RESEARCH ANALYSIS NO. 3

Clerk of Works: Promoting quality and safety in construction

CLADDING SAFETY Victoria

VICTORIA State Government

Aboriginal acknowledgement

Cladding Safety Victoria respectfully acknowledges the Traditional Owners and custodians of the land and water upon which we rely. We pay our respects to their Elders past, present and emerging. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life. We embrace the spirit of reconciliation, working towards equality of outcomes and an equal voice.

List of contents

Executive Summary

The Clerk of Works inspection program was established by Cladding Safety Victoria (CSV) in 2021 to oversee the quality and safety of construction sites for buildings included in its residential Cladding Rectification Program. This role was created administratively and has no recognition as a legal entity with statutory powers or functions.

The program supports the development of positive observations and improvement opportunities through risk identification and management, and the establishment of corrective action plans. In doing so, the program has standardised and improved the delivery of quality and safety outcomes for the government funded program.

CSV has developed various measures of success to provide a clear indication of the quality and safety improvements resulting from the program's introduction.

The report provides a comparison of the predicted benefits of the Clerk of Works program by costing more than 7,000 observations primarily related to identifying:

- quality issues where they are required to be rectified in the future; and
- safety hazards and the costs associated were they to result in serious injury or death.[1]

1 A small number of observations are also made on the impact to the environment, mainly relating to housekeeping and waste management issues.

In summary, the findings of this review show:

- The current potential savings arising from prevented future rectification costs average approximately $350,000 per building; which, when scaled across Victoria's $41.9 billion annual building industry, would provide significant sector-wide savings in the millions of dollars.
- This equates to a significant potential saving of up to seven times the cost of implementing the Clerk of Works on a per building basis.
- In a three-year period, the Clerk of Works identified 1,664 safety hazards (from more than 3,300 safety observations made), that could potentially have cost up to $26.2 million in compensation.
- The total quality and safety estimated cost savings based on the buildings inspected by the Clerk of Works over a three year period (2021-2024) amounts to approximately $96 million.
- The analysis indicates that the top five key building conditions identified by the Clerk of Works that contribute to significant rising costs and potential defects over time are: aluminium composite panel caulking, autoclaved aerated conclave panel joints, sarking, flashings and fixings.

The costings and analysis indicate that the Clerk of Works program delivers a significant positive outcome from a quality and safety perspective. The program has driven improvements across CSV work sites with a significant reduction in the rate of observations over time. Almost one observation per site visit was recorded at the introduction of the inspection regime, compared to three observations across 10 site visits at the end of the 2024 financial year.

In 2019, the Victorian Government gave in-principle support to one of the recommendations of the Victorian Cladding Taskforce Final Report (2019) to consider the restoration of the Clerk of Works function as part of its long-term reform strategy. CSV has given effect to this recommendation with the intention to provide the Clerk of Works capacity to be active across each building in construction and to provide a constant onsite presence.

In December 2023, the Expert Panel into Building Reform recommended to Government, in its Stage 2 Report, the introduction of a requirement for developers to engage an agent such as a superintendent, site architect, or Clerk of Works to be regularly onsite for prescribed buildings or projects.

Based on CSV's experience, it is of the view that a wider rollout and reintroduction of the role across government projects and the construction sector in general would greatly improve the quality and safety performance of the industry over time.

1. Background

1.1 About the Cladding Rectification Program

Cladding Safety Victoria is responsible for delivering the Victorian Government's $600 million Cladding Rectification Program. As of September 2024, CSV has funded cladding rectification work for more than 430 privately-owned apartment buildings affected by combustible cladding, with more than 350 private rectification projects now complete. This means that approximately 18,800 homes and more than 35,000 Victorians are now safe from the dangers of combustible cladding.

With safety as part of the organisation's title, CSV sought to reinforce the expectations on standards of safety and quality of all practitioners involved in the program through the introduction of a Clerk of Works function.[2] The initiative to introduce a Clerk of Works program aligns with both the Victorian Cladding Taskforce and Expert Panel on Building Reform recommendations that the function be restored within the construction industry in Victoria.

The role of a Clerk of Works is to oversee adherence to standards of workmanship and safety at construction sites, and to issue directions for corrective action wherever safety is being compromised or quality standards are not being met. CSV appointed a Clerk of Works panel comprising three companies to conduct health and safety and quality inspections on behalf of CSV, promoting a consistently high standard of work quality and safety across a large volume of concurrent works.

2 *Cladding Safety Victoria Annual Report 2020-21*, page 03: **https://www.parliament.vic.gov.au/4917c8/globalassets/tabled-paper-documents/tabled-paper-6124/mbr046170_attachment_1_cladding_safety_victoria_annual_report_2020-21_cxv72v7v.pdf**

2. Context

The Clerk of Works activities are undertaken on behalf of CSV and operate as a 'government step change' in ensuring both safety and quality of works are being provided to the highest possible standards.

The aim of the inspection program is to inspect buildings for safety and quality to ensure they conform to the National Construction Code and statutory regulation. This includes monitoring the quality of workmanship at regular intervals to minimise problems, defects and rework to ensure the work is of high quality and in accordance with all drawings and product installation manuals as detailed in the design.

The occupational health and safety management of the building site(s) are undertaken in accordance with the contract specification and WorkSafe Victoria requirements. Materials are inspected to ensure they are correct and of an appropriate quality and application, and in line with the design documentation.

CSV has sought evidence of best practice across the construction setting and applied the Clerk of Works model more widely, so that improvements and innovations can be most effectively rolled out across the program and streamlined where appropriate.

Using a real time cloud-based inspection platform, the Clerk of Works team is key to propelling engagement of quality and safety on site.

The quality and safety inspections have been developed to drive compliance with acts, regulations, codes, and standards.

The recording of observations enables CSV to intervene early and implement an appropriate preventative strategy including, for example, the development of remediation plans to rectify quality issues and stop-work notices to address safety non-compliance.

