

Research Paper

Research analysis on issues and risks associated with balcony defects

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1. Introduction

The Victorian Government's Cladding Rectification Program (CRP) has provided a unique opportunity to examine the performance of external wall systems behind the external layer of cladding. CSV has compiled a significant body of data obtained through the CRP that highlights extensive non-cladding defects on buildings subject to rectification funding. One of the most common building defects identified to date relates to balconies. This paper focuses on the prevalence of balcony defects. The presence of mould is also significant and will be the focus of a future paper.

Of the 339 buildings that have received rectification funding in the program (as at October 2022), one quarter of them have been identified as having balcony defects.

This impacts directly on the program's ability to progress these buildings and on the safety of the owners who need to complete the rectification works. It also highlights the likelihood that these defects are not confined to buildings in the CRP but are prevalent in Class 2 construction.

2. Key findings

CSV has analysed the extent and underlying causes that the discovery of balcony defects during the course of construction are having on overall cost and time delays in completing the agreed rectification.

The analysis indicates that:

- 168 buildings (50 per cent) of the total funded buildings in CSV's CRP (339 as of October 2022) have been identified to have defects unrelated to cladding.
- Of these, 84 buildings (25 per cent of the total funded buildings to date) have been identified with leaking balconies, balustrades and terraces causing structural damage.
- In total, more than 550 defective balconies have been identified with these problems that have been left unaddressed by the owners.
- 52 per cent have defective balconies caused by water ingress issues.
- 19 per cent have waterproofing issues due to lack or insufficient waterproofing.
- 64 per cent of impacted buildings were constructed more than 10 years ago.
- The costs of defective balconies over total construction contracts (initiated for cladding works) comprises approximately 38 per cent.

Balcony defects tend to be more prevalent (and of higher concern) on buildings where the timber





structural beams are screwed into timber frames. Nevertheless, concrete slab balconies have also had noticeable issues related to lack of waterproof membranes.

Experience to date with CSV's cladding program indicates that at a minimum, there is approximately on average a three-month delay between contract executed and works to be completed for buildings that have balcony defects compared to those that do not.

The findings and implications outlined in this paper are consistent with the experience of other jurisdictions, both interstate and internationally, who are all grappling with the building defect problem, and its adverse social and economic impacts on residents and the wider community in general.

3. Analysis

Balcony defects

During the course of the CRP, CSV has been confronted with considerable and widespread serious balcony issues and other non-cladding building defects on buildings designated to be funded for cladding rectification through CSV's program (the other identified defects are pervasive black mould, framing non-compliance, roof and gutters, rotten framing and water proofing).

Defects with balconies can arise as a result of either poor architectural design, defective construction by builders or maintenance issues, and have the potential to present serious safety risks to residents. While CSV has obtained a valuable data set relating to identified issues occurring in relation to funded buildings, further analysis and assessment of each building is required to determine the cause of these issues.

Figure 1 reveals that of the 84 buildings where CSV has been able to assess the cause of the defects (60 in total) a significant number of buildings have balcony defects related to insufficient water proofing and improper drainage systems leading to water ingress issues.

Further, CSV has not reviewed or undertaken in-depth analysis or review of design documentation which may determine if the defect is a result of a design fault as opposed to defective building work, building non-compliance or a maintenance issue; concomitant with this, CSV does not therefore assign liability to the practitioners involved in the balconies' construction.

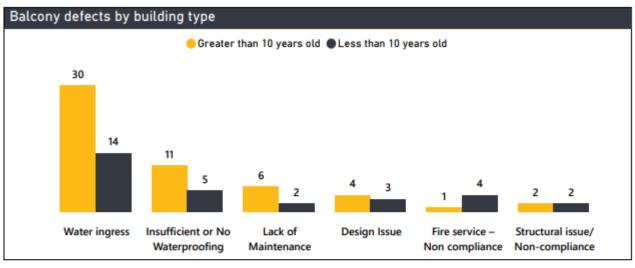
A total of 44 buildings (52 per cent) have defective balconies caused by water ingress issues and a further 16 buildings (19 per cent) have waterproofing issues due to lack or insufficient waterproofing as the chief cause of the defects. In addition, seven buildings appear to have balcony defects relating to poor design.

Of these, 64 per cent were constructed more than 10 years ago.

¹ https://www.coronerscourt.vic.gov.au/balcony-safety-changes-needed-after-2017-collapse



Figure 1 Balcony defects.



