

PLANNING QUARTERLY

EARTHQUAKE STRENGTHENING - A TOOL FOR REGENERATION

Before the start of the revitalisation of Dunedin's Warehouse Precinct – Photo: Dunedin City Council



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Earthquake strengthening *can be a tool for regeneration*



After the start of the revitalisation of Dunedin's Warehouse Precinct – Photo: Dunedin City Council

Many towns and cities around New Zealand are confronted with the problem of dealing with earthquake strengthening demands without loss to their heritage and local economies. Urbanismplus' work across most major regional cities and towns indicates that while many find the problem intractable, some are delivering impressive results. What can we learn from them?

The problem, in short, is that the cost of renovation with earthquake strengthening demands rentals higher than market will bear. The total refurbishment costs can be significant when fire rating, resource and building consents, consultants, geotechnical, soil management, and archaeological assessment have been accounted for. Add to this up to \$200/m² just for earthquake strengthening a double storey structure¹.

To compound this, many of these centres have low market demand prospects due to competition from online shopping and low population growth. While building costs may be broadly similar, rentals for smaller centres (\$150-\$250/m²) are significantly lower than for their big city counterparts (up to \$500/m²)².

However, where commercial land is cheap (say \$500-\$700/m²³), the economics can be made to support investment in old buildings over new - if the right strategies are applied.

Here is a short précis of those strategies:

Use a multi-faceted approach

There is no single solution, a comprehensive approach is needed which combines public and private efforts. Councils need to create the right strategic and planning framework which is informed by current development economics and has community support. Developers/builders/landowners need to apply innovative technical and design techniques to deliver viable developments that enthuse prospective tenants and engenders investor confidence.

Set a strategic framework

It helps if a heritage preservation approach is set within a strategic framework led by council. This may be a town centre wide approach or a precinct with a specific strategic intent such as employment creation or community development.

Where a dedicated precinct is the focus, council's intentions around infrastructure investment and public space improvements have to be clearly signalled, and communication to the public should be aligned with the developments industry's marketing narrative.

Where the entire city/town centre is under consideration there will be a

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need for prioritisation as few councils can afford to offer financial support for all heritage buildings. This can be challenging as public sentiment and private interests will be affected. Start with agreeing the higher order principles before focussing on specific properties. Priorities may manifest in the following order:

- The *Safety First Principle*: such as high use retail areas where collapsing facades pose a great danger or areas/buildings for large gatherings.

- The *Iconic Principle*: singular buildings with exceptional iconic status such as cathedrals, churches or civic buildings etc.
- The *Identity Principle*: where concentrations of earthquake prone buildings form what the community would regard as being at the 'heart' of the centre's identity.
- The *Economic Principle*: (this may coincide with the former) but could also be a specific precinct with the potential to add economic value through employment creation, tourism etc.

As many other buildings will fall outside of these criteria the approach has to have a defensible rationale which has community support, or council will be accused of favouring individual landowners with rate-payers' money.

Inform planning assumptions with development economics

Well intended planning frameworks may still miss the point, there is no substitute for testing real case studies using specialists that are active in the field. In the Urbanismplus led post-earthquake process for Lyttelton and Sydenham, which was meant to be a planning strategy, we involved an architect, valuer and development specialist using current market information from the outset. The viability of a range of designs, based on real sites, were tested against the following variations:

- Gross floor area and height limits
- Height to boundary requirements



Revitalised Vogel Street - Image: Neil Coleman, ASAP

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New, lower cost, techniques in earthquake strengthening are emerging rapidly, examples are - holding bricks together through post-tensioning, providing a rigid envelope around plaster-coated buildings using textile-reinforced mortar, and stabilising masonry arches, corners and door openings with self-drilling stainless steel ties.

- Limitations on use
- Parking requirements

Adjustments that would make development more viable were quickly identified leading to a series of planning changes now implemented. However a shortfall in the near term still remained as rentals of \$350m² where needed where market rates was only paying \$290-300m². This gap could only be bridged through subsidy of some sort and the other measures described in this article.

Offer council financial support

In most cases direct financial support from Council will still be needed. This could take a variety of forms:

- Rates relief
- Grants
- Free technical advice

In Dunedin's coordinated approach to their Warehouse District, which has successfully focussed on attracting new jobs to the city, the Council have given qualifying projects four years of rates relief and grants of up to \$50,000 towards strengthening. The re-use grants scheme has achieved:

- Three at risk buildings protected, and an offer in on another.