The conducted site visits comprise observing, inspecting and recording activities on site. These activities provide CSV with visibility about performance, continual improvement, incident prevention and to capture any trends.

The benefits derived from the site inspections include:

- early identification of potential quality problems before they escalate into timely and costly issues or rework;
- identification of safety hazards before they result in incidents or injury or death;
- identification and implementation of improved controls;
- promotion of open discussions and information sharing; and
- identification of positive observations.

2.1 Methodology

CSV has used data collected through the program to identify common quality-related, safety and environmental observations and their contributing conditions. For quality, this was used to identify five key observation types that could potentially contribute high costs to building owners over time if they are not rectified.

An independent quantity surveyor firm, WT Partnership, has contributed significantly to this evaluation. WT Partnership have provided costings on examples of common building conditions identified. These costs provide a measure on the potential savings arising from the Clerk of Works function over the long-term. Detailed analysis was undertaken to capture different building conditions observed by the Clerk of Works during the period 2021-2024.

The immediate cost refers to the cost to repair the defect at the time the observation is identified during an inspection by the Clerk of Works. It is used as a baseline to compare the costs of repair for an issue requiring immediate attention, and the costs accrued if the building owner fails to rectify it after a single year, and after seven years. Failure to rectify over the period is expected to lead to significant defects which in turn leads to high costs for the building owner. In these cases, the total cost includes the cost of repair and the cost of additional damages caused by the issue observed. Some latitude was provided on what the additional defects may be but were selected from latent defects that have been observed in the Cladding Rectification Program. In addition to the costings, a percentage increase on the immediate cost was provided to allow comparison between the five building conditions.

Regarding safety, CSV identified the number of safety hazards and near-misses, for example, potential falls from heights, and calculated the costs associated with them which were based on the frequency of potential lost-time and the cost of a life based on Safe Work Australia estimates.

To track both quality and safety outcomes of the program, real time reporting is undertaken by CSV on the number and types of observations recorded on site. The observations note the contributing condition (e.g., poor quality installation techniques or unsafe scaffolding), along with the building and builder.

For observations related to safety, the instances of hazards and the contributing condition (e.g. scaffolding, electrical, general PPE, etc.) were compared to the potential for serious injury or fatality.

This report provides a comparison of the predicted benefits of the Clerk of Works program by costing observations related to:

- quality, if they were required to be rectified in the future; and
- safety hazards, and the cost if they were to result in serious injury or death.

CSV would like to acknowledge the contribution of WT Partnership for providing cost data which has been invaluable in the creation of this report and the collaborative nature of the working relationship between CSV and WT Partnership.

2.2 Limitations and assumptions

The analysis to determine the benefits of the Clerk of Works program is limited to quality and safety observations data collected in CSV's core systems from July 2021 to June 2024.

For quality, a representative sample of non-conforming observations was selected for analysis and the key contributing factors were noted which could potentially have significant costs. CSV has assumed the probability of these key contributing factors and the unit costs calculated can be applied to the overall non-conforming observations dataset. It is important to note the unit costs calculations (i.e. for immediate/after one year/after seven years) are each based on assumptions relating to selected projects within CSV's program. The same cost does not necessarily apply to every single observation related to other buildings as noted by the Clerks of Works.

For safety, the potential cost benefit and time lost analysis is limited to the safety hazards and fall hazards identified by the Clerks of Works. These are calculated based on Safe Work Australia's latest available data for serious claims ($15,743), median weeks per serious claim (eight weeks) and statistical value of a life ($5.4 million). CSV does not assert at any point that the fall hazards identified would necessarily lead to any fatalities.

3. Key findings

Between 1 July 2021 and 30 June 2024, the Clerk of Works undertook over 14,500 site visits which resulted in more than 17,000 quality and safety inspections. Of these inspections, there were more than 7,000 proactive observations which were assigned to builders across the program.
A number of these observations resulted in early intervention and included the development of remediation plans to rectify quality issues and stop work notices to address safety non-compliance.

The costs were applied to over 7,000 observations that the Clerk of Works had undertaken for the 271 buildings in the Cladding Rectification Program between 1 July 2021 and 30 June 2024. The comparison in the results for each period illustrates the potential cost benefit the program provides.

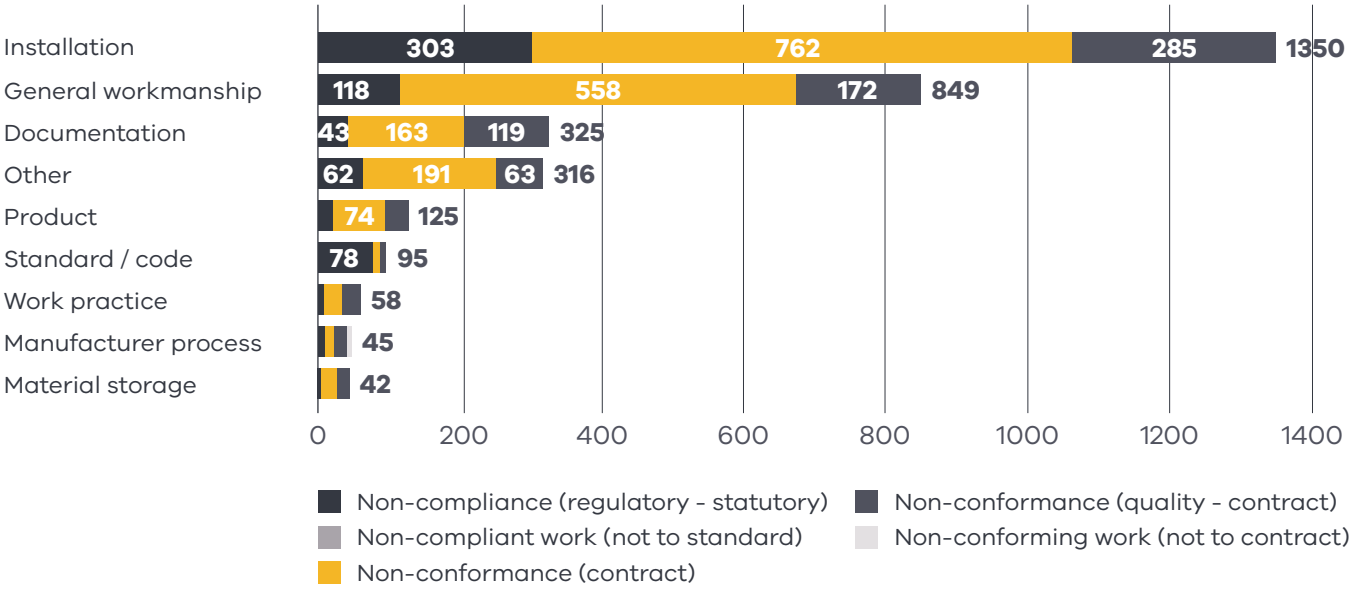
This report provides a comparison of the predicted benefits of the Clerk of Works program by costing observations related to quality, if they were required to be rectified in the future, and safety hazards and the cost if they were to result in serious injury or death.

