

Queensland Non-Conforming Building Products Audit Taskforce

Status Report




Queensland
Government





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Foreword

I am pleased to present the first status report on the work of Queensland's Non-Conforming Building Products Audit Taskforce. This report was prepared by the Independent Chair of the Taskforce, the Honourable Terry Mackenroth, who passed away on 30 April 2018.

The Minister for Housing and Public Works established the Taskforce in June 2017 after receiving information about buildings with potentially non-conforming combustible cladding, and heightened international concern following the fatal fire at the Grenfell Tower in London.

The Taskforce combines the expertise of the Department of Housing and Public Works (HPW), Queensland Fire and Emergency Services (QFES) and the Queensland Building and Construction Commission (QBCC) to investigate and audit the extent of the problem and determine possible solutions.

Queensland Government agencies and other stakeholders have assisted the Taskforce to conduct what has been a difficult, time-intensive and critical community safety process.

Internationally recognised as leading work, collaborative effort has been undertaken to help industry professionals better understand the behaviour of building façades when subjected to fire, particularly through The University of Queensland's ground-breaking continuing professional development course (CPD) for fire engineers, and the materials library it is developing.

The work of the Taskforce is continuing and the recommendations in this report provide a path forward.

Liza Carroll

Interim Chair

Non-Conforming Building Products Audit Taskforce

FOOTNOTE

Liza Carroll is the Director-General of the Department of Housing and Public Works and has been appointed Interim Taskforce Chair to carry on the invaluable work the Honourable Terry Mackenroth began.



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Mr Mackenroth's leadership, strategic direction and overarching commitment to public safety is part of his extensive legacy for Queensland. In Mr Mackenroth's own words:

"It is essential that Queenslanders feel safe in their property and that each property fully complies with state and federal laws.

"The unique and complex problem facing the Taskforce cannot be under-stated. The issue of non-conforming building products particularly that of combustible cladding, of which Aluminium Composite Panels (ACP) is an example, has taken years to become evident. As such, the approach to the various contributing factors and potential solutions to this issue is one that continues to take considerable time and care.

"The Taskforce was established to identify and make recommendations with regard to non-conforming building products and to prioritise the identification and subsequent investigation of buildings using a risk-based approach. To meet this requirement, the Taskforce initially investigated buildings identified by industry as having non-conforming cladding and high-risk buildings such as hospitals, education and public buildings."

The Minister for Housing and Public Works selected Mr Mackenroth due to his significant experience as Minister for Housing, Local Government and Planning. Mr Mackenroth declined payment for his work to maintain his standing as independent of the Minister in this process.

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Background

The Grenfell Tower fire in London, England and subsequent safety concerns regarding the use of combustible cladding highlighted the importance of work required to mitigate fire risk around the world.

But it was not the first incident of external fire spread involving combustible cladding. A global trend emerged, including the Water Club in Atlantic City USA in 2007, the Residential Tower in Roubaix, France in 2012, and a number of other buildings throughout the United Arab Emirates including the Torch Tower in Dubai in 2015 and again in 2017.

Australia found the issue on its doorstep in 2014 when the Lacrosse apartment building in Melbourne's Docklands was exposed to external fire spread.

Queensland became aware of the potential risks associated with suspected combustible cladding on a number of government and non-government owned buildings in June 2017.

At the heart of this problem is a thin layer of combustible thermoplastic material called polyethylene (PE) sandwiched between two sheets of aluminium.

Combustible material of this type when externally fitted to buildings can significantly contribute to the propagation of flame and facilitate rapid fire spread to other areas of a building.

Degradation of material in a fire can also lead to combustible material dripping, pooling or detaching while flaming onto lower areas which may result in further fire spread.

In turn, the behaviour of this material in a fire greatly influences fire services' access to the site and potentially endangers the lives of firefighters and building occupants.

Queensland Government Response

On 30 June 2017, the Queensland Government established the Non-Conforming Building Products Audit Taskforce to develop a risk-based management approach to deal with potential buildings of concern.

This decision, to make public the establishment of the Taskforce and an urgent audit of cladding on the Princess Alexandra (PA) Hospital, created heightened public and industry awareness in Queensland.

The PA Hospital was one of the key buildings suspected of having combustible Aluminium Composite Panel (ACP) cladding. Immediate steps were taken to reassure patients, staff and the public that they would remain safe while the investigations were carried out. Queensland Fire and Emergency Services (QFES) ensured that additional measures were put in place, including around the clock monitoring and an elevated QFES response to any incident at the hospital.

