



NEW ZEALAND INSTITUTE OF  
**ARCHITECTS**  
I N C O R P O R A T E D

### **Earthquake-Prone Building Review**

Infrastructure and Resource Market Group  
Ministry of Business, Innovation and Employment  
PO Box 10729  
Wellington 6143

8<sup>th</sup> March 2013

### **Submission on Building Seismic Performance Consultation**

The New Zealand Institute of Architects (NZIA) has been in existence since 1905, and is the professional body which represents the interests of over 90% of architects in their role as principals and as employers and employees. It liaises with kindred professions and industry participants.

**Proposal 1:** Local authorities would be required to make a seismic capacity assessment of all non-residential and multi-unit, multi-story residential buildings in their districts within five years, using a standard methodology developed by central government, and to provide the resulting seismic capacity rating to building owners. An owner could have their building's seismic capacity rating changed by commissioning their own engineering assessment.

**Proposal 2:** Assessments would be prioritised faster for certain buildings (e.g., buildings on transport routes identified as critical in an emergency).

#### **1. Should local authorities be required to assess the seismic capacity of all buildings covered by the earthquake-prone building system in their areas, and to issue seismic capacity ratings to owners?**

Yes, Seismic Capacity Rating (SCR) assessments should be done for all buildings regardless of age, to ensure a consistent national approach. While this seems an entirely logical action to take in areas of high seismic activity, it is possibly not relevant to act on the same timeframes in areas of low seismic activity. Further steps should not necessarily be taken by the local authority, but can be required to be done by the building owners. In many instances seismic assessments have already been carried out (through the IEP mechanism) and this will in most cases be sufficient for initial seismic capacity assessment. The implemented process should avoid duplicating work that has already been completed or is underway.

#### **2. Do you think five years is a reasonable and practical time to require local authorities to carry out assessments in their districts?**

Yes, given that the Canterbury Earthquakes Royal Commission suggested two years. However, five years is an extremely short period of time and the available engineers with the requisite experience in this field will be severely overworked. Resources are likely to be quite scarce. A desk-based / drive-by assessment is certainly achievable, but a more thorough assessment will take more time and will reduce resources from higher priority and more growth oriented issues. This will be more achievable for larger cities, and very difficult for small centres.

As the structural engineering sector has relatively fixed capacity, shorter timeframes will also create issues regarding demand for consultant services. This may compound difficulties for buildings owners to raise the finance they need and make progress with the required strengthening.

### **3. Should unreinforced masonry buildings be assessed faster than other buildings?**

The principal must be that highest risk buildings should be assessed first, based on their potential risk. Prioritisation based on risk is a good idea, but does not only apply to masonry buildings. It also may apply to other buildings with critical structural weaknesses, and there are other ways of prioritising risk, based on occupancy, seismic hazard etc - for example a multi storey building with higher occupancy may need to be assessed quicker than a low density / largely unoccupied UMB. UMBs have the most obvious high risk factor, but evidence from Christchurch suggests that UMBs were more lethal when people stood under parapets or canopies rather than within the building. There are other buildings that are of equal or greater risk, although that risk may not be known until very in-depth assessment is completed. Even though the loss of life in the Canterbury quakes was far higher from modern buildings (PGG and CTV) than UMBs, the potential for disasters with UMBs is still generally the highest identifiable risk. We suggest that the latest research should be followed to confirm areas of risk.

### **4. What costs and other implications do you see with these proposals to assess the seismic capacity of buildings?**

Local authorities will need to commission consulting engineers and possibly increase rates to pay for this. There is a shortage of qualified and competent Structural engineers. Structural engineering costs are significant. There is considerable time involved in identifying suitably qualified experts, commissioning the work, background research on the buildings and working through the detailed analysis and response to local government. There is a shortage of suitably experienced engineering capacity and the skill to make the assessments is the biggest implication. We suggest that there may be a lack of nation-wide consistency in assessments (there is much variance between Engineers' assessments) and that a national Standard should be quickly addressed.

Given the resources within the industry to carry out the assessments within fixed timeframes, some central government support and potentially a prioritisation programme could be used to assist this process.

**Proposal 3:** Building information would be entered into a publicly accessible register maintained by MBIE.

### **5. Do you agree that local authorities should be required to enter information on the seismic capacity of buildings into a publicly accessible, central register to be managed by MBIE?**

We are unsure of the real value of this action, given the limited amount of information that is likely to be held. We currently have two places to get information: LIM/PIM from Council, or land information from LINZ, both of which are publicly accessible. While the use of a LIM has much logic (it is already mandated during the property sales process), that would entail an array of registers managed by each local authority, each with differing requirements. The NZIA's preference would be to have it centrally managed for sake of consistency.