3.1 Building quality

Over 3,400 quality observations (both non-compliant and non-conforming types) were made on site from July 2021 to June 2024. Figure 1 provides a high-level summary of the quality observations recorded.

Figure 1 illustrates that over 60 percent of the quality observations (including both non-compliant and non-conforming types)[3] are due to installation and general workmanship. These issues are associated with about 200 or more projects as determined by the Clerk of Works over the three-year period.

Figure 1. Quality observations by contributing condition and type

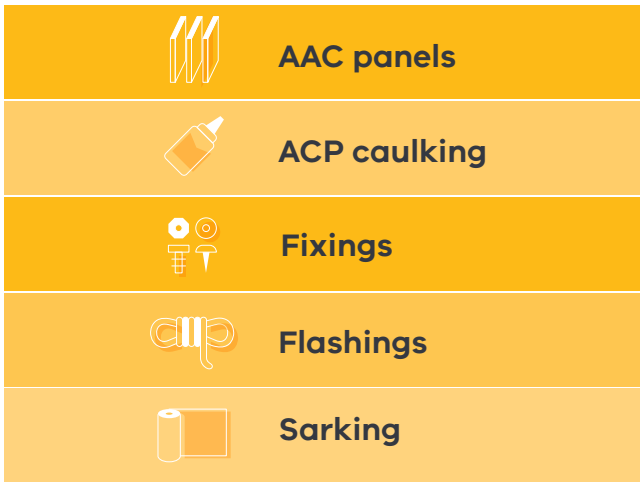


3 The types of non-compliance and non-conformance described in Figure 1 are defined as:

- Non-compliance – is a product, material or workmanship that doesn't conform to defined standards, codes or regulation.
- Non-conformance – is a contractual requirement, an item or process that does not meet the plans, specification or requirement of a process, system policies and procedures or CSV requirements.

Examples of installation and general workmanship include the following five most common build quality conditions identified by the Clerk of Works, illustrated in Figure 2.

Figure 2. Five most common building conditions associated with installation and general workmanship



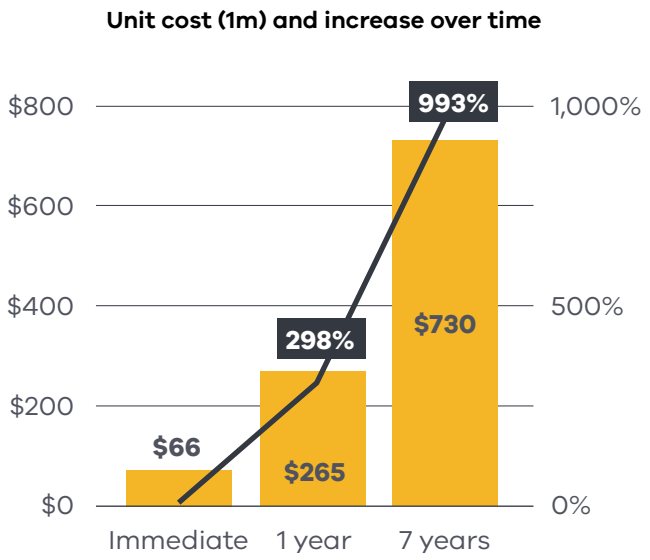
Detail of what the defective work would likely include after one and seven years for each example and a breakdown of the components required to rectify them indicates this would have contributed significantly higher costs had they not been identified during construction. Defective work at the one-year mark assumes no structural or waterproofing damage has occurred; however, at the seven-year scenario, it is assumed that the cost of repair would need to address the sub-frame and internal damage behind the Hebel panels.

Many of these costs are related to site establishment costs (that are not relevant if the Clerk of Works were to identify them during the construction phase of the rectification program) and the cost of addressing potential additional defects.

3.2 Comparison of common build quality observations after one and seven years

This section provides a detailed analysis of the methodology applied by WT Partnership on each of these common quality-related building conditions and why they are likely to be more costly after one and seven years. The methodology for calculating the potential costs is explained in the section below which provides a detailed breakdown of what the defective building work costs for each of the common build observations. This analysis is based on actual buildings in CSV's program.

Figure 3. Aluminium Composite Panels (ACP) caulking



Cost analysis for a typical building within CSV's program		
Immediate cost	Cost after 1 year	Cost after 7 years
$6,680	**$26,580**	**$73,030**
100m of caulking removed and replaced using existing scaffold during the building works.	100m of caulking removed and replaced using rope access. No internal damage.	100m of caulking removed and replaced using scaffolding from ground. Sub-frame damage and internal damage. Based on 10m^2 cladding to be removed (net facade area 18m^2).

