I understand the evidence from the Professor in fact when he said 67 to 100, he really meant in fact that most of those buildings were much closer to 67% so what that graph tells us from the buildings that were looked at, was that a large number of buildings strengthened to 67% still suffer moderate, heavy and major damage, yes?

A. Mmm.

1625

Q. Then slide 4.41, sorry 4.51. We, I became a bit dizzy with graphs but this, there are two graphs here. The top one referring to risk to building occupants from different building damaged levels and the bottom referring to risk to passers-by the different damage levels and I just point out my earlier comments that the evidence was that building parts can fall outwards. That explains why passers-by are dealt with and what this shows that even at moderate levels of damage to buildings we still have big chunk of people or a risk of likely or near certain harm or risk to people so my question for you, in fact another piece of evidence is that the professor looked at 11 masonry buildings which have been upgraded to 100% or greater and still three of those suffered moderate damage and moderate damage can potentially cause risk of injury or fatality so in light of that sort of evidence emerging would you adhere to your position about 67% being the appropriate figure or should we not be looking to fix it at 100%?

A. As I indicated what we say is if you can get it up as close as you can. The issue is that not all buildings are able to be upgraded to that level either it's not economically viable or not technically practical. The issue that we, and this is back to the comment I made before the issue was have to as a community decide is what is the risk that we and the cost that we are willing to spare as a community and where are we going to set our standards and that's something that's a legitimate conversation for us to have in terms of resetting these standards because every,

everyone of these building has an owner who has to foot the bill and we have to make some decisions about each one of these buildings so it's a legitimate question for us to work through. Sixty seven percent was where we worked as a basis of what engineers have said to us and what we knew. The best outcome for everybody was if you could get it to 100% but that's not always practicable or able.

Q. So just so that the community –

MR STANNARD:

A. Can I just say I mean there may be some issues that we have to work through to see what techniques were used to strengthen them to those levels and maybe some of the techniques that were used need to be modified or changed because I think we're always going to learn from such events and we have to reflect you know the experience and so I think you know that might have been the assessment prior to the event but actually, in actual fact maybe they weren't appropriate techniques that were used. I don't know we'd have to see more detail about that and I think that's part of the research programme going forward.

MR ELLIOTT TO MS TOWNSEND:

Q. So that the community can understand the perimeters of this debate the factors that come into play are number one safety, number two cost and number three the architectural or heritage or ascetic consequences of making changes to a building. Could they be the factors that come into play (overtalking 16:29:52).

A. The heritage and I think our minister has made a comment as well the heritage issues are important but not what come into being in this instance. It is around the safety components and I think the point that Mike made is a really good one which is understanding it's about the property and the size. It's understanding how these strengthenings have taken place and what we know now it may mean that some of these buildings weren't actually what we call 67% now. I think we are all after getting these buildings as safe as we can and that's what we're all

aiming to try and when I say costs I need to reflect on the fact that and I think other submitters have talked around this we have to reflect on the fact that this has to be paid for and dealt with and so we need to talk about it as a community about what that level is and at the moment we don't have a standard of upgrade at all so it's a conversation we're going to have to have.

JUSTICE COOPER:

Q. There's another factor that has been mentioned in the evidence that's been given by these witnesses and that is practicality in terms of what's feasible in engineering terms, what standards are in fact able to be achieved assuming the following wind on all the other factors.

A. Because the option if it isn't practical is demolition.

Q. Well or a lesser standard?

A. Yes that's right.

MR ELLIOTT TO MS TOWNSEND:

Q. If it was safety alone though we would say 100% wouldn't we?

A. Safety alone may lead us to 100% but we've got to work out what, we also then have to come back to what, for what level of events as well. We have to know what standard we are actually making a building safe to and that's another issue that we have to deal with.

JUSTICE COOPER TO MR ELLIOTT:

Q. But what is practically achievable can't be put on one side Mr Elliott.

A. No Your Honour.

MR ELLIOTT TO MS TOWNSEND:

Q. Can I just comment that we had long discussions yesterday about what 100% meant. In this case it was 100% to a seismic coefficient which was .22 but the seismic coefficient now for Canterbury as recommended by GNS is .34 temporary put to .3 therefore should it have been based on its, one would have thought immediately after the earthquake it

would have even higher so there's a problem in transmitting what we found in Christchurch earthquakes in a very localised area to other centres which have a different seismicity and were not subject to an earthquake which was considerably in excess of the seismicity value which would indicate we could expect within a 500 year period? I think that's really good point.

A. That's right.

Q. There are complications in trying to translate the two but somehow or other it's got to be sorted out?

A. Which would mean that this graph is no longer right for Canterbury either if what you're saying is right and the levels –

Q. It's right for Canterbury but we have to scale it in terms of what we expect. If we expect another 10,000 year return earthquake then we would use but if we are designing for the 500 year event then we would have to do some scaling down. How much we scale down is a matter of, that we've got to give a lot of attention to.