### **6. Should information other than a building's seismic capacity rating be entered into the register for example, agreed strengthening actions or information from an agreed building ratings system?**

Yes, within reason, but this is not critical. The purpose of the register should drive what information is collected and as proposed the purpose(s) is unclear. The system should state the estimated seismic capacity, subsequent assessments by the owner's consultants, decisions made by the LA and whether or not a building has been upgraded. Possibly even allow a building to be issued with a

Seismicity certificate. A ratings system would need to be carefully considered and consulted on. Building end-users (not necessarily technically skilled) will require any technical information in the database (eg, identified structural weaknesses or features / solutions) to be easily understood to be useful. All information needs to be online.

Government information legislation compliance monitoring may require more than the seismic capacity (eg, timeframes for completion, actions agreed). To be most useful, the information database should be dynamic, addressing updated consents applied for and work completed, as strengthening plans may change over time.

**7. Rather than a central register, should local authorities be responsible for both collecting and publishing this information?**

The existing medium for getting information to all parties is the use of the LIM system. Local Authorities should collect this information: some items may be more suited to a LIM than a MBIE register. Regardless, recorded documentation should be available online, and needs to be clear, simple, and unambiguous.

Local authorities need to be able to easily update the register as information is available and/or updated. The primary risk is that we will end up with a confusing set of systems with varying requirements and levels of information provision. This will increase the burden on the Local Authority resource, which may equate to rates increases etc. Dependent on the sophistication of and abilities of the up-coming GeoBuild process being planned for nationwide consenting, this new information could be amalgamated into the GeoBuild system.

**8. Should there be any other information disclosure requirements for example, should building owners be legally required to display information on the building itself about the building's seismic capacity?**

Yes. Information issued to the public should be in the form of an easily understandable system, but the problem is that the issues involved here are not simple. Seismic status is not as straight-forward as a percentage figure and the veracity of the final seismic rating figure can be challenged by other engineers - there is therefore little use in publishing one defining figure. However, bands of seismic capability indication can be indicated, ie building is Dangerous: Below 33%, or Average: Between 34-66%, or Good: Above 67%, or Excellent above 100% of NBS. This would allow the public to make informed decisions about whether to enter a building or not etc.

We suggest that this rating can and should be placed on a Building Warrant of Fitness, which would be displayed where the public can see (as already standard for commercial and multi-storey residential buildings). All other information should be kept on the online register, where it can change over time and be updated where necessary. Use of technology such as a scannable QR code could be used to link building users direct to the more informative (and continually updated) online register.

**9. What costs and other implications do you see resulting from the proposal to put seismic capacity information in a register?**

This is a mainly a question for central Government and Local Authorities. LAs and MBIE will need additional resources, as set-up costs will be extensive if each LA is left to create a system from scratch. Central government is best suited to create a scalable register, so that limits of information register are not reached.

**Proposal 4:** The current earthquake-prone building threshold (one third of the requirement for new buildings, often referred to as 33 per cent NBS) would not be changed. However, it is proposed to establish a mandatory national requirement for all buildings to be strengthened to above the current threshold, or demolished, within a defined time period.

**10. Does the current earthquake-prone building threshold (33 per cent of the requirement for new buildings) strike a reasonable balance between protecting people from harm and the costs of upgrading or removing the estimated 15,000-25,000 buildings likely to be below this line?**

No. We are advised that, where over 33% of NBS, buildings should withstand a moderate earthquake just enough to prevent loss of life and that the building has therefore fulfilled the task of protecting people from harm (although it may well be damaged and need to be demolished at a later date). However, the evidence shown in Christchurch is that to demolish and replace an entire city's stock of commercial buildings is not financially feasible. As a country, we cannot afford another such financial burden. If all the modern buildings in Christchurch had been base-isolated (or similar mechanism), resulting damage would have been minimal and the city would have been able to continue to function. We therefore need to find a way to afford to strengthen significant amounts of our building stock above the 33% margin (there should be incentives for strengthening buildings more than the minimum; to a strength of 67% of NBS or higher). Strengthening to as high a level as possible should be encouraged.

The Christchurch earthquakes have shown that the earthquake risks are currently best estimates only and there needs to be a risk analysis of urban centres based more on a Bayesian analysis of the risks including uncertainty. This could change our assessment of possible outcomes and test the validity of the 33% of new build requirement strength assessment of either okay/not ok. This is too arbitrary when there are other important factors involved in life risk assessment. A building strengthened to only 34% is still highly vulnerable to damage and is therefore still a life threat. The degree to the required percentage strengthening required should similarly be based on a proper risk analysis. Engineers generally are not qualified to set up such quantitative statistical analyses and will need to work with others.

