



**OHINETAHI**  
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Christchurch City Council  
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Christchurch

Dear Sirs:

### **Draft Policy on Earthquake-Prone Buildings**

I consider that the overall approach of the preferred Option 1, the long 30 year timeframe to complete strengthening and the identification process, is fundamentally flawed. The buildings most at risk of collapse in only a small to moderate earthquake are not required to be strengthened or demolished for 30 years.

The Central City Christchurch buildings can be divided into four broad categories:

1. The relatively new buildings built after 1976 which comply with the Building Act 2004.
2. Buildings built after the last war up until 1976. All these were designed by structural engineers to the standard of the then operating earthquake code, were given building consent by the City Council and are well built. They are not likely to collapse in a moderate earthquake though the buildings are likely to suffer damage. Occupants will be unharmed.
3. Buildings built after the Napier earthquake and before the war when earthquake design was being developed. Again the major buildings were designed by structural engineers and were well built.

Due to the depression of the thirties there are few buildings in this category – the Hereford Street Post Office, the former State Fire, High Street Post office, Majestic Theatre, the former Beaths (subsequently strengthened) etc.

These are substantial buildings that ultimately will require strengthening.

The three above categories include most of the city's office space, hotels, parking buildings and larger retail buildings. Christchurch is essentially a post war city.

4. Buildings built before the Napier earthquake mostly with walls of old masonry, brick and stone, or unreinforced concrete with timber floors and roof framing.

These are the buildings that are most vulnerable to collapse in small to moderate earthquakes. After the 1968 Building Act they should at least have been identified and given a time limit within which to be strengthened.

In preferred option 1 these worst category D buildings are not to be formally identified until December 2011 and not to be strengthened or demolished by 2041, that is 73 years after they should have been identified.

Within this fourth category there is a building type that is inherently dangerous in an earthquake. These are the two or three storey old brick shops with street show windows. In form they are mostly rectangular boxes, a number side by side divided by party walls. They have relatively stiff brick walls on three sides but the open shop fronts make dangerous eccentric forms that fall under the lateral forces of earthquakes.

The timber floors just bearing on plates offer no resistance, the brick street fronts, usually just sitting on steel beams, collapse into the street. The whole building falls killing or injuring the occupants, shoppers and staff, pedestrians in the street and wrecking the parked cars.

If councillors want to see examples of these dangerous buildings walk to the nearby corner of Tuam Street and Manchester Street, cross the road to the east side and imagine that two storey brick façade on the ground. Count the number of pedestrians and shoppers dead and injured and the number of smashed cars. Walk to the corner of Manchester Street and Lichfield Street, the next two buildings are equally dangerous. Similar shops on both sides of High Street, Colombo and Manchester Street south of Lichfield Street and Colombo Street north of Kilmore Street are in the same category.

Surely these most dangerous buildings should be identified and be strengthened or demolished as soon as possible. If they are only required to be strengthened if a building consent is required for a significant alterations, nothing will be done for 35 years.

Other unreinforced masonry buildings which have facades of windows between substantial 'brick' piers, the typical neo classic buildings of Lichfield Street, are more substantial than the shops described above and are more easily strengthened but again, strengthening work should not be delayed for 35 years.

Most of the important category 1 listed heritage buildings have already been earthquake strengthened to as high a level as possible without damaging the heritage fabric. These include the Provincial Chambers, the Anglican and Roman Catholic Cathedrals, the Arts Centre progressively, the Museum, the Theatre Royal and the Music Centre, all with valuable assistance from the City Council.

Few of the individual facades of the shops most at risk of collapse in an earthquake have high architectural or heritage value but collectively they make handsome 19<sup>th</sup> century streetscapes. Lower High Street, Colombo Street south of Lichfield Street, parts of Manchester Street and individual buildings in the Cashel Mall are good examples.

A programme should be developed to identify and strengthen these buildings as soon as possible and since many of these buildings share party walls they should be strengthened collectively.

In the early seventies, the board of Christ's College was advised by the consultant engineers and architects that a three storey boarding house occupied by 60 boys was an earthquake risk. The board realized that if the building collapsed they would be held responsible for the death and injury of boys in their care. A programme of earthquake strengthening of ten masonry buildings, seven of which have heritage classification, was begun. At the cost of many million of dollars, each boarding house cost \$500,000 to \$600,000, all but two small areas have been strengthened to 60% of full code.

Is not the City Council in the same position as the College board? It knows or should have known that there are a number of city buildings that will collapse in only a moderate earthquake. I suppose in law the City Council could argue that the owners of these buildings are solely responsible for their strengthening. But the public enter these shops, the public will be killed or

injured in the streets. Surely the City Council is required to ensure that the streets at least are safe.

I urge the Council, I strongly recommend to the Council, that these dangerous buildings be identified (easily done, the buildings are glaringly obvious) the owners be advised, and the owners be required to notify their tenants and a programme be developed for their collective earthquake strengthening.

It is proposed that an initial desk top review of Council files to assess which building could be earthquake prone and using the NZSEE initial evaluation method will be undertaken over a four year period beginning in 2007.

I am told the Council files are not well co-ordinated. Christ's College recently received a letter outlining the need for earthquake strengthening of heritage buildings signed by Anna Crighton. The letter had the words "Flowers" added. Is the Council not aware that the original Flowers House has been demolished and replaced with an excellent new building?

The quickest, most accurate and economic way of assessing which buildings are earthquake prone would be to invite say two or three experienced structural engineers and architects plus experienced Council engineers to meet for a morning or a day around a detailed city plan. The structural capacity of most city buildings, especially those built after the war, will be known to the group and can be quickly classified.

In summary the preference Option 1 is the wrong way round. The city buildings should be identified and strengthened from the most dangerous to the best, from the bottom up not the top down.

The 35 year programme for the worst 'D' buildings is absurdly long. The Council plays Russian roulette with its citizens.

Yours sincerely



Sir Miles Warren  
Architect