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# Back to the Past – Future Challenges for Better, Safer, Building Design and Construction

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*The growth of modern cities has led to an increase in high-rise, high-density living, challenging building regulation throughout the world. The challenges have manifested in incidents such as the Lacrosse Apartments fire in Melbourne and the tragedy of the Grenfell Tower fire in the United Kingdom. This article looks at the evolution of the built environment in Melbourne, and considers the origins and appropriateness of the current system of building regulation in Australia. It proposes – in light of why, how and what is being built in Australia – that reform is needed to the very foundations of building regulation. What is considered is the implementation of a nationally consistent two-tiered "system-based" approach to building regulation; an approach that would mandate performance outcomes for "cookie cutter" construction, while permitting performance-based design and construction for certain classes of complex buildings that demonstrate innovation and which uphold safety approved by a nationally-based expert peer review body tasked with ensuring consistency, safety, and compliance nationally.*

## I. Introduction

The Australian dream of owning a white picket-fenced house is being replaced with the reality of high-rise, high-density living. That shift has been changing the landscape of many Australian cities since the late 1990s.

Technology has encouraged and permitted the design of "image-driven" buildings. Gone are the days of the dull rectangular, brown brick apartment block. Nowadays it is all about bigger, taller, denser, more colourful, more iconic design and construction. We welcome innovation, but at what cost?

Since the Lacrosse Apartments and Grenfell Tower fires, headlines about non-compliant cladding have at times dominated world media. Advanced economies like the United Kingdom and Australia are grappling with how to ensure that the design and construction of buildings is safe. It is staggering that in a first world economy like London, 71 people can lose their lives due to a fire on the fourth floor of a refurbished high-rise residential tower. This should never have happened in 2017. While these tragedies and, in the Lacrosse case, near tragedies, enliven recognition that change is necessary, one question remains unanswered – what change is needed?

This article recognises that a change is needed to the foundations of the legal landscape to reflect the modern world. The change needed is not one dimensional. There is no "one fix". What is needed is multifaceted change that propels us towards a more consistent, verifiable and more accountable approach to building compliance.

This much-needed change should have regard to two different, yet complementary disciplinary standpoints – one from a legal perspective, the other from the perspective of the history evolution of high-rise building construction (the built environment). Both perspectives support the conclusion that what is needed is a two-tiered "system-based" approach to building regulation implemented consistently across Australia by each State and Territory. A two-tiered "system-based" approach would encourage innovation that exceeds the minimum performance standards while requiring design and construction in accordance with performance rules where innovation is not the driver.

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A two-tiered "system-based" approach to building regulation should be accompanied by amendments to the National Construction Code (NCC) aimed at providing consistency, clarity and simplicity. Other changes currently being contemplated by industry groups, such as stricter accreditation and registration requirements and compulsory final compliance assessments, would achieve the desired outcome if set in the context of a two-tiered "system-based" approach. Such reform would allow the achievement of economic objectives while ensuring a level of "acceptable risk" by design and not by default.

This article will first set the context in which current building regulatory issues arise by way of background. This will be followed by an explanation of the way in which the built environment has changed and the current legal landscape has evolved. Finally, this article will establish the need for reform in order to bridge the past with the present and future by implementing a regulatory system that:

(a) mandates performance outcomes for "cookie cutter" design and construction;
(b) permits performance-based design and construction for certain classes of complex "super" design and construction in the name of innovation; and
(c) requires true peer review to ensure consistency, safety and compliance nationally.

## II. Background

One year after the Grenfell Tower fire in London, the tragic consequences of that incident continue to resonate worldwide[1] and underpin the cry for reform in the United Kingdom.[2] While authorities and participants involved in the tragedy are engaged in an ongoing public inquiry into the causes and dynamics of the incident,[3] preliminary evidence suggests that a combination of factors took place in the disaster, resulting in an integral breakdown of fire-safety strategies in the tower. There is evidence to suggest that the breakdown may have been contributed to by a lack of adherence to some of the most renowned and basic tactics of fire control in high-rise buildings.[4] Use of combustible cladding, ineffective compartmentalisation, absence of alternative means of egress, lack of fire-stops and poorly executed window details converged into a "perfect storm" scenario, which prevented firefighters from controlling a rapidly spreading blaze and averting the loss of life of 71 occupants.[5]