A. Yes exactly.

Q. It's a matter of quite complicated interaction of duration and all sorts of things.

A. Yes.

COMMISSIONER CARTER:

Q. Yes I would like to ask you for a moment on just the URM component of the earthquake prone buildings and the advice we had from our United States Californian engineers including our major peer reviewer Mr William Holmes is the Californian approach for URMs is more prescriptive around specific types of improvements that can be applied to that building form which is very susceptible to differences in material, properties et cetera so it's not so easy to calculate exactly how they will fail except they note that you cannot with a URM building be certain of the level of strength you've actually achieved. Have the department contemplated using more prescriptive advice as well as its strength advice perhaps for unreinforced masonry buildings?

1635

MR STANNARD:

I'd have to say that we haven't got it on, you know, it hasn't been considered up until now to my knowledge but I think it's a very good point to consider.

COMMISSIONER CARTER TO MS TOWNSEND:

Q. They noted that there's been something like 28,000 URM buildings in earthquake-prone areas in California of which something like 70% have been improved. So their experience over there is quite extensive including the way some of these structures have subsequently performed in earthquake, in subsequent earthquake events. So perhaps I would just like the Department to let us know if they're contemplating having a closer look at these alternative techniques that we're learning about as we, as we hear from our international advisors.

A. Yes, well input for us, thank you.

JUSTICE COOPER TO MS TOWNSEND:

Q. We've heard about your, quite a wide-ranging review that you're going to conduct which, which will overlap to some extent with the matters which the Royal Commission has to consider. I just want to understand how you'll go about that review. At some stage there will be a process in which you engage with interested parties but at least in the initial stages will that review be conducted by the Department utilising its own resources?

A. How the Department tends to do these things is, we do, do some analysis in-house but we tend to work a lot with the sector, both the local government sector and with the construction industry so that we understand the needs of all the parties and what the practicalities of this, we work very closely with the Society of Earthquake Engineers.

Q. Yes.

A. We have strong relationships with both the profession, the professions that are dealing in this space, local government and the construction

sector. We tend to do up, to work through the issues, do some initial analysis and then work with these various sectors to test that we've got all the issues right. Then we, so we, then we will consult on the outcomes. We also try to, try and I hope we succeed, to impose some rigorous costings across the top of this and we tend also to look internationally. While it's an important and priority review thankfully it is, it's I think one that we can do in quite a timely fashion because it's quite narrow in terms of, it's about earthquake-prone buildings not trying to review the Act as a whole for instance. So I think we can tackle this in quite a timely fashion. We just need to work through the consultation processes and work through with stakeholders what this means. The point that you made before is a very good one, that we need to work through the implications through all the other bits of the legislation and other duties it imposes so we understand what it actually means and I think we also have to reflect that somebody's going to have to pay for this and I think, I thought it was an interesting submissions around the depreciation on buildings issue that was raised earlier in the day and what that means in terms of builders ability to pay so I think there's a range of policy issues for us to work through but, yes, we do in-house but we don't do alone.

Q. One of the matters that we're required to enquire into is the roles of Central Government, local government, the building and construction industry and other elements of the private sector in developing and enforcing legal and best practice requirements. Now that's not actual the subject matter of this hearing but do you have a plan as to how you are going to engage with the Commission on that aspect of its enquiry?

A. No, it's a good question. I haven't –

Q. Well can I ask you to give consideration to that –

A. Yes.

Q. Because one of the issues that we will have to look at I think in responding to that aspect of the terms of reference is whether the current balance if right.

A. Yep.

Q. Whether the extent to which the inputs of what I might call learned societies or well-motivated individuals can continue to be relied on in quite the same way as it has in the past and by that I mean I don't suggest that there will be any less enthusiasm from those societies and well motivated individuals but in this area of working out what the best response to implications for the building stock of this earthquake and in others such as the development of standards for new building, the question of whether the balance is correct as to what is the input from Central Government and local government and what is up to individuals to share their knowledge and lend their efforts to the process.

A. Yep.

Q. Is that balance right. It's different from what it used to be.

A. Yeah.

Q. And the question is whether we have benefitted from the difference which has involved, for example, the removal of the Ministry of Works and its influence which perhaps in its absence might be missed in terms of standard setting and the general rigor of the rules governing construction and whether the current situation needs to be improved, looked at, sent in a different direction. I think we'd like to hear from the Department what it's views on those matters are rather than in that case waiting for us to express opinions to then form part of your review because this is really, it's like a governments issue and we would be better off I think making informed comment or comments after we have had some advice from you about how you think the current balance, how good it is.

A. Okay, okay. We can do that.

Q. Thank you very much for your evidence here today and the advice that you've given us.

A. Thank you.

WITNESSES EXCUSED

JUSTICE COOPER ADDRESSES MR MILLS

COMMISSION ADJOURNED UNTIL 14 NOVEMBER AT 10.00 AM