Heritage building owners need to weigh up the long-term economic sustainability of their buildings versus the preservation of their building for the future. They need certainty that future rises in the Building Code do not trigger further earthquake strengthening requirements. While the best response would be to upgrade buildings to the highest level affordable, in many cases the minimum level may be as far as building owners are able to fund given the very significant costs involved. Uncertainty of future regulatory changes/standards is a major factor constraining investment in many heritage buildings. Many owners are unwilling to invest the significant capital required to safeguard an asset that is marginally economically sustainable even without the uncertainty created by potential future regulatory changes. To resolve this, we suggest a 50 year non-revisitation term be extended to buildings that have been strengthened.

From the documentation supplied there appears to be very little confidence in the accuracy of the number of buildings that fall below the threshold, and the cost of upgrade to various levels. Risk of collapse of the building and dangerous elements of the building need to be considered in the legislation and/or the associated methods of assessment, if they are not adequately addressed already. For example, if a building (even worse, a large building with a high occupancy) has a known potential for catastrophic collapse at loads associated with 50%NBS, this should be considered an unacceptable risk. Similarly if there are building elements known to present a high risk to safety in an earthquake (even if above 33%NBS), these should be addressed.

Conversely, if there are buildings that fall below 33% but pose very little threat to safety due to their low risk of collapse (and/or if they are unoccupied buildings for example) this could be carefully

considered in terms of prioritisation of risk. In many cases, strengthening to a higher level may not be significantly more expensive, especially given the other costs associated with building projects and interruption of business. It could be required to strengthen some buildings to 67% (for example) if an existing building falls below 33%, without raising the overall threshold to 67%.

**11. Should the requirement for earthquake-prone buildings to be strengthened or demolished take precedence over all other legal, regulatory and planning requirements, such as those designed to protect buildings of heritage or local character?**

No - the desire to strengthen buildings of heritage value or local character counters the requirement for demolition. Life safety and protection against injury should be a primary concern, but earthquake strength of buildings is not the only consideration when thinking about the built environment. More flexibility should be provided for heritage buildings - longer periods to be strengthened. Sensible decisions need to be made to avoid the loss of many of our most important heritage buildings.

There may need to be alternatives to demolition in cases where strengthening is uneconomic within the timeframe, that address safety concerns adequately but do not necessitate demolition. Where strengthening projects occur they should still be subject to RMA and planning regulations, but these regulations may need to have some attention if there are known problematic conflicts that exist.

**12. Should local authorities have the power to require higher levels of strengthening than the earthquake-prone building threshold, or strengthening within shorter timeframes than the legally defined period?**

In normal situations, no, but in the case of specific buildings vital to a community, this may make sense. There should be a risk-based prioritisation based on hazard, vulnerability and consequences, and this may mean in some cases that shorter timeframes and higher levels of strengthening are required. Prioritisation also makes sense in terms of the spread of the industry resource. Local Authorities could incorporate factors such as higher importance level into their risk assessment, however we note that the average LA does not necessarily have the expertise to make such decisions.

**13. Should certain features of unreinforced masonry buildings, such as chimneys and parapets, be required to be strengthened to a higher level?**

Yes, but this is only necessary if it can be shown that the higher proposed level will significantly reduce risk: there should be a requirement to strengthen particular dangerous features of buildings. The 33% threshold for building strength is an overall assessment of the building, but more emphasis should be placed on ductility rather than strength. There should certainly be an option to be able to address "higher risk" building elements (unreinforced and unfilled concrete block, not just brickwork) rather than a total percentage for the whole building.

**Proposal 5:** All buildings would be strengthened to be no longer earthquake-prone, or be demolished, within 15 years of the legislation taking effect (up to five years for local authorities to complete seismic capacity ratings, followed by 10 years for owners to strengthen or demolish buildings).

**Proposal 6:** Strengthening would be carried out faster for certain buildings ,e.g., buildings on transport routes identified as critical in an emergency.

**Proposal 7:** Owners of buildings assessed as earthquake-prone would have to submit a plan for strengthening or demolition within 12 months.

**14. Is it reasonable and practical for owners of earthquake-prone buildings to meet the following timeframes:**

- **12 months to submit plans for either strengthening or demolishing the building?**
- **10 years from the date of the seismic capacity rating to strengthen or demolish?**

This question is in 2 parts and so has two separate answers.

Part A: Is it reasonable to expect owners to submit engineering and architectural plans within 12 months? Clearly the answer is No, based on the current availability of suitably experienced structural seismic engineering practices, and the length of time it takes for them to look at the project, work through the detailed analysis of the building, and formulate an appropriate answer. Most of the good engineers in Wellington (those heavily experienced in seismic evaluations) are already facing a two year waiting list of projects for seismic assessment, on projects both in Wellington and around the country. Trying to get engineering and geotechnical design for building in Christchurch at the moment easily exceeds 12 months so that simply will not work if it is nationwide.