The Taskforce's main focus is to identify and make recommendations to government on the risks, and remediation regarding non-conforming building products, particularly combustible cladding materials, to ensure the safety of building occupants and the public.

From inception, the Taskforce understood that finding suitable solutions to this issue would be challenging.

The Taskforce commenced with an initial targeted audit of buildings constructed between 1994 and 2004 and a list of buildings provided to the Queensland Building and Construction Commission (QBCC), identified as possibly containing combustible cladding.

This scope was then extended to all buildings constructed or renovated from 1994 to now.

Queensland Government Buildings

Under Queensland and Australian building laws, building owners are the responsible entity for the safety and standard of their asset.

The Taskforce began by undertaking an assessment of almost 28,000 Queensland Government building approval records held by the Department of Housing and Public Works (HPW). By 28 February 2018, just over 27,000 approvals had been reviewed and excluded from further investigation.

At the same time, the Taskforce approached 21 government agencies, 6 statutory-owned corporations and 12 government-owned corporations seeking to identify all government-owned buildings which may be within scope.

This approach led to 879 government buildings being referred to the Taskforce for further investigation. Of these, 624 have been cleared as part of first-pass audits (construction type out of scope or product type out of scope), with a further 121 building audits finalised. In total, there are 71 government buildings the Taskforce has yet been unable to rule out. All of these buildings have been identified and occupants and the community can be assured of robust fire safety systems within and external to these buildings. There are no government buildings that pose an imminent risk to safety.

Government buildings brought to the attention of the Taskforce are first assessed against their construction type and product type to determine whether they are in or out of scope. Those buildings in scope are then audited by an internal building certifier using a range of factors to determine if the building has potentially combustible cladding. Any building where potentially combustible cladding is identified, is referred back to the owning agency for further investigation.



879 government buildings requiring detailed investigation by the Taskforce



71 buildings identified with potential ACP

Non-Government (Private) Buildings

The Taskforce, QFES and Local Government Authorities (LGAs) have partnered to identify non-government buildings of concern.

Experience with government-owned buildings indicates that of the total number of buildings identified, approximately 10% will need more detailed investigation to establish whether they can be cleared or remediation is required.

It is important to note here that given the number of buildings involved, the lack of detailed building information and the complexity of assessing some buildings, combined with limited enforcement powers, the building owner (supported by an appropriately qualified industry professional) is the most appropriate person to undertake a review of their building.

The Taskforce has identified around 12,000 private buildings likely to require review and expect up to around 10% of privately owned buildings across Queensland may need some detailed assessment.

This initial list will be cross-checked with LGAs for a first-pass audit.



A risk-management approach

The Taskforce faced a complex task of developing an audit and testing process from the ground up. It presented time intensive challenges and obstacles, especially in the area of product identification and the potential combustibility of those products.

Using a risk matrix, the Taskforce directed its attention to both public and privately-owned buildings with vulnerable occupants such as hospitals, aged-care facilities, accommodation buildings and high-occupancy buildings, as well as acting on information received from the public. As a first step, urgent audit reviews were undertaken of Queensland Health facilities and other government buildings that were deemed to be in the interest of public safety.

A testing regime and operational approach to assess government buildings identified for investigation was developed. Any buildings with potential cladding issues were referred to the relevant agency building owner for further investigation and action, while those buildings without non-combustible cladding were removed from the list.

As buildings of concern were identified, QFES continually assessed and reviewed operational responses. Building owners were also supported and encouraged to consider localised risk mitigation measures while detailed audits of their buildings were undertaken.

Limited enforcement powers required a different approach in dealing with the private sector.

QFES, QBCC and LGAs each offer a range of powers but much of the responsibility for building safety and compliance, rests with the building's owner.



Understanding the overall cladding extent

Based upon a review of QFES and LGA building records, preliminary assessment suggests there may be as many as 12,000 buildings across the state, built since the introduction of ACP into Queensland, that will need assessment by the building owner, private certifier or other building professional.

Compounding this finding is the lack of any central repository of records to aid in building identification.

No single point of reference exists that accurately reflects building approvals and construction documentation. Those records that do exist, provide limited insight into the type of structure erected or the cladding materials used.