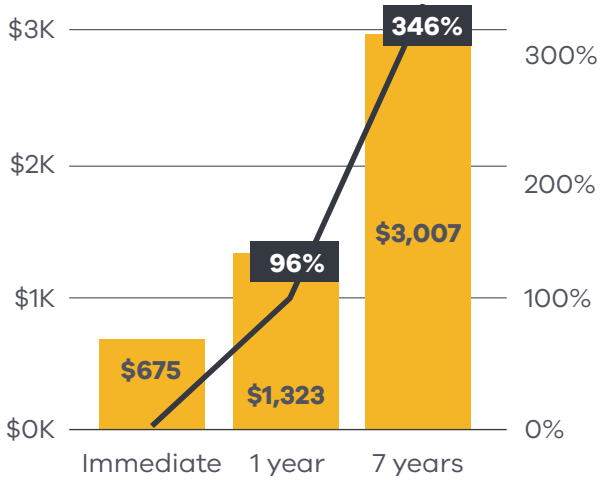
Assumption: Seven+ storey residential building – issue on level 4

The theoretical additional cost to remove and replace one metre of caulking, using existing scaffolding during the building work would be approximately $66.80. If this were to be undertaken a year later, additional supervision, insurance and permit applications would be required, along with barricade installation and other temporary protection measures. Assuming no structural or waterproofing damage has occurred, the estimated unit cost of repair would increase to around $265.80 per metre. The third scenario makes assumptions on a common level of latent defects that has been observed within CSV's residential Cladding Rectification Program. To remove and replace a metre of caulking, the cost increases to around $730, as scaffolding is required, and there is some sub-frame and internal damage behind the ACP.

This translates to a 298 per cent increase in cost if the works occur after a year and potentially a 993 per cent increase after seven years. It should be noted the range of cost can vary drastically when latent defects are present, and this is just a typical cost.

Figure 4. Autoclaved Aerated Conclave (AAC) panels

Unit cost (1 sqm) and increase over time



Cost analysis for a typical building within CSV's program		
Immediate cost	Cost after 1 year	Cost after 7 years
$67,500	**$132,326**	**$300,774**
100m² Hebel panels removed and replaced using existing scaffold during the building work.	100m² Hebel panels removed and replaced using scaffolding from ground. No internal damage.	100m² Hebel panels removed and replaced using scaffolding from ground. Sub-frame damage and internal damage (10 apartments affected).

Assumption: Four storey residential timber framed building with Hebel panels installed

The theoretical additional cost to remove and replace one square metre of Hebel panels using existing scaffold during the building work would be around $675. If this were to be undertaken a year later, additional supervision, insurance and permit applications would be required, along with the installation of scaffolding, painting and landscaping (where the scaffolding was). Assuming no structural or waterproofing damage has occurred, the unit cost of repair would increase to around $1,323. The third scenario makes assumptions on a common level of latent defects that have been observed within CSV's residential Cladding Rectification Program. In this instance the cost increases to around $3,007 to address the sub-frame and internal damage behind the AAC panels.

This translates to a 96 per cent increase in cost if the works occur after a year and potentially a 346 per cent increase after seven years. It should be noted the range of costs can vary drastically when latent defects are present, and this is just a typical cost.

Figure 5. Sarking

Unit cost (1 sqm) and increase over time

Cost analysis for a typical building within CSV's program		
Immediate cost	Cost after 1 year	Cost after 7 years
$30,000	**$559,170**	**$957,565**
500m² sarking removed and replaced using existing scaffold during the building work (for sarking behind non-compliant cladding).	500m² Hebel panels, sarking and insulation removed using scaffolding from ground. Investigation finds no damage to sarking and insulation. Hebel panels replaced, rendered and painted.	500m² Hebel panels, sarking and insulation removed using scaffolding from ground. Investigation finds extensive structural damage to timber framing and internal linings. Hebel panels rendered and painted. Residents moved out during repair works.

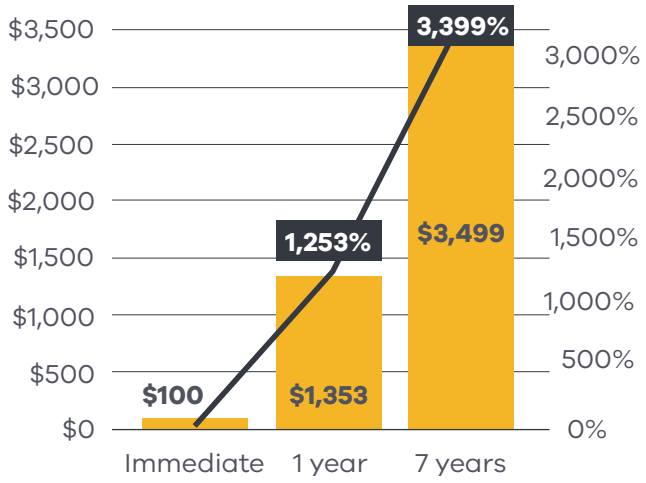
Assumption: Four storey residential timber framed building with Hebel panels and non-vapour permeable sarking installed – issue for the whole building

The theoretical additional cost to remove and replace one square metre of Hebel panels using existing scaffolding during the building work is estimated to be $60. If undertaken a year later, additional supervision, insurance, permit applications and scaffolding installation would be required. Assuming no structural or waterproofing damage has occurred, the estimated unit cost of repair would increase to around $1,118. The third scenario makes assumptions on a common level of latent defects that has been observed within CSV's program. In this instance the cost increases to around $1,913 to address the sub-frame and internal damage behind the Hebel panels, including evacuation and accommodation of the residents to enable repairs.

This translates to a 1,764 per cent increase in cost if the works occur after a year and potentially a 3,092 per cent increase after seven years. It should be noted the range of cost can vary drastically when latent defects are present, and this is just a typical cost.

Figure 6. Flashings

Unit cost (1 sqm) and increase over time



Cost analysis for a typical building within CSV's program		
Immediate cost	Cost after 1 year	Cost after 7 years
$8,000	**$108,247**	**$279,955**
10 windows (1m x 1.2m) re-flashed using existing scaffold during building work.	10 windows (1m x 1.2m) with Hebel panels removed around window (based on 40m^2). Ground to level 2 floor level (80m^2 facade area) using scaffolding from ground. Drying out existing framing but not replacing the framing. Hebel panels replaced, rendered and painted.	10 windows (1m x1.2m) with Hebel panels, sarking and insulation (80m^2) removed around window to ground using scaffolding from ground. Replacing 80m^2 timber frame. Hebel panels replaced, rendered and painted. Replace insulation, sarking and internal linings. Residents moved to alternate accommodation (10 apartments affected).