Part B: Is it reasonable to expect owners to strengthen or demolish within 10 years? The answer to this part is probably Yes (from the date of the submitted and accepted plans) in most cases for non-heritage buildings. 10 years to strengthen or demolish may perhaps not be appropriate in cases of historic buildings nor in cases of complex urban re-design. The point at which the 10 year (or whatever the agreed period) timeframe starts needs to be clarified in legislation. We note that for Bodies Corporate in Unit Titled / Company Share apartment buildings or commercial buildings, given the scale of the costs, 10 years would be an absolute minimum amount of time needed to generate the capital required to support the strengthening program.

Please note that the process to strengthen a building involves not just Structural Engineers, but also involves Architects, Quantity Surveyors, and Project Managers. This process takes time and considerable coordination of consultants for a successful outcome. The involvement of these other professions is crucial to the success of these projects.

Regarding demolition: once a seismic plan has been approved there are enough contractors available to undertake the work of demolition, so the timeframe for this activity is achievable.

The need to strengthen, however, is likely to be far more work intensive, with an equal or larger amount of architectural remediation necessary, and the involvement of other professionals such as those listed above. The timeframes need to consider the capacity of the wider construction industry to achieve that work . along with business as usual construction for other parts of the community not affected by these requirements.

**15. What additional powers would local authorities require to enforce the proposed requirements?**

Amendments to the Building Act may be required. This question is mostly appropriate for Local Authorities and central Government to respond to as necessary. However, we note that the power to fine an owner in the case of strengthen or demolish is likely to have only negative consequences. This is a situation where Government needs to offer a significant carrot to building owners, rather than wield a stick.

**16. Should local authorities be able to require faster action on buildings of strategic importance, such as those:**

- **located on transport routes identified as critical in an emergency**
- **with important public, social and economic functions, such as schools and police stations**
- **with post-earthquake recovery functions, such as civil defence centres and hospitals.**

Yes. This relates to the previous question requiring higher levels of strengthening. A full risk-based prioritisation needs to occur, and critical buildings should require a higher level of strengthening. It would be best if this could be included into the legislation. As noted above to question 15, however, it is doubtful that this process could happen faster. While it needs to be very well defined and constrained, a flexible approach needs to be taken on some instances where shortened timeframes are infeasible. In addressing schools and high importance buildings we need to ensure that we are not adding additional safety factors on top of those already in place in AS/NZS 1170, that is if we feel that the safety factors need to be adjusted then those adjustments should be made as an amendment to that standard.

Government has a legal and moral duty to the people to see that public buildings such as hospitals and schools etc, are strengthened to a level where they can satisfactorily remain in service throughout heavy seismic action. Hospitals such as Wanganui, Christchurch Women's, and Wellington Regional Hospital all have been base-isolated. This approach paid off in Christchurch where the Women's Hospital remained in service with no closures. The base isolation technology should now be extended to other key buildings around New Zealand, as the benefits far outweigh the cost. New Zealand has been, and should remain, at the forefront of this important building technology.

**17. Should all unreinforced masonry buildings require strengthening more quickly than other earthquake-prone buildings?**

No, not necessarily. While it is an entirely reasonable assumption that UMB are assessed first, they will not necessarily be the buildings that present the greatest risk to life. Brittle, less ductile buildings are the buildings that present the greatest risk. Christchurch showed that more modern concrete framed buildings (that turned out to be catastrophically earthquake prone) were greater harm to human life than UMB. Certainly securing of elements such as parapets, verandahs etc should be advanced. This should be considered as part of a full risk-based prioritisation.

**Proposal 8:** Certain buildings could be exempted or be given longer time to strengthen, e.g., low use Rural churches or farm buildings with little passing traffic.

**18. Should the owners of certain specified types of earthquake-prone buildings be able to apply to local authorities for exemptions or time extensions to the requirement to strengthen or demolish?**

Yes. This proposal seems sensible and reasonable. This should be considered as part of a full risk-based prioritisation, and low risk buildings could be subject to exemptions or extensions if deemed to be acceptably low risk. Owners should also have the option to make elements of their buildings safe without having to upgrade the building completely.

New Zealand needs to address this question honestly and not let our built environment suffer from excessive over-reactions. There is a case here for specific heritage buildings. There certainly needs to be some flexibility to how buildings get made safe rather than a general overall percentage for a total building. The risk from earthquake-generated collapse of buildings is extremely low in this country, despite the high level of seismic activity, based on historic evidence (deaths from

earthquakes total only 441 in the last 100 years, compared to a yearly death toll from motor-vehicle accidents of a similar or larger number each year). Buildings with low use are effectively empty for the majority of the time, and pose very little real level of risk at all.