- Eight projects funded for earthquake strengthening and facade improvement.
- Further funding next year to expand for neighbouring areas of the central city.

Use design ingenuity

While the quality of materials, engineering and building methods will predominantly determine general building costs, overall viability will vary with different design approaches. A common challenge is to make the first (upper) floors, which are notoriously difficult to let, viable. The following options can be considered:

- Two or three building owners combining their properties so a lift core becomes viable and a superior letting offer is achieved.
- Where a staircase alone will suffice, design it so that it flows directly from the footpath to the upper level, is inviting, and of generous width.
- Providing entertainment uses at first floor such as café, restaurant or bar, with balconies overlooking the street.
- Avoid the cost of separated access to the first floor by negotiating access

directly through the ground floor shop to the upper level.

Work towards sensible earthquake strengthening targets

Most councils understand that it is not practical for all buildings to achieve the 67% earthquake strengthening target in all areas and many will work with building owners towards a sensible and safe outcome⁴, it's worth having this discussion early. Insurance and body corporation legislation considerations have to be included at this stage.

Seek out the latest engineering innovation

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Be resourceful

With marginal projects every cent counts and if viable outcomes are to be delivered, costs have to be acutely

Businesses are growing in Dunedin's Warehouse District – Photo: Kobus Mentz



managed. Resourcefulness is evident around the country, here are some approaches:

- To save consultants fees, some building owners have undertaken more of the work themselves by project managing sub-consultants directly.
- Some, where qualified, have undertaken some of the consultancy tasks themselves, or partnered with other professionals such as civil engineering, quantity surveying, and architects, thus saving on consultancy fees.
- Partnerships with tenants, or being the operator (tenant) and owner, has been used to absorb modest rates of return when development costs are high.
- Do it for the love of your town!

Regeneration outcomes that overcome the earthquake strengthening burden

While these strategies are applied in part across a number of councils, Dunedin best combines most of them with impressive results.

The council-led project's high quality public engagement, integration between disciplines and urban economics emboldened Council to fully endorse it and vote \$500,000 of early funding for physical improvements, in addition to \$70,000 of incentive funding for a re-use grants scheme.

A total of 11 projects were supported through the re-use grants scheme for a range of works including earthquake strengthening and façade

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improvements. This included the protection of a building that was at risk of demolition.

A public realm upgrade programme has been completed and private sector investment is well underway with new jobs being created. Early results include:

- Five new businesses, tenants including lawyers, health professionals, accountants, architects, high tech start-ups, retail


and other small businesses some entirely new to Dunedin.

- Commencement of a hotel development and car parking building which has been on hold for more than 15 years.
- Two new apartment complexes (with more than 15 apartments) which will attract new residents to the area.
- A building that was vacant for ten years now tenanted.
- A pop-up theatre located in a rescued building.
- Tenancy negotiations underway on two other buildings for new cafes and retail premises.

These results are all the more impressive considering their low growth environment and debt challenges.

Conclusion

Some communities are in denial about the potential loss of heritage, identity, and local economy posed by earthquake strengthening. Others have embraced the challenge and are turning it into a regeneration opportunity with economic and social benefits. While solutions will vary from place to place, the best approaches are comprehensive and start with a conversation between councils, their communities, landowners, and developers.

It's never too early to start that conversation. 

References

¹ Middleton, S. (2014, November/December). *Making Heritage Work*. *Idealog*, (54), 40-45

² Ibid.

³ Ibid.

⁴ Building Control and City Rebuild Group, Christchurch City Council (2011, 25 October). *Questions & answers regarding the Earthquake-prone dangerous & insanitary buildings policy 2010*. Retrieved from: <http://www.ccc.govt.nz/thecouncil/policiesreportsstrategies/policies/groups/buildingplanning/earthquakepronebuildingspolicyqa.aspx>

⁵ Hutchinson, D (2013, 8 December). *Strengthening solutions for quake-prone buildings*. *Otago Daily Times* Retrieved from: <http://www.odt.co.nz/news/dunedin/284258/strengthening-solutions-quake-prone-buildings>



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