Where data does exist, there is apparent inconsistency with what approval documentation is available and/or retained for building projects. Often the design and consideration of external cladding products does not occur until building projects are significantly advanced, in some cases often when the building is already under construction.

This increases the risk that relevant documents may not go through required approval processes and that product substitution may occur due to unclear material performance requirements.

The complexities and challenges that this brings to the identification process means there is a risk that not all affected buildings might be identified or identifiable. The Taskforce has worked collaboratively with LGAs in an attempt to identify those buildings within scope. Private owners and local governments are encouraged to make their own enquiries about the buildings that they control.



Princess Alexandra Hospital

The Princess Alexandra Hospital provided the catalyst for the formation of the Taskforce in Queensland and the Government's response to non-conforming cladding.

- 30 June 2017—a joint media conference is held detailing potentially non-conforming cladding on the Princess Alexandra Hospital and the establishment of a Taskforce.
- QFES escalates its response measures and security around the building is increased.
- Samples of the Aluminium Composite Panels (ACP) are removed for testing.
- University of Queensland undertakes combustibility screening tests.
- 19 July 2017—test results indicate the need for a more detailed full-scale façade test.
- 80 square metres of ACP cladding is removed and sent to a specialist facility in Victoria.
- A section of the hospital's exterior is replicated in situ under the supervision of fire engineers.
- 31 August 2017—the ACP product fails the façade test and a decision is made to remove and replace all the hospital's cladding.
- 30 September 2017—certain sections of external cladding are removed near public entry points and further risk mitigation measures are instigated.
- Queensland Health have investigated product replacement options and is engaging suitable contractors to undertake the task.



Building assessment process

Under the National Construction Code (NCC), compliant building certification is achieved using either a performance solution and/or a deemed-to-satisfy solution.

Some provisions in the NCC are quite specific, whereas other code requirements provide alternative compliance pathways. Prior to Amendment 1 to the Building Code of Australia 2016 Volume 1 (BCA) taking effect, the code allowed materials to be considered in different ways, for example, as a wall or as an attachment. Recent Code Amendments from 1 March 2018 have been promoted by Queensland and adapted nationally that address fire safety in high-rise buildings, including fire safety related to combustibility of external walls through additional measures for fire safety.

The availability of alternate pathways requires building professionals to make subjective assessments to interpret and apply the BCA.

Put simply, following one pathway may require the use of non-combustible cladding whereas following a different pathway could permit the use of combustible cladding.

The BCA amendment will provide more clarity and also an additional verification method to support performance solutions. However, alternate compliance pathways using subjective analysis will still be available.

There are a number of other factors which permit the delivery of substandard outcomes and non-conforming building products. These include:

- Testing regimes available to demonstrate materials performance in the event of fire
- The wide use of CodeMark certifications
- Processes used to develop performance-based solutions.



Testing regimes available to demonstrate materials performance in the event of fire

The existing combustibility test for materials under Australian Standard (AS)1530.1 is not applicable for products that are coated, faced or laminated.

In addition, AS1530.3 is often used to determine the fire performance of materials but this test method does not provide a full assessment of fire hazard under all fire conditions.

The introduction of AS5113 will provide a further method for testing and classification of fire spread on external walls and façades.

Often the information provided by these tests is used in isolation as the sole evidence to support the performance and use of a product or assembly.

A material's performance must be considered in association with the actual use on specific buildings.

Review and further development of testing regimes that provide evidence of suitability to support performance-based building solutions should be a key consideration.

The Taskforce is working with The University of Queensland, in consultation with other testing authorities, to develop a fit-for-purpose testing protocol for combustible cladding products to complement the existing Australian Standards.

Furthermore, development of a materials library will facilitate the efficient and cost-effective characterisation of combustible cladding products for the prioritisation or rectification of buildings.



The wide use of CodeMark certifications

Certificates of Conformity under the CodeMark scheme are widely used to demonstrate that the properties and performance of a building material or method of construction or design fulfil specific requirements of the BCA.

The use of these certificates as evidence of compliance (to the extent stated in the certificate) is supported in regulation.

It is essential that all industry practitioners are well informed about how these certificates should be interpreted, applied and used to support performance-based building solutions.



Processes used to develop performance-based solutions

Traditionally, performance-based solutions have been developed in response to a list of deemed-to-satisfy non-compliances identified by the building certifier.

This approach can inhibit the development of holistic performance solutions to include the products used in association with the building design to ensure an outcome that is fit-for purpose.

