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The potential for over-cladding: A scoping study

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Abstract

This report summarises the findings of a scoping study into the potential for over-cladding as a solution for overcoming the stigma associated with leaky type houses that do not leak. It highlights the financial / economic arguments that suggest there may be sufficient motive for the home owner to undertake an over-clad. It points out some of the technical challenges of the approach at a headline level. It further comments on the assurances Building Consent Authorities will need to permit over-cladding on a regular rather than ad-hoc basis. It concludes with the recommendation that the Stage Two study should proceed. That study would place a dollar value on the stigma of being a leaky type home, and the costs of re-cladding and over-cladding.

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1. EXECUTIVE SUMMARY

This scoping study considered the financial / economic and technical arguments for and against the over-cladding of buildings with a typical “leaky building design”, but that do not leak.

Over-cladding has been proposed as a cheaper solution than re-cladding, as a way to overcome the stigma associated with buildings of this type that do not leak.

Through a comprehensive workshop with industry, Building Consent Authorities (BCAs) and government, it became evident that:

- There is a stigma associated with houses of the leaky building design even if they don’t leak
- Over-cladding is a technically feasible, cheaper option than re-cladding.

However, workshop participants were unable to agree on the discount associated with the stigma of being a building of a particular type. It was also not clear what the cost savings associated with an over-clad rather than a re-clad would be, and what additional risks if any may be associated with an over-clad.

With an estimated 110,000 leaky design buildings, if even 5,000 were candidates for over-cladding, the net benefit to the economy could be large.

The study concludes that there are sufficient grounds to proceed to Stage Two of the over-cladding study. The focus of Stage Two should be:

- What is the true price discount of the stigma associated with a leaky type house with no leaks?
- What is the actual price difference between a re-clad and an over-clad on say a typical 200 m^2 house, incorporating the tests and checks councils are likely to require to minimise risk?
- Is the cost of the over-clad likely to be offset by an appropriately large increase in sales price?

Stage Two would require further input from BCAs on the tests and assurances likely to be needed to increase standardisation of over-clad approvals rather than the current case-by-case approvals process. Further, a better estimate of the number of buildings that may be candidates for over-cladding will be required.

2. INTRODUCTION

BRANZ was approached by the Registered Master Builders Association with a request to investigate the potential for over-cladding. The Research Levy funded an initial scoping study to understand:

- the economic / financial arguments for and against over-cladding
- whether it was technically possible
- the extent to which re-cladding and over-cladding of buildings of a type typically associated with leaky buildings, but that are not leaking, were undertaken.

2.1 Definitions

- **Over-cladding**: An approach whereby new cladding (such as timber weatherboards) is fixed over existing cladding with an appropriate cavity between claddings.
- **Leaky building design / type**: Buildings typically associated with leaky buildings, specifically mono-clad (direct-fix fibre-cement or stucco houses). It excludes Exterior Insulated Finishing System (EIFS) or plastered polystyrene homes. By "leaky type" homes, in all cases this report assumes houses of the leaky building design, but that **do not shows signs of current or historic leaks**.

2.2 Primary outputs of the study

The primary output of this study was to be a recommendation as to whether there was sufficient economic / financial rationale for the over-cladding argument to warrant further investigation of:

- the size of the potential over-clad market
- the actual price discount associated with buildings of a type typically associated with leaky buildings, but that are not leaking
- how this discount may be overcome by over-cladding
- what technical assurances BCAs would need to approve over-cladding, and how an approach to over-cladding could be standardised.

3. THE WORKSHOP

BRANZ arranged a workshop facilitated by an independent facilitator, John Bishop, held on 11 December 2014. The purpose of the workshop was to bring together a full range of experts who could comment on the technical and economic / financial arguments for and against over-cladding. This report's authors were observers and minute-takers rather than participants at the workshop.

3.1 Participating organisations

Participants at the workshop included representatives from:

- Building Officials Institute of New Zealand (BOINZ)
- BRANZ Building Performance team
- Certified Builders Association of New Zealand (CBANZ)
- Helfin (registered building surveyors)
- John Adam (independent structural engineer formerly of Structon Group)
- Jon Nanson Valuations
- Ministry of Business, Innovation, and Employment (MBIE) weather-tightness, determinations, and building science and research and teams
- Porirua City Council
- Prendos (registered property valuers)
- Primesite Homes / Master Build Guarantees Director
- Total Home Inspection Services
- Wellington City Council.

Several real estate agents were invited but none were able to make it to the workshop.

3.2 Key questions examined

Three key questions were discussed at the workshop:

- Is there a problem with regard to there being a stigma attached to houses of a design or style typically associated with leaky buildings ("leaky type buildings")?
- Is over-cladding a potential solution to that problem if it exists?
- What are the technical barriers to adoption of over-cladding if it is a potential solution?