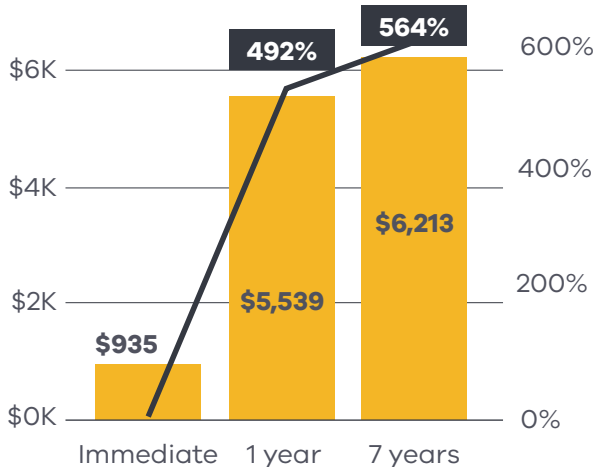
Assumption: Four storey residential timber framed building with Hebel panels installed – issue on level 2

The theoretical per metre square cost to remove and replace the flashing for a typical window (one metre wide and 1.2 metres high) with Hebel panels sarking and insulation, using existing scaffold during the building work would be around $100. If this was required to be undertaken a year later, supervision, insurance, traffic management, and scaffolding installation would be required. Assuming no structural or waterproofing damage has occurred, the cost of repair would increase to around $1,353. The third scenario makes assumptions on a common level of latent defects that has been observed within CSV's Cladding Rectification Program. In this instance the cost increases to around $3,499 to address the sub-frame and internal damage behind the Hebel panels.

This translates to a 1,253 per cent increase in cost if the works occur after a year and a potential increase of 3,399 per cent after seven years. It should be noted the range of costs can vary drastically when latent defects are present, and this is just a typical cost.

Figure 7. Fixings

Unit cost (1 sqm) and increase over time



Cost analysis for a typical building within CSV's program		
Immediate cost	Cost after 1 year	Cost after 7 years
$18,700	**$110,787**	**$124,260**
20m² solid aluminium panel removed and replaced using existing scaffold during the building work	20m² solid aluminium panel removed and replaced using swing stage/rope access. Investigation finds no damage to sarking and insulation. 100m of caulking removed and replaced. Replace fixings.	20m² solid aluminium panel removed and replaced using swing stage/rope access. Panel failed and fell after failure based on corroded or fatigued fasteners. Investigation finds no damage to sarking and insulation. 20m² solid aluminium panels removed/reattached. 200m of caulking removed and replaced. Replace fixings.

Assumption: 12 storey residential building with solid aluminium cladding, corner panel with incorrect fixings – issue on level 12

The theoretical additional cost to remove and replace a two-metre square solid aluminium panel using existing scaffold during the building work would be around $935. If this were required to be undertaken a year later, supervision, traffic management, and permit applications would be required along with the use of swing stage/ropes. Assuming no structural or waterproofing damage has occurred, the cost would increase to around $5,539. The third scenario makes assumptions on a larger extent of the issue and the cost increases to around $6,213 to address this larger area (20 square metres) of panels that are removed and reattached.

This translates to a 492 per cent increase in cost if the works occur after a year and potentially a 564 per cent increase after seven years. It should be noted the range of costs can vary drastically and this is just a typical cost.

3.3 Potential costs for common build quality observations after one and seven years

A summary of the potential costs for these observations after one and seven years is provided in Table 1. Distributing these common issues over 200+ recorded CSV projects, we can assume that at minimum, 40 projects could fall under each of these categories.

Based on above assumption, CSV has assessed the potential cost of rectifying defects on the basis that they were resolved immediately, after one, and after seven years.

While there are many assumptions about how many and how severe the observations could be, Table 1 shows there is a significant net benefit for the Clerk of Works, given that during this period the program cost $10 million to operate. This shows that on build quality matters alone, the Clerk of Works program has a significant positive impact, potentially saving up to seven times the cost of the Clerk of Works per building. The owners would also be responsible for undertaking the repairs that they may need to fund if the builder is unable or unwilling to do so.

These calculations are based on the detailed cost analysis undertaken by WT Partnership for each of the above scenarios.

Table 1. Potential costs on common build quality observations after one and seven years

Observation type	Immediate cost (over 40 projects)	Cost after 1 year (over 40 projects)	Cost after 7 years (over 40 projects)
ACP caulking	$267,200	$1,063,200	$2,921,200
AAC panels	$2,700,000	$5,293,040	$12,030,984
Sarking	$1,200,000	$22,366,800	$38,302,600
Flashings	$320,000	$4,329,916	$11,198,224
Fixings	$748,000	$4,431,504	$4,970,400
Total	**$5,235,200**	**$37,484,460**	**$69,423,408**

3.4 Safety observations

Over 3,300 safety observations were made on site during the period to 30 June 2024. A high-level summary of the safety observations can be seen in Figure 8.

For observations related to safety, the instances of hazards and the contributing condition (e.g., scaffolding, electrical, general PPE, etc.) were compared to the potential for serious injury or fatalities.