Additional guidance and professional development of industry practitioners should be a key consideration.

This will identify the considerations that are necessary to support the development of performance-based solutions appropriate for the particular design features of each building.

Role clarity and training

The role of the insurance and finance industries is also a key consideration.

The Insurance Council of Australia (ICA) recently released a protocol for stakeholders involved in assessing building risk posed by ACPs.

The suggested approach includes both the identification of the material used and the installation methodology, enabling assessment of the risks posed by use of these materials. This may then trigger consideration of remedial actions to lower a building's residual risk to acceptable levels.

The ICA stresses the importance of consulting with the relevant jurisdiction's building regulator and urban fire authority. In addition, some concerns are raised about exclusions to a building certifier's personal indemnity insurance policies.

Building professionals must balance competing industry demands including, innovation, energy efficiency, low weight ratios and aesthetics.

Buildings professionals rely on government regulations to guide what they do, where in turn government relies on building professionals to interpret and use judgement. This partnership must always ensure that decision making balances likelihood and consequence.



Competency and roles of practitioners

Queensland's building industry currently operates under the performance-based Building Code of Australia 2016 Volume 1 (BCA) which allows building professionals to interpret and apply the code relevant to a range of factors influencing a particular building at a particular time.

This can result in variances in subjectivity and industry interpretation of product use and development and application of the compliance pathways.

The range of significant fire events detailed earlier, and the subsequent unpacking of contributing issues creates an opportunity to revisit with industry, technical requirements and how they should be interpreted and applied.

Fundamentally, the knowledge and experience in the building certification and fire engineering professions regarding ACP has not kept pace as the manufacture of cladding products has matured over the years.

Where the same existing performance-based regulatory framework is used to resolve this issue, improvements must be implemented to avoid repeated substandard outcomes.

Even where sufficient building documentation exists, cladding products are still not well identified within the final building approval documentation. Coupled with inconsistent labelling on cladding products, there is no simple way to identify what each panel is made of without further testing. This challenges the ability of buildings owners and building regulators to assess and enforce potential non- conforming products.

Over time, inconsistency in the development and application of compliance pathways has occurred. As a result, key stakeholders are unclear how various provisions should be applied. This means that compliance does not always guarantee a consistent outcome of safe buildings.

The Taskforce has also identified a lack of focus for design team responsibilities and a lack of clarity and consistency required for key practitioner roles such as designers, fire engineers and certifiers.

Improved practitioner training and education including clear performance requirements or expectations for cladding use on Type A/B buildings would enable more obvious pathways for compliance.

To this end, the Taskforce has partnered with The University of Queensland to provide a world-first continuing professional development (CPD) course to upskill fire engineers on how to better understand the behaviour of façades when subjected to fire. The first course, run in January 2018, was well received by industry and graduates who are now providing services to the community. It is proposed to broaden this CPD approach to include building certifiers and design professionals.

The Queensland Building Plan (QBP), launched on 28 October 2017, also identifies an action to enhance skills and increase professional standards for a range of building industry professionals the CPD demonstrates how the actions of the QBP are being delivered.





The way forward

Rectification of government buildings is progressing well, and those identified through the audit will continue to be managed by asset-owning agencies under the guidance of HPW. There are no government buildings that pose an imminent risk to safety.

It is the government's objective to promote the safety of Queensland's buildings for the many people that live, work in or visit them. Strong government leadership is required to assist private building owners and local governments achieve the level of fire safety required. As such, appropriate building legislation should be amended to clearly articulate a robust fire safety standard for combustible façades. In addition, QFES should continue to undertake regular inspections of buildings including viewing of any assessments and remediation undertaken.

The various pieces of legislation and enforcement powers surrounding this issue contribute to this unique and complex problem.

Throughout the course of the design, construction and life of private buildings there are many legislative touch points and responsible entities.

When current legislation is applied to address the issue of ACP cladding, clarity of jurisdictional and enforcement responsibilities becomes more complex.

- Í Local Government has responsibility for building administration and enforcement under the *Building Act 1975*.
- Í The Department of Local Government, Racing and Multicultural Affairs administers the *Local Government Act 2009* and the *Planning Act 2016* under which Local Governments operate.
- Queensland Fire and Emergency Services (QFES) is responsible for the *Fire and Emergency Services Act 1990 (Qld)*, which provides powers of entry onto existing occupied premises for the purpose of preventing or reducing the likelihood of a fire. Under the *Planning Act 2016 (Qld)*, Queensland Fire and Emergency Services are given a role as an advice agency for building approvals which incorporate performance-based building solutions.