**19. If yes, what are your views on the following possible criteria:**

- **the building is used only by the owner, or by persons directly employed by the owner, on an occasional or infrequent basis**
- **the building is used only occasionally (less than eight hours per week), and by less than 50 people at any one time**

**AND in each circumstance above:**

- **all users are notified that the building is likely to collapse in a moderate earthquake**
- **the building is not a dwelling**
- **the building is not a school or hospital and does not have a post-disaster recovery function**
- **there is no risk of the building partially or fully collapsing onto a public walkway, transport route or a neighbouring building or public amenity**
- **effective mitigation measures have been put in place to protect building users from the risk of collapse in a moderate earthquake?**

**Answer:**

The criteria as listed are broadly adequate, but we suggest that the risk of buildings to occupants needs to be carried out on a risk cost basis. That is the strengthening cost needs to be equated with the life risk per event cost. Simply stating parameters such as 50 people and 8 hours per week is not targeted enough. There needs to be a formula to assess the risk based on people occupancy hours (on an annual basis), actual building strength, building resilience, building importance, heritage value and building floor area. This would better address occasional high occupancy buildings such as shearing sheds, churches, school buildings as well as overuse (more than 40 hours per week) buildings such as hotels and hospitals.

**Proposal 9:** Central government would have a much greater role in guiding and supporting local authorities and building owners, as well as in public education and information.

**20. Are the advice, information and education activities proposed for central and local government agencies sufficient to help ensure effective implementation of the new earthquake-prone building system?**

No. There is no clarity in what information has been produced so far. There needs to be a very strong programme of carefully considered public information and education, within the relevant professions and industries. Structural engineering is a very technical area and building owners require good quality advice and guidance to bring (often) complex projects to successful conclusion.

A major issue is the access to capital for strengthening, especially for Bodies Corporate in the apartment market. We note that currently this is an issue brought on by the Unit Titles Act, that stops Bodies Corporate talking on mortgage debt. For large strengthening projects, money may not be able to be raised in advance, and funding mechanisms urgently need to be implemented to address this.

What is needed is a generous amount of publically available information, including:

~Geotech information on ground conditions of all available urban areas freely available online.

~Latest, well-researched, reliable best practice information regarding seismic strengthening.

~Lists of quality, reliable, experienced consultants.



“Advice on funding and access to capital.

**Building Act fire escape and disability upgrade** On whether the current Building Act fire escape and disability upgrade requirements are, in practice, a barrier to building owners deciding to carry out earthquake strengthening work.

**21. Are current requirements to upgrade buildings to “as nearly as reasonably practicable” to Building Code fire and disabled access requirements a disincentive or barrier to owners planning to earthquake-strengthen existing buildings?**

Yes, many of our members note that they are currently both a disincentive and a barrier. This could be due to uncertainty about the 'as nearly as reasonably practicable' provision, and this can be better dealt with by good quality communication between TAs and owners. Even general alteration work can trigger upgrade requests, whether financially feasible or not. A sensible and appropriate response is required from the local authority.

The safety of old buildings to all users is more important to emphasize rather than access for all. Earthquake prone buildings may include community buildings run by community groups with little or no funds who would do upgrades in small steps over a period of time. In heritage buildings such work should be incentivised by Councils on behalf of the public good. Small steps at a time should be encouraged . current legislation or interpretation of that legislation does not facilitate this approach.

**22. Should local authorities be able to grant building consents for earthquake strengthening without triggering the requirement to upgrade the building towards Building Code fire escape and disabled access and facilities requirements?**

Yes. However, the principle should be that areas of greatest risk are approached first . and in New Zealand residential properties, fire is typically a far greater risk to human life than earthquakes. However, in commercial buildings, the earthquake life safety risk far outweighs the fire risk and Christchurch has exposed the uneven approach to the two risk types. Apart from the Ballantyne fire in Christchurch in 1947 there has been no significant loss of life in commercial buildings from fire, while the evidence is that earthquakes will cause loss of life in buildings less than 33% of current code in moderate quakes (and in buildings stronger than this in extreme earthquakes). On balance therefore, the fire escape requirements should be at least on a par with earthquake strengthening. Disabled access is not a necessity for life safety.

Potential impediments to strengthening should be removed where possible and feasible. Building alterations required should be kept to the minimum necessary to achieve the strengthening objective. However, it would seem short-sighted to remove these requirements, as there is unlikely to be any further work on the building for many years to come. There is already the 'as nearly as reasonably practicable' provision that addresses the feasibility of those upgrades. The process should be one that considers more holistically the values and weaknesses of heritage on a case-by-case basis undertaken by appropriately qualified and experienced professionals.