3.3 Main points from the discussion

This section briefly summarises the main points raised in answering the three questions posed to participants.

3.3.1 Is there a problem?

There was universal agreement that there was a stigma attached to leaky type buildings even when they were not leaky. Pressed on how big a price discount there was associated with houses of this type that were not actually leaking though, few answers were suggested:

- Some suggested the price discount could be 10% to 20%.
- One participant quoted a real estate agent as saying 9 out of 10 potential purchasers would bypass a house of the leaky design even if there was no evidence of leaking. The 10th would submit an offer well below what an equivalent timber weatherboard house would sell for.
- Others described the price impact as "huge".

There was general consensus that test results showing that a house was not leaky were often not enough to satisfy prospective buyers. This left re-cladding or over-cladding as options in cases where the cost of these actions was less than the anticipated boost in the value of the property. Prospective buyers placed a lot of faith in the Code Compliance Certificate issued on re-clads or over-clads.

Some participants went so far as to say that many builders looked to the Code Compliance Certificate as the deciding factor in whether they thought a house was safe to buy. This behaviour is similar to when most houses are sold and a potential buyer requests a LIM or Code Compliance Certificate for peace of mind that building work has been approved.

For owners who had no intention of selling soon, re-cladding or over-cladding were options that provided "peace of mind". Over-cladding, if it were a potential solution, could help these owners more cost-effectively than re-cladding.

3.3.2 Is over-cladding a potential solution?

There was general agreement that over-cladding was a potential option for dealing with the stigma of being a leaky design building, and that it would be cheaper than re-cladding. Views differed on how much cheaper. One estimate was that re-cladding could cost $200-300,000 compared with over-cladding at $100-130,000.

Some participants suggested that the cost savings of an over-clad versus a re-clad were small. If this were the case, if even a small proportion of over-clad projects failed (because there were undetected structural issue) this may make over-cladding unattractive.

Participants agreed that over-cladding would only be an option for specific houses:

- with appropriate designs with regards to eaves and low risk scores
- that had no history of leaking and had been granted a Code Compliance Certificate
- that would pass rigorous testing by suitably qualified and insured people to increase confidence that there were no current leaks.

Participants agreed that "rigorous testing" and "suitably qualified and insured people" would need to be defined through the joint efforts of industry, and local and central government.

The key point was that over-cladding was certainly technically possible, but there was currently no standardised process for evaluating whether a building was a suitable candidate. This meant BCAs were each having to make their own decisions, and determine how much risk was acceptable on a case-by-case basis.

There was further uncertainty as to whether re-cladding or over-cladding would fully overcome the stigma, given the need for full disclosure by real estate agents. A re-clad or over-clad building with all the tests and Code Compliance Certificate would increase confidence for buyers but may not overcome the full discount on leaky type buildings.

3.3.3 What are the technical barriers?

Many of the technical concerns were raised in evaluating whether over-cladding was a potential solution, set out above. Primary concerns included:

- the appropriateness of a house design as a candidate for over-cladding
- that there were no signs of current or historical leaks, established through rigorous testing by suitably qualified and insured people
- that the over-cladding system adopted was a competent water-management system in terms of E2/AS1
- that those undertaking the over-clad work would be appropriately qualified and diligent
- that over-cladding ensured a building complied with the requirements of the Building Act including that it was safe, fit-for-purpose, durable and in at least an equivalent condition to when building work began
- that the proposed solution(s) met all other requirements before which a building consent could be issued, such as fire safety, durability and structural requirements of the Building Code
- that the insurance and banking industries would need to be on board.

4. THE ECONOMIC / FINANCIAL RATIONALE FOR OVER-CLADDING

Participants agreed that over-cladding is technically feasible and that over-cladding is cheaper than re-cladding although there was disagreement as to how much.

Assuming that an appropriate working group could develop a standardised approach for dealing with the technical assurances required to over-clad, the issue boils down to the economic / financial rationale for it.

Participants agreed there is a price discount on leaky design homes that are not leaky. However, there is disagreement as to how much that discount is but it seems likely in many cases it may be more than the 10% to 20% suggested because:

- Many leaky design homes do not sell for months or even years, even at a discount, until sellers moderate their expectations further or re-clad / over-clad. This additional cost (of unsold homes) is unlikely to be captured even in sale prices.
- A market already exists for re-clads / over-clads of leaky design types that do not leak. This implies that home owners are either making irrational decisions to re-clad / over-clad, or rationally expect that the costs are justified in raising or restoring their property value. This suggests the discount on leaky type homes is sufficient in some cases to warrant spending upwards of $200,000 to re-clad.