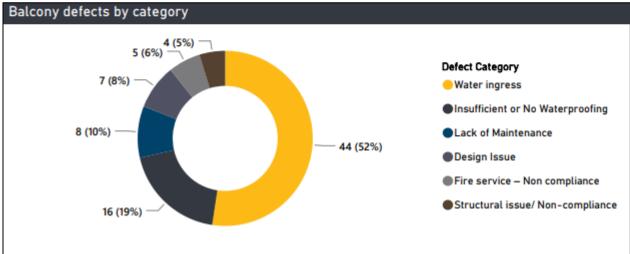


Figure 2 Example of water ingress affecting a balcony on a funded building in the CRP (comprising 26 sole occupancy units).







Above left: Bottom plate of timber framed balustrade.

Above right: Timber framed balustrade showing water damage coming through capping.



Above left: Water damage to soffit evident from balcony above.

Above right: Timber framing to balustrade rotten from water ingress. No sarking sitting behind EPS cladding.



Above left, centre and right: Tiling not sitting flush on concrete slab. No screed or membrane present. Moss and mould evident from pooled water.



Figure 3 Example of balcony with structural issues on a funded building in the CRP (comprising 35 sole occupancy units).



Above left: The fixings into the timber supports missing the timber completely.

Above right: The timber supports are showing signs of degradation from water damage. Also noting this post is cantilevered over the slab edge.



Above: Balustrade posts half supported on concrete slab and half supported on timber screwed into the side of the slab.

Balcony-related defects by building size

In terms of building size, the data indicates that most low-rise buildings have water ingress issues of which the majority require funding of between \$1 million and \$5 million to rectify – see *Figure 4*.



Figure 4 Number of levels and related defects.

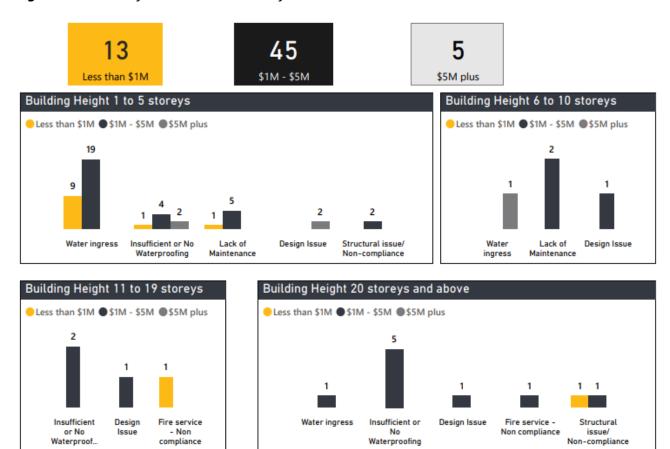


Figure 5 Example of insufficient or no waterproofing affecting a balustrade on a funded building in the CRP (comprising 12 sole occupancy units).



Above: Improper water proofing around balustrade fixing providing areas for water ingress to structural elements.









Above left, centre and right: Water ingress to balconies – owners corporation not rectifying as part of the program. MBS has issued Emergency Order on these units.



Above: Balcony falling steeply away at edge.

4. Impact on Cladding Rectification Program

CSV's overall experience in dealing with buildings that have balcony defects has led to purposeful adjustments to CSV practices and processes for all future buildings:

- Changes to CSV due diligence inspection processes, to incorporate the identification of non-cladding issues;
- A stronger focus on the potential for these issues to be found when engaging with building owners prior to works commencing;
- The revision of funding agreements to formalise the obligation that owners have for dealing with and funding work for non-cladding defects; and
- The requirement for owners to offer a 10% surety to provision for the correction of noncladding building defects to minimise the disruption to cladding rectification works.

Further, where CSV identifies these issues, it notifies the relevant Municipal Building Surveyor (MBS) as a matter of process to enable them to follow up on these issues and address any non-compliance through its enforcement processes.



In the majority of cases, owners corporations willingly fund and undertake required building defect works. In these cases, project managers work with both CSV and owners corporations to coordinate works so that the defects and cladding can be fixed. This is advantageous to the owners because it means they have access to the support, oversight and project management CSV provides across all works.

Defect rectification and funding has been challenging, as this work must be completed and funded by the building owners prior to cladding rectification undertaken by CSV commencing. When comparing buildings with balcony defects against buildings which don't have any detected, CSV has found the former take significantly longer to complete, with the attendant risks not being addressed accordingly. Latent defects work can significantly contribute to delays in rectification works and the incursion of additional penalties to the owners corporation for late rectification work.

Delays and increased costs to owners corporations further has the potential to impact the program's reputation and create a false expectation that CSV will incur the additional costs to ensure completion of the non-cladding rectification works. Much more interaction is required between the owners and CSV which makes engagement far more complex. This can sometimes also make it difficult to define decisions that need to be made to fix the building.

CSV's progress status on rectification of affected buildings

Given the limited nature of CSV's program, it is critical that the cladding and defects rectification of buildings is completed within the agreed timeframes. *Figure 6* indicates that defective balconies on over 80 per cent of buildings have already been addressed or are in progress.