**23. Should any change apply to both fire escape and disabled access and facilities requirements, or to disabled access and facilities requirements only, i.e., retain the current fire escape upgrade requirements?**

Mandatory earthquake strengthening needs to be independent of the fire requirements in the building act for new or remodeled buildings. There has been no identification that there are significant shortcomings in existing fire risk to the same extent that we have seen for earthquake risk. While it is true that fire escape requirements could be a single exercise concurrently with earthquake

strengthening, this must not act as a cost barrier to earthquake strengthening and therefore the fire requirements should be reviewed.

The action should be that the fire compliance should not be made worse by the earthquake strengthening while any improvement is encouraged but not made mandatory. A similar approach should be made for accessibility to be considered in the design but no mandatory requirement to improve accessibility outside of the scope of the strengthening work.

We suggest that the provision for ~~as~~ near as is reasonably practicable+is retained, but allow greater flexibility on the application of the standards for accessibility in the case of heritage buildings. Creating fully compliant disabled access and facilities is frequently difficult and expensive for heritage buildings: more flexibility over interpreting the rules is requested.

#### **24. What would be the costs and other implications of delinking earthquake strengthening from current Building Code fire and disabled access requirements?**

Potential that if the building is modified in the future that significant additional expense in requiring compliance with fire and disabled access - undoing of work and reinstatement. It is often cheaper to do things once and get it right the first time.

**Heritage Buildings** On how important heritage buildings can be preserved while also being made safer.

#### **25. When considering listing heritage buildings on district plans, what factors should local authorities consider when balancing heritage values with safety concerns?**

Heritage is a matter of national significance and is in the public good. Heritage listings should be based on heritage values, and those heritage values remain whether a building has structural weaknesses or not. Assessment of any safety concerns is therefore a separate exercise. Rather, the interface of legislation and procedures protecting heritage and those protecting safety should be examined. The NZ ICOMOS Charter should be much more closely adhered to with respect to levels of intervention and with respect to best practice and convention.

We need to balance economic sustainability and dynamic growth with the preservation of heritage. Heritage buildings - while predominantly owned by private owners - are welcomed as visual amenity by the wider population. It is unreasonable therefore to expect that all the costs of strengthening heritage earthquake-prone buildings should be borne solely by the private owner. New financial mechanisms must be developed. Flexibility must ensure that buildings can continue provide for the needs of the people that are likely to demand its services. In some cases buildings may need to be mothballed, possibly for years, rather than destroyed, until funds are raised or appropriate strengthening systems are derived. We do not have to destroy everything to save our cities.

NZIA suggests that as the satisfactory strengthening of all heritage buildings could take some decades, exploring a range of possibilities is undertaken:

~ Temporary propping of heritage structures be permitted / encouraged, in order to proceed with planning without wholesale demolition.

~ Temporary strengthening procedures . allowing responses to be temp propping or similar, rather than full and final. Partial fixing of features must be allowed and accepted as a reasonable response.

~ Group / block work . allowing strengthening to take place by connecting different buildings together en masse, rather than all individual strengthening works. This has the possibility of saving significant cost when averaged over a number of buildings, and has already been implemented on some buildings in Wellington.

~ Permanent external strengthening, such as integrated exoskeletons encroaching into the street. This can be integrated into existing facades, and is already being explored on projects in Wellington.

~ Strengthening of features such as verandahs, to take load from collapsing facades. This option is already being explored in smaller centres, where it may be the most financially appropriate response.

~ Encourage action through financial incentives.

## **26. What assistance or guidance will be required for owners, local authorities and communities to make informed decisions on strengthening heritage buildings in their districts?**

Historic Places Trust information on buildings in most cities in NZ is incomplete and cannot therefore be trusted as an authoritative viewpoint. What they have processed so far is of merit . but there is much more than is shown on their list. An instance of this is in Wellington, where there is a small number of HPT registered buildings in the CBD, but there is also a much larger number of buildings registered on the WCC list. In all cases, national heritage is also local heritage.

Other forms of assistance / guidance needed include:

~ Appropriately qualified professional advice.

~ Education; which both local authorities and communities themselves need to expose themselves to.

~ Tertiary post-graduate courses in building conservation. We note that a Unitec post-graduate course in building conservation is being planned, which will promote multidisciplinary participation from both attendees and contributing teaching staff.

~ Flexibility, assistance for funding, targeted strengthening work.

## **27. What barriers deter heritage building owners from strengthening their buildings?**

Cost is the major factor. This cost includes not only the amount to be spent on strengthening, but also the costs in lost opportunities to develop the site in other ways. There is little incentive for most building owners to keep their existing heritage building fabric. The lack of incentive for private ownership of heritage buildings places a severe strain on building owners to retain their buildings and not immediately seek demolition (ref current case of Harcourts building in Wellington). Financial feasibility is currently difficult in cases where there will be little return on their investment, especially in areas where demand for that type of space is limited. Similar factors affect all earthquake prone buildings. The need to also comply with accessibility, fire etc accumulates to make strengthening propositions more costly.