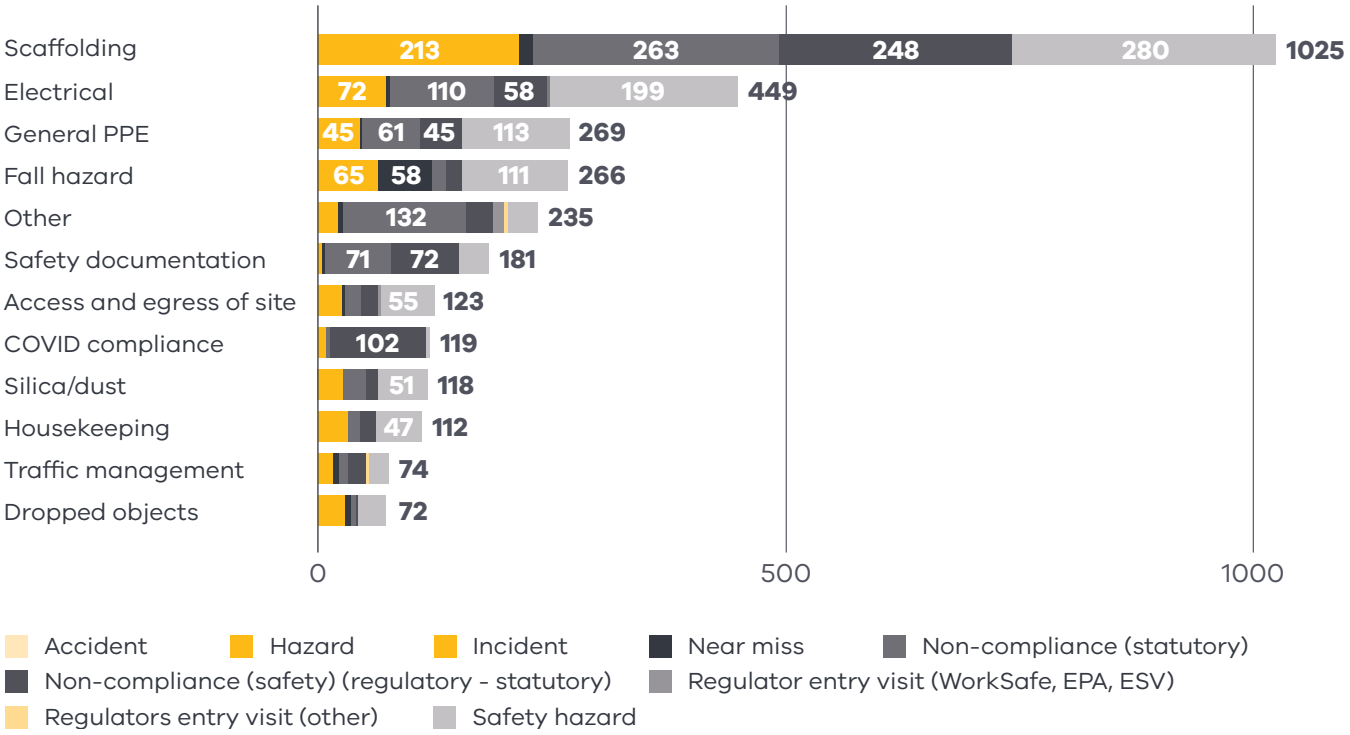
Most non-conforming safety observations were attributed to scaffolding, general PPE and electrical issues. These three categories made up more than half, or approximately 56 per cent of safety observations.

Electrical observations consistently make up a large proportion of safety observations. Examples of electrical safety observations include electrical leads wrapped around scaffolding, electrical leads and tools not tagged and electrical leads on the ground instead of being suspended.

Figure 8 shows that between 1 July 2021 and June 2024, the top five safety hazards observed by the Clerk of Works inspections were:

- **Scaffolding** – potential fall from heights resulting in serious injury or fatality.
- **Electrical** – potential contact with services resulting in electrocution leading to serious injury or fatality.
- **General PPE** – not wearing personal protection equipment (PPE) can lead to potential eye injuries (safety glasses), cuts to hands (gloves), head injuries (hard hat), dropped/crush injuries to toes, feet etc.) (safety boots), skin cancer (brims, sunscreen), and objects falling from heights (chin straps).
- **Fall hazard** – a fall from a height from any building two storeys or higher can lead to a potential fatality or serious injury (see below for discussion on falls hazards).
- **Safety documentation** – absence of planning for high-risk construction work (i.e. construction management plans, traffic management plans, COVID-19 plans and safe work method statements (SWMS). Not planning the work can lead to injuries and illness. Victorian occupational health and safety legislation requires any activity defined as high-risk construction work must have a SWMS (consultation, sequential, hazards, risk and controls).
- **COVID-19 compliance** – to ensure all reasonable steps are taken to protect workers from the risk of contracting COVID-19 in the workplace.

Figure 8. Safety observations made by Clerk of Works inspectors



3.5 Improving safety and preventing serious injury or death

The occupational health and safety management of building sites are undertaken in accordance with contract specifications and WorkSafe Victoria requirements. Materials are inspected to ensure they are correct and of an appropriate quality and application and in line with the design documentation. The Clerk of Works inspections include the reporting of hazards on site.

Proactive reporting of hazards supports prevention of injuries, ill health, and control costs from unplanned loss. CSV understands the importance of reporting even minor hazards. This ensures the likelihood of that hazard occurring again is minimised or (preferably) eliminated. Most importantly, it ensures the hazard does not escalate into a more serious risk.

The hazards highlighted in Figure 8 made up the majority of the 1,664 safety hazards identified during this period. A possible cost saving, based on Safe Work Australia's data of a serious claim,[4] could be up to $26.2 million in compensation paid if these hazards were not identified and addressed, and on average, resulted in around 13,000 weeks in time lost from work and other associated costs.

Of these, 177 were identified as fall hazards, noting that, given all the buildings in the Cladding Rectification Program are multi-storey apartments, a fall would most likely be fatal. Falls from a height was the most common cause of workplace death between 2002 and 2014, accounting for 117 fatalities in the construction industry.[5] The value of a statistical life is most appropriately measured by estimating how much society is willing to pay to reduce the risk of death. The value of a statistical life has been set at $5.4 million when measured in 2023 Australian dollars.[6]

Taking this into account, if the Clerk of Works program prevents just two fatalities, it would achieve a return on investment, noting this assumption cannot be confirmed. The Clerk of Works program will be able to confirm it is having a positive effect on workplace practices, with a reduction over time in the number of hazards and an increase in positive workplace behaviour.