- Queensland Building and Construction Commission (QBCC) has legislative powers under the *Queensland Building and Construction Commission Act 1991* to require licensees to rectify defective building work for a period of six years and six months after completion of the work. In addition, the QBCC also has powers to:
 - seize building products or samples for examination
 - direct about the use of non-conforming building products
 - direct action where a non-conforming building product is present
 - take remedial action and recover the cost as a debt.

The Minister can also recall building products under this Act.

A more holistic application of regulatory standards to remove inconsistencies with the interpretation of compliance pathways would also be beneficial. This would seek to balance different evidentiary requirements for different pathways, ambiguity of definitions and variations of interpretations across key decision makers and variations in interpretation of regulatory provisions such as the NCC, Australian Standards and other regulatory requirements. It should be noted that considerable lead times for development and introduction of new laws may impact the ability to adequately address this issue.

Nationally, Building Ministers have agreed to use available laws and powers to prevent the use of ACP with over 30% PE core for class 2, 3, or 9 buildings (refer BCA) of two or more storeys, and class 5, 6, 7 or 8 (refer BCA) of three or more storeys, until such time as they are satisfied that manufacturers, importers, and installers, working in collaboration with building practitioners, will reliably comply with:

- the newly established standard setting test against which fire retardant cladding products are deemed to be reasonable for use in high rise settings
- an established and implemented system of permanent labelling on cladding products to prevent substitution.



Linking various powers

In November 2017, the *Building and Construction Legislation (Non-conforming Building Products—Chain of Responsibility and Other Matters) Amendment Act 2017* commenced, amending the QBCC Act. The new legislation includes the regulating of building products including enforcement powers. The QBCC Act now sets out a duty of responsibility for designers, manufacturers, importers, suppliers and installers of building products (a person in the chain of responsibility). It further allows for the Minister to issue recall orders for non-conforming building products.

Linking these various powers across local governments, QFES and QBCC is essential if a successful response to ACP cladding in Queensland is to be effectively addressed.



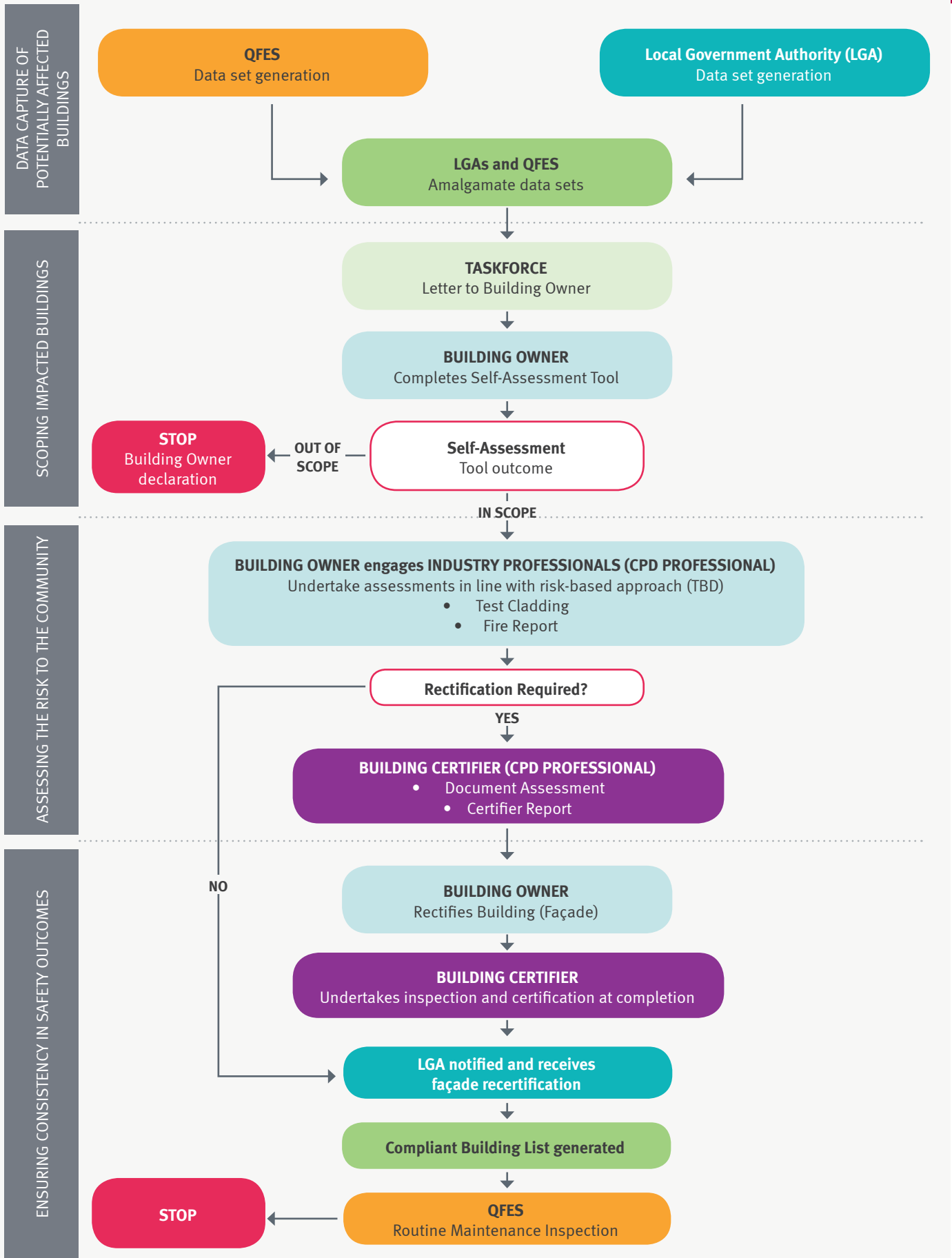
Further, the Queensland Government announced on 22 September 2017 that it would ban the use of PE cladding material from government construction, even for uses that comply with the current NCC. To assist building owners and industry define the problem and work towards a collaborative solution, the Taskforce has developed a process to manage the task in four phases.