In Christchurch heritage was irretrievably lost. Demolition has proven to be the only answer in most cases, even for the most precious of all the heritage buildings. In the rest of the country, we have the time and chance to provide a different answer.

Other countries do not blindly destroy their built heritage . but instead they encourage it to remain for the benefit of all. Their heritage architecture remains because there are financial incentives for it to remain.

The costs of strengthening heritage buildings currently fall completely in the hands of the owner of the building, despite the visual, social and cultural benefits being subscribed to by the much wider population. If the public of our cities wish to retain that heritage, then it must be the role of the public to help pay for that privilege, through government assisted funds or other mechanisms. Currently there are few routes for this process to take place, other than the very small amount of grants available to building strengthening . and this is available in only a very few cities. Clearly some new

mechanisms must take place. We do not need to reinvent the wheel - we can copy systems that work in other countries. NZIA strongly urges that the following mechanisms are looked at:

Rates rebates on heritage buildings. Currently rates can act as an incentive to demolish heritage, rather than retain. We note that this would move some of the rates burden onto non-heritage and residential building stock.

Return of GST on works done to heritage buildings. While GST should continue to be applied to all products in NZ, there is nothing stopping the retention of receipts and the claiming back of the GST paid. This gives the immediate effect of a 15% cost cut to the project, and would have a marked effect. In the UK, for instance, work on ~~listed buildings~~ is ~~zero-rated~~ for VAT, allowing an instant 20% saving in the project cost.

Allow depreciation to be claimed back on heritage buildings. This was removed by central Government, despite protests to the contrary by the Property Council and others. It should be reinstated immediately, perhaps not for general use, but particularly in the case of heritage buildings. This policy is having a severely detrimental effect amongst building owners, on the timing and inclination to strengthen.

Combined public/private ownership of heritage buildings. If the public sector helps fund building strengthening, then there is an argument that they should be able to profit from it as well.

The biggest single source of funds could be from the insurance industry, with Government requesting the involvement of major insurance companies to help preserve buildings before earthquakes, rather than merely paying out on collapse after.

The sale of air rights (transferable development rights) from sites of heritage buildings, to enable developers to fund restoration projects. We also refer you to the US Federal Government website on incentives for preservation: <http://www.nps.gov/tps/> and also to the website for New York state: <http://nysparks.com/shpo/tax-credit-programs/> where mechanisms are set out that permit ~~owners~~ of historic income-producing real properties to qualify for an ~~income~~ tax credit for rehabilitating the property.

## **28. Do heritage rules (for example, those in district plans) deter owners from strengthening heritage buildings?**

Not necessarily - but in many cases, yes: feedback indicates that the rules provide a significant disincentive. The benefits and value of heritage are balanced against greater restrictions on modification of the buildings, so extensions and adaptive re-use require a more extensive review and consent process. In most other cases the factors deterring owners from strengthening (ie financial) are the same as for any other building.

Strengthening can be more costly due to heritage rules and there may not be the same flexibility in solutions available to the owner. They do not provide a balanced "carrot and stick" process to inform, encourage and incentivise such work. Incentives could include access to good advice, funding support, and/or rates relief, as noted above. The unrealistic attitudes of some heritage advocates in the community do also deter, as does section 112 of the Building Act. Some rules in some places could be loosened. For example, Wanganui requires a resource consent for putting columns to a verandah. This requires an unnecessary fee and adds to the cost of what could be a simpler exercise in ensuring a verandah performs in a seismic event.

## **29. What are the costs and benefits of setting consistent rules across the country for strengthening heritage buildings?**

The problem is the huge variation in seismicity through the country. This needs to be accounted for. Heritage buildings are amongst the most important factors in what gives a town or city its character, and the whole population of the city, and any visitors to the city, benefit from that. Most of New Zealand's architectural heritage at present sits in a narrow band of Victorian-era heritage, with only a few examples of heritage from the Twentieth century. This will change as time goes by, and more buildings from the Modern era get recognized as heritage.

A level playing field that gives owners consistency and knowledge of exactly what is expected is of great benefit as this enables owners to plan and factor in costs etc without expecting any surprises.

The benefits of a national policy and appropriate rules for heritage buildings (including their strengthening) outweigh costs associated with the establishment of such rules. The costs of blanket rules and misinformed or misaligned rules that ignore the public benefit and economic externalities arising out of appropriate heritage management and protection need to be led by appropriately qualified and experienced professionals.

There is only one rule that needs changing and that is the one that is being used over and over again here in Christchurch: that it is uneconomic to repair. All that says is the built environment has a very low threshold of value, unlike the natural environment, or life itself. Local community values are not reflected in nationally applied rules. The value of heritage needs reinforcing in law and that value cannot be overridden by safety and economy as it is currently being done to destroy Christchurch.