It is possible that re-cladding is an option only at the upper end of the market, perhaps made possible by rapid increases in land value. These land value rises would allow the owner to re-clad without losing money on the property. Over-cladding, if it is a genuine option, could increase the number of properties for which the stigma could be removed at a cost lower than the expected benefits to property value.

There is a risk that a house may be incorrectly identified as a candidate for over-cladding despite a robust testing regime. This is because not every piece of timber can be seen or tested without fully stripping away the cladding. This risk is avoided by re-cladding because all the timber is exposed.

However, there will be a level of risk that is justified at a national economic level by the cost difference between re-cladding and over-cladding. Hypothetical examples are shown in Figure 1. If an over-clad can be done for $20,000 less than a $200,000 re-clad, an over-clad failure rate of less than 1 in 10 would constitute a net benefit to the economy. If 1 in 20 houses were over-clad with unidentified leaks, the savings could still be $200,000 across those 20 houses. This equates to $10,000 per house, after the added cost of one house having to be re-clad to deal with unidentified leaks.[1]

[1] Some would argue the savings would be even bigger as it is possible only certain parts of the leaky over-clad house would have to be stripped back and the structural timber repaired.

Figure 1 Hypothetical example: Acceptable over-clad failure rates

Assumed re-clad cost	Assumed cost saving of over-clad	Acceptable economic failure rate: Less than 1 in
$200,000	$20,000	10.0
$200,000	$30,000	6.7
$200,000	$40,000	5.0
$200,000	$50,000	4.0
$200,000	$60,000	3.3
$200,000	$70,000	2.9
$200,000	$80,000	2.5
$200,000	$90,000	2.2
$200,000	$100,000	2.0

There are an estimated 110,000 buildings with leaky design types according to a 2009 report.[2] If just 5,000 of these buildings are suitable candidates for over-cladding, and the net saving is $10,000 per building, the net economic benefit would be $50 million.

The cost savings from over-cladding may make sense at an economy-wide level, but who pays when a house is incorrectly identified as leak-free or the over-clad is incorrectly done remains? BCAs are justifiably concerned that they will once again be held liable as they issue the Code Compliance Certificate. Some would argue this liability is no higher than when any other Code Compliance Certificate is issued.

Nevertheless, this liability places significant weight on reducing risk by:

- developing a robust testing regime to determine whether a building is a candidate for over-cladding
- defining appropriate qualifications needed to test buildings for suitability
- ensuring adequately skilled and experienced people do the over-cladding
- specifying what other expert input may be required that is cost-effective but reduces risk
- clarifying the extent to which BCAs would be liable if an over-clad failed.

Crucially, if over-cladding is a sensible option that overcomes the stigma associated with leaky type homes that do not leak, the net benefit to the economy could run into tens of millions. For instance, if 5,000 of the estimated 80,000 leaky type homes were candidates, at a net economic benefit of $10,000 per property, this would yield a conservative estimate of a $50 million saving.

[2] PwC. (2009). *Weathertightness – estimating the cost*. For the Department of Building and Housing.

5. WHERE TO FROM HERE

The workshop concluded with the facilitator highlighting some steps that could be taken to overcome technical concerns. These steps are vital if over-cladding is to be a viable option, and included industry, local and central government:

- clarifying that only buildings for which a Code Compliance Certificate had originally been issued would be candidates for over-cladding.
- mutually agreeing the scope and nature of a robust inspection regime to evaluate candidates for over-cladding to give BCAs confidence to sign off building consents
- mutually agreeing the qualifications and insurance required by those undertaking the inspections and the over-cladding work to give BCAs confidence to issue Code Compliance Certificate
- rolling out a nationally consistent approach that is both reasonable and cost effective, based on the previous two steps
- educating banks, insurance companies, lawyers and the public as to the viability of the over-cladding option.

It is important to understand exactly what an appropriate technical solution for safe over-cladding might look. However, it was evident from the workshop that a reliable, consistent technical solution that combines good testing, process and skilled workers can be developed. Rather, the questions that need to be answered focus on the economic / financial side of the equation:

- What is the true price discount of the stigma associated with a leaky type house with no leaks?
- What is the actual price difference between a re-clad and an over-clad on say a typical 200 m^2 house, incorporating the tests and checks councils are likely to require to minimise risk?
- Is the cost of the over-clad likely to be offset by an appropriately large increase in sales price?

It is proposed that Stage Two of the study should proceed, looking at these three questions, with input from BCAs and MBIE on the tests and assurances likely to be needed. Further, an estimate of the number of buildings that may be candidates for over-cladding is required.