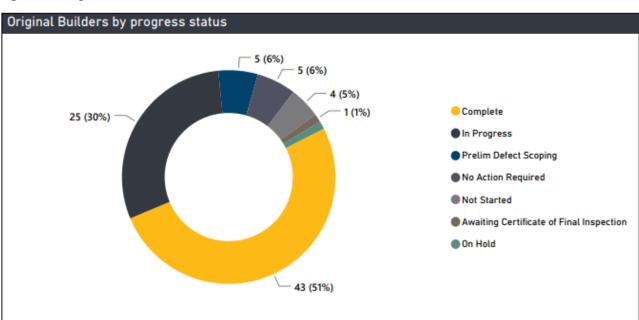


Figure 6 Progress status.

These issues go beyond CSV's funding remit, and in some cases, cladding rectification on the external walls cannot occur until these defects have been fixed. Under the CRP, owners corporations need to fund latent defects as a condition for funding.





Experience to date with CSV's cladding program indicates that at a minimum, there is approximately on average a three-month delay in the completion of works for buildings that have balcony defects compared with those that do not. On occasions, the relationship between the owners corporation and builder breaks down due to perceived or actual mismanagement of defect works, leading to further delays and costs where projects need to be re-tendered.

5. Discussion

The most common barriers to resolving these defects by owners are sourcing funds, lack of awareness that the problem exists, as well as an understanding of their rights and responsibilities, and disagreement amongst the owners corporation about the approach that should be taken.

Property owners in many instances have also failed to regularly check and maintain their balconies, decks and balustrades over time.

The data highlights that the current process of defect rectification is causing unnecessary strain and cost to owners, with Owners Corporation Managers often responsible for steering owners through it.

Disputes in relation to balcony defects can be complicated due to the technical nature of the issues and often cannot be satisfactorily resolved without expert evidence as to the cause of the defects.

Building insurance policies will often have exclusions associated with wear and tear, gradual deterioration, developing flaws, building defects and rectification of faulty workmanship, amongst others. Domestic Building Insurance under the *Building Act 1993* is not required and will therefore not be available for buildings over three storeys.

CSV is concerned that the situation in relation to defective balconies is widespread and has proliferated over at least two decades; this is not a new issue.

While the source of the issue is primarily attributed to the builder, the problem of building defects more generally is, in CSV's view, symptomatic of broader underlying levels of non-compliance with the National Construction Code, including serious fire safety deficiencies, inadequate waterproofing and even black mould in new buildings (arising as a result of water ingress). 15 out of 84 buildings (18 per cent) with balcony defects have black mould due to water proofing and water ingress issues.

Black mould

While the serious issue of black mould detected in these buildings is not the focus of this paper, it is important to note that CSV has identified the presence of black mould spreading from wall cavities into insulation, timber and plaster on 15 out of the 84 buildings with balcony defects (17 per cent), caused primarily by the same water ingress issues that have led to defective balconies. CSV continues to monitor this issue and to develop an evidence base to better ascertain the prevalence of this problem in high rise residential apartments in its program. The presence of black mould has also become the subject of recent media attention.²

² <u>Defect-riddled apartments covered in mould could be write-offs as repair costs mount - ABC News</u> (29 November 2022)



Timber-framed balcony defects

Many of the balcony defects, as assessed by CSV and the VBA, are particularly prevalent on timber-framed balconies built in the period between 1997 and 2015 where NCC amendments allowed for timber-framed concessions on low-rise Class 2 and Class 3 buildings of Type A or Type B construction³ to be constructed with timber framing and/or non-combustible materials in circumstances where non-combustible materials, concrete or masonry would otherwise be required.

The Code was evidently interpreted by the building industry in a way which did not meet the intent of the Code. The intent being, that the concession only applied to the use of timber framing or a combination of timber framing and non-combustible materials and not the external wall as defined by the NCC. It was never intended to allow combustible components, including external wall cladding, to form part of the external wall system. As a result, some practitioners have not installed membranes and/or cladding flashings on balconies in accordance with the manufacturer's specifications.

Figure 7 Example of insufficient or no waterproofing affecting a balustrade on a funded building in the CRP (comprising 12 sole occupancy units).





Above: Upper level balcony; tiling removed to show rotten timber to balcony structure, and

³ A building's construction 'Type' describes the level of fire resistance that certain parts of buildings need to have. There are three Types of construction (A, B and C), which are determined by the building's use (e.g. its building class) and the number of storeys in the building. Type A buildings have the highest risk and are required to be the most fire resistant.



bottom of apartment stud wall.



Above: Underside of balcony; substrate with significant rot from water and timber joists showing rot.