In some locations it is more difficult to fund upgrades due to the economic activity in that area and lack of return on the investment. Access to funding, and the consideration of a risk-based assessment of priority would be ways of helping address this.

### **Residential Buildings**

On the Royal Commission's recommendation to allow local authorities the power, following consultation with their communities, to adopt and enforce policies to require specific hazardous elements on residential buildings to be dealt with within a specified timeframe.

## **30. Should local authorities have the power, following consultation with their communities, to adopt and enforce policies to require specific hazardous elements on residential buildings to be dealt with within a specified timeframe?**

Yes, it is in the community's interest for hazards to be reduced, including chimneys and parapets. By permitting and encouraging work on chimney strengthening to be undertaken immediately, on a nationwide basis, the country will have discounted (by a considerable amount) the likely cost of any future earthquake.

In the Canterbury earthquakes the majority of features such as chimneys either fell down (in the most part causing considerable collateral damage to other parts of the house as they fell), or have since been demolished. Their permanent fixing to a very high standard of seismic resistance should be a logical minimal first step by any property owner, and homeowners should be encouraged to do so at the earliest possible time frame.

The Christchurch earthquakes have shown the greater risk of commercial buildings in earthquakes compared with fires and conversely shown the greater risk that houses have in fires compared with earthquakes. That is they have shown that the life safety risk in houses from earthquakes is likely many times less than the fire safety risk. This needs to be reviewed as we continue to primarily focus

on the strength of houses in terms of life safety risk, perhaps adding unnecessary cost to houses as a result while on the other hand there are many people lost each year in house fires partly due to a lack of controls concerning furniture flammability /smoke developed indices and a general lack of fire design within households apart from smoke alarm provisions. Any additional resource spent on improving fire outcomes over all building types are perhaps better spent in housing. These may include limiting potential fire loads, sprinklers in multi-storey dwellings, secondary egress routes from all levels of a dwellings and effective fire detection and alarm systems in larger homes.

## **Other questions**

### **31. What would the proposed changes mean for you?**

NZIA represents the majority of architects in New Zealand and has an on-going strong interest in architecture and the built environment. Architects are an essential part of the building process.

Most of our NZIA members are actively involved in providing design services for the building industry, and many are already working heavily in the Christchurch rebuild. As such, any changes to the Building Act and any revisions to required levels of Seismic Building Performance policy will have a direct impact on the workload of NZIA members, as well as our clients. We believe our clients would welcome the certainty that would come from not changing the 33% threshold level for strengthening.

### **32. Are you aware of any problems with current policy and practice around earthquake-prone buildings, other than those identified in this document?**

There are a number of issues that we believe need to be addressed by central Government.

The current practice of stipulating that an earthquake-prone building either Strengthen or Demolish, within stipulated timeframes as the only two answers, is simplistic and limiting: very black and white. These are not the only two options; there are, of course, varying shades of grey. Most importantly in this is the notion of temporary works as a solution, such as propping, rather than waiting only for a full solution. If a heritage building has temporary measures in place for 10 or even 20 years, whilst waiting for a permanent solution, then this may be a better solution than demolition.

This is already being done in some buildings . for instance the ASB Bank in Napier has installed relatively unobtrusive temporary strengthening measures to the interior, while they are formulating a more permanent response. The bank continues to function and to generate an income stream. It enables the building to survive and continue to be used, and hence allows additional years of income to be built up before more permanent protection methods are employed.

Insurance is a very big issue . and for both large and small buildings, some buildings are proving to be unaffordable to insure. Ramifications of this are enormous. There are significant issues for mortgage holders and for unit-title owners if the owners and Bodies corporate cannot get / afford insurance. This also affects the ability of building owners to raise the funds needed for strengthening work.

The public value in heritage buildings and character areas needs to be specifically addressed, either in the legislation or in other government policy that supports it. For some buildings, especially those in provincial centres, there is no means to fund seismic upgrades. There needs to be a support system for owners with good sources of information, and there needs to be a system of funding and incentives available for advice and assisting the considerable costs of construction.

More emphasis needs to be placed on providing ductile systems and details during retrofitting. This is neither well understood, nor well communicated.

**33. Do you agree with the following objectives for changes to the existing earthquake-prone buildings system:**

- **reduce the risk – to an acceptable level of people dying and being injured in or by buildings that are likely to collapse in moderate to large earthquakes.**
- **ensure that building owners and users have access to good information on the strength of buildings they own and use, to help them make good decisions about building resilience and their use of the building?**

Yes, and yes.

*Prepared on behalf of the NZIA by Guy Marriage, FNZIA.*

We thank you for the opportunity to comment on these proposals. If there is any further information that you require please do not hesitate to contact us.

Yours sincerely

John Albert  
Acting Chief Executive