- 1 Data capture of potentially affected buildings
- 2 Scoping impacted buildings
- 3 Assessing the risk to the community
- 4 Ensuring consistency in safety outcomes.

The following process flow graphically represents the identification, assessment and remediation phases and will be used to assist asset owners chart their way forward.

NON-CONFORMING BUILDING PRODUCTS (NCBP) AUDIT TASKFORCE 1 NON-GOVERNMENT BUILDING PROCESS FLOW 1

PROPOSED PROCESS FLOW



Conclusion

This report clearly outlines the unique and complex problems which Queensland and the nation face.

The consistent rectification of state government buildings is progressing well and will continue to be managed by asset owning agencies. Likewise, private building owners and local governments should consider the fire safety of their buildings and seek information and professional advice about an appropriate response.

The Taskforce strongly recommends that building legislation be amended to clearly articulate a robust fire safety standard for combustible façades. This will most likely require consideration of, and potentially amendments to, the *Planning Act 2016*, the *Building Act 1975*, the *Professional Engineers Act 2006*, the *Queensland Building and Construction Commission Act 1991*, and relevant subordinate legislation.

The Taskforce recommends that the continuing professional development (CPD) course be completed by all fire engineers working on buildings other than Class 1 & 5 buildings (refer BCA) to provide a more informed assessment of these buildings façades combustible performance.

The recommendations in this report are key in reaching that solution.

Recommendations

Recommendation 1

That the Queensland Government take a strong regulatory role to ensure private building owners take necessary remediation actions to address the use of combustible cladding in existing buildings.

Recommendation 2

That the proposed Non-Government Building Process be implemented as the model for assessment of non-government (private) buildings.

Recommendation 3

That the Department of Housing and Public Works develop a central retention database to register key built asset information on Queensland Government buildings.

Recommendation 4

That the Taskforce lead the development of education and guidance material for building industry professionals, owners and management bodies.

Recommendation 5

That the Taskforce review options available for testing of composite cladding materials which can be used to assess the fire performance of such materials. It is further proposed that the Taskforce undertake product testing on commonly available external cladding products with subsequent development of a materials library which would allow a rapid assessment and product classification for samples taken from government buildings or provided by non-government building owners.

Recommendation 6

That the Taskforce will lead the development of continuing education programs targeting key practitioners within the supply chain (including building certifiers and fire engineers) which significantly improves the consistency and application of the Building Code compliance requirements.

The Taskforce will continue to work collaboratively with all key stakeholders to ensure that the risk to the health and safety of building occupants and the public has been mitigated.

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