Trends in the observations are shared with all relevant building participants through regular consultation forums to ensure that lessons learnt are shared as quickly as possible. These trends also support the review and updating of inspection templates, reporting, and Clerk of Works procedures.

If the cost of a Clerk of Works per building in the sample is around $36,000, but the potential savings in prevented future rectification costs average up to $1.3 million, then scaling this across Victoria's $41.9 billion annual building industry would provide significant sector-wide savings in the millions of dollars and demonstrate a cost-effective solution in a relatively short period of time.

Furthermore, there are significant industry safety and quality step-change benefits that have not been monetised, though must be recognised beyond the scope of this report.

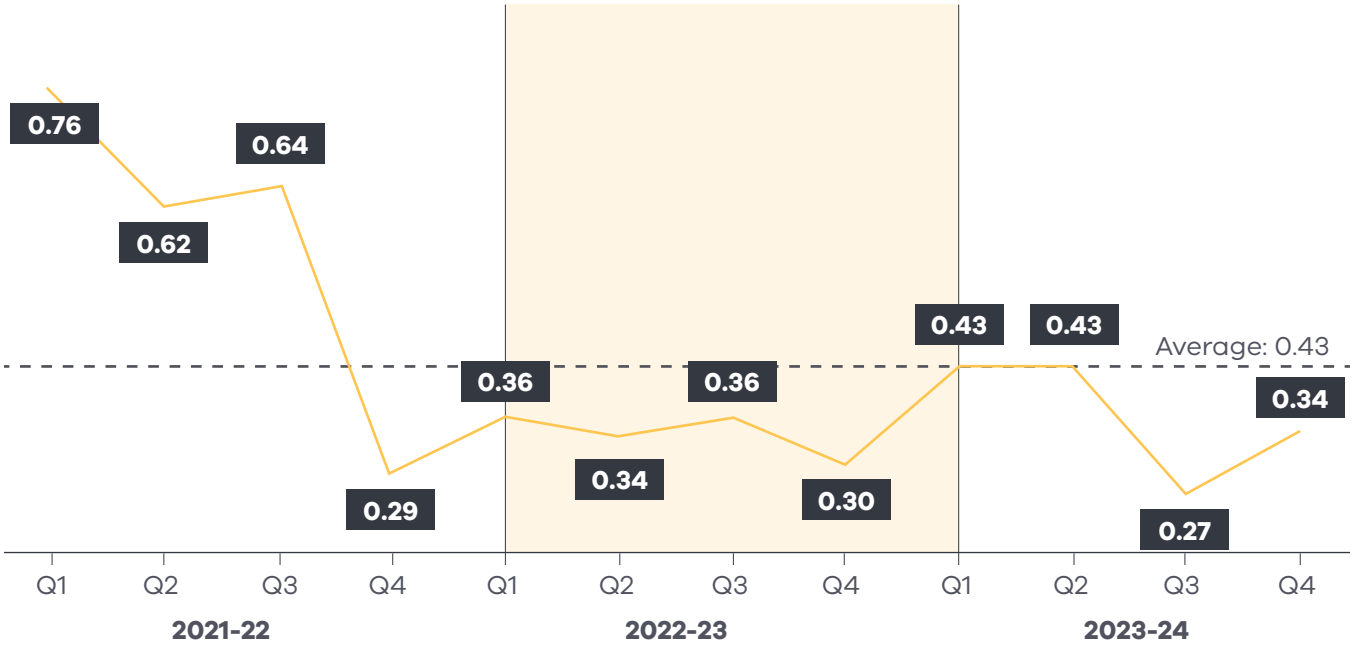
4 Safe Work Australia, *Key Work Health and Safety Statistics Australia*, 2023: **https://data.safeworkaustralia.gov.au/insights/key-whs-stats-2023**

5 Safe Work Australia, *Construction Industry Profile*, May 2015: **https://www.safeworkaustralia.gov.au/system/files/documents/1702/construction-industry-profile.pdf**

6 Department of the Prime Minister and Cabinet – Office of Impact Analysis, *Value of statistical life guidance note*, October 2023: **https://oia.pmc.gov.au/sites/default/files/2023-10/value-of-statistical-life.pdf**

The Clerk of Works program has driven improvements across CSV work sites with a significant reduction in the rate of observations recorded per site visit over time (see Figure 4). From a ratio of almost one observation per site visit at the introduction of the inspection regime, it has reduced during the period to three observations across ten site visits at the end of the 2024 financial year. The results are illustrated in Figure 9.[7]

Figure 9. Rate of Clerk of Works observations per site over time



7 The significant improvement in the rate of observations per site during quarter 3 and quarter 4 of the 2021-22 financial year can be explained by a combination of factors including: the introduction of a new system at CSV to provide greater visibility of individual building schedules and better accuracy around the timing of site visits; better visibility of data on a daily basis to support monitoring of Clerk of Works activities; a change in the Clerk of Works contract manager accompanied by a review of practices and associated process improvements; a change in Clerk of Works providers; and, active knowledge-sharing by CSV leading to improvements in on-site practices with our program partners.

4. Discussion

Through direct intervention, the Clerk of Works has provided the following positive results:

- early identification of potential quality problems before they escalate into timely costly issues or rework;
- identification of safety hazards before they result in incidents or injury;
- identification and implementation of improved controls;
- stimulated open discussions and information sharing; and
- identification of positive observations.

An indication of how the Clerk of Works program has positively impacted quality, safety and environmental outcomes can be clearly demonstrated through the following case study of a de-identified building in the Cladding Rectification Program outlining a Clerk of Works intervention undertaken in 2021.

CASE STUDY

Clerk of Works intervention

Building A was accepted for funding in the residential Cladding Rectification Program in August 2020, and construction commenced in late March 2021.

In early August 2021, after multiple site visits, the Clerk of Works assigned to Building A identified and reported its concerns to CSV's Program Delivery team around the safety systems implemented on site and the quality of workmanship observed. The Clerk of Works was concerned that the building site team was not taking appropriate steps to action the items including:

- Workers not wearing hard hats and general PPE non-compliance.
- Existing combustible materials not removed and subsequently covered with new sarking, and top hats ready for aluminium cladding.
- Structural issues, including rotting timber framework and rusted steel balustrades on the north elevation second-floor balcony being covered with new sarking and no Inspection Test Plans (ITP) or progress photos taken to show the extent of the damage to the structure, nor the rectification of the latent conditions.
- Materials used onsite (fire rated plasterboard) with no documentation to state fire rating achieved (FRL). Linings not installed as per manufacturers' recommendations.
- Sarking laps not horizontal as per best practice, sarking tape not used, minimum lap not being obtained and not taught.
- Balcony waterproofing potentially compromised as water ingress was evident.
- Aluminium panels not installed as per design.

CSV subsequently engaged with the builder to address these issues and develop an action plan to fix the identified issues and prevent these from reoccurring in the future.

As a result of the Clerk of Works early intervention, the builder undertook the following actions:

- Numerous areas of cladding and sarking removed to address the poor installation of sarking, as well as the incorrect installation of the aluminium panels and the latent conditions that appeared to have been covered up.
- ITPs for all areas provided to relevant personnel (including the Independent Project Manager and Clerk of Works) to ensure appropriate close out actions were taken.
- The building contractor proposed implementing a change of personnel to the site to ensure appropriate oversight of both safety and the quality of works, and that accurate information on the conditions of the site are fed through the internal management structure.

The Clerk of Works reiterated to the building contractor's site team that their role is to assist in reviewing the quality and safety on site on a regular basis and work collaboratively with the site team to resolve any areas of concern. This included providing additional support so the head contractor can adequately educate and upskill the subcontractors on their sites, which has a positive follow-on effect to any subsequent site the subcontractors work on.

The building contractor's senior management expressed deep appreciation of the Clerk of Works feedback as they received information about the site through the Clerk of Works instead of their own site team; without the Clerk of Works, the senior management team would not have known what was occurring on site. This appreciation has been reiterated several times to CSV's senior management.

In conclusion, the builder's positive response and receptiveness to the Clerk of Works early intervention highlighted how well the Clerk of Works, CSV's Program Delivery team and the contractor can work together to close out issues and learn from each other when all parties are open to do so. Identifying the poor workmanship and collaborating on a plan to identify the best way to fix these issues has meant that the builder has now implemented company-wide ITPs and ensured that site supervisors and foremen will spend between four to eight weeks on a site before moving onto another cladding works project.

Through proactive early intervention, the Clerk of Works was able to provide secondary support to the builder's operations by providing bespoke advice on quality and safety to the builder (upskilling opportunity) which has ultimately improved the quality and safety standards on this site and managed any reputational risks for the program (and subsequently the builder). This has also led to cost savings, created positive step changes to the way the works are being undertaken, and, by sharing the lessons learned, it has influenced the builder's business case on its overall operations, including their business outside of cladding rectification.

At present, a Clerk of Works (or similar) for high-risk construction is not regulated in Victoria.

In July 2019, the Victorian Cladding Taskforce (VCT) recommended in its Final Report that the Victorian Government consider the restoration of the Clerk of Works function as part of its longer-term reform of the building industry. CSV gave effect to this recommendation with the intention to provide the Clerk of Works capacity to be active across each building in construction and to provide a constant onsite presence.

The VCT had responded to industry concerns that there was inadequate oversight for quality and safety from the building procurement stage through to delivery of a building construction project. In the past, a Clerk of Works would oversee the construction process on behalf of either the architect or the owner, undertaking a quality assurance role in the interests of the owner. According to submissions to the Senate Inquiry into Non-Conforming Building Products in 2017, this role had largely disappeared due to deregulation, and some stakeholders had recommended reinstating the role.

The VCT expressed concern at the 'fragmentation' with different contractors and professionals engaged in the design, development and construction process which diluted responsibility. The Senate Inquiry found there was a need for a clear oversight role in building projects, independent from the builder, and that this role is not adequately provided for by building surveyors alone. In June 2020, the Victorian Government's response to the VCT recommendation was to support the Clerk of Works proposal in principle.

Since CSV's implementation of the Clerk of Works program, the Victorian Expert Panel into Building Reform established in 2019, recommended to Government in its Stage 2 Report the introduction of a requirement for developers to engage an agent such as a superintendent, site architect, or Clerk of Works to be regularly onsite for prescribed buildings or projects (Recommendation 2(B)). The Report cited the merits of restoring a clerk of works (or similar) to impose additional levels of oversight that address varying complexity and risk. This role could be required on site to check compliance at all stages of construction and to report to the building surveyor to inform mandatory inspections.

5. Reform opportunities for further consideration

The building sector's safety record continues to perform poorly, with the Office of the Federal Safety Commissioner's (OFSC) Hazard 2020 (October 2020 to June 2021) audit into safety reporting little progress in safety compliance on construction sites. The OFSC concluded that accredited companies need to pay closer attention to safety systems, and their onsite implementation, with approximately 70 per cent of corrective actions issued during the OFSC's audits relating to insufficient or non-existent procedures for identifying, managing and recording risks.

In CSV's view, the Clerk of Works provides proven effective oversight to address on-site risk on building sites. Based on CSV's experience, it is of the view that a wider rollout and reintroduction of the role across Victorian Government projects, would greatly improve the quality and safety performance of the industry over time.

Clerk of Works observations of quality and safety across government construction projects should also be shared within government thereby creating a continuous improvement loop in the delivery of government projects. This will not only have an immediate benefit to improving the safety and quality of government-led projects but will also lead to a heightened understanding of quality and safety expectations across the broader construction industry.

CSV will continue to challenge the norm and continue to look for areas of opportunity to expand on the Clerk of Works as a government solution to increase quality outcomes and consumer confidence, improve builder and sub-contractor accountability and building practices, and enhance site safety to the level that meets today's community expectations.

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