In the aftermath of the incident, British authorities commissioned the Hackitt report,[6] an independent review of building regulations concerning fire safety. The review gave particular focus to high-rise residential buildings. Drawing attention to administrative procedures, design and build contractual habits and technical shortcomings, the Hackitt report claims, as in the case of Grenfell Tower, that the current regulatory system in the United Kingdom has the potential to miss "fitness for purpose" and compromise public safety.[7] The Hackitt Report suggests that the United Kingdom should embark on a "radical overhaul to futureproof" its regulatory system of fire safety. Moreover, such need for reform is seen as a problem of "global concern".[8]

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[1] Such resonance is explored by Matthew Bell in his research paper "'How Is That Even Possible?' Raising Construction Regulation from Grenfell Tower" (2018) 35 *International Construction Law Review* 334.

[2] Dame Judith Hackitt, *Building a Safer Future – Independent Review of Building Regulations and Fire Safety: Interim Report*, Cm 9551 (Ministry of Housing Communities and Local Government, 2017) <https://www.gov.uk/government/news/interim-report-into-the-review-of-building-regulations-and-fire-safety>; Dame Judith Hackitt, *Building a Safer Future – Independent Review of Building Regulations and Fire Safety*: *Final Report*, Cm 9607 (Ministry of Housing Communities and Local Government, 2018) <https://www.gov.uk/government/publications/independent-review-of-building-regulations-and-fire-safety-final-report>.

[3] Grenfell Tower Inquiry (31 August 2018) <https://www.grenfelltowerinquiry.org.uk/>.

[4] Grenfell Tower Inquiry, n 3.

[5] BRE Global, *Grenfell Tower Fire Investigation – On-Site Investigation* (31 January 2018) <https://grenfellactiongroup.files.wordpress.com/2018/04/bre-draft-report-extract1.pdf>.

[6] Hackitt, n 2.

[7] Hackitt, n 2, *Interim Report*.

[8] Hackitt, n 2, *Final Report*.

Repercussions of the post-Grenfell Tower fire debate in the United Kingdom are strongly felt in Australia and resonate particularly in the State of Victoria. In November 2014, two years before the Grenfell Tower disaster, a near-miss tragedy took place at the Lacrosse Apartments, in Melbourne's Docklands. The Metropolitan Fire Brigade (MFB) concluded that the fire was accidentally caused by an unextinguished cigarette on the balcony.[9] The MFB also concluded that the combustible aluminium composite panels used as external cladding on the Lacrosse Apartments did not prevent the spread of the fire as required by the NCC.[10] The fire at the Lacrosse Apartments caused significant property damage and the evacuation of all residents in the building, albeit, thankfully, without loss of life.

An initial audit conducted by the Victorian Building Authority (VBA) immediately following the Lacrosse Apartments fire identified that at least another 170 high-rise buildings in Melbourne's metropolitan area were affected by a "non-compliant" use of combustible cladding (eg aluminium composite panels with flammable inner core material, such as polyethylene).[11] The VBA's External Wall Cladding Audit Report following its initial audit concluded that:

(a) levels of non-compliance identified through the audit were "too high";
(b) whether any one of the many external cladding materials available were "fit for purpose" was often not properly understood by architects, designers, engineers, building surveyors and builders;
(c) the requirements of the NCC for external walls, including the suitability of materials, are inconsistently applied and poorly understood; and
(d) no single category of practitioner involved in the design, approval or construction of a building is consistently responsible for the non-compliant use of cladding.[12]

It took the tragedy of the Grenfell Tower fire, however, to prompt a nation-wide response into the issue of combustible cladding in Australia. The political awareness raised by the event in London led to the establishment of several government-endorsed "taskforces" (such as those currently working in Victoria, New South Wales and Queensland) and more "audits" into "non-compliant" use of cladding materials began in Western Australia and South Australia. The VBA continues to conduct audits of buildings across the State, the latest extending to some 1,400 buildings.[13] The results of that audit are yet to be announced, but are likely to unveil widespread "non-compliant" use of combustible cladding.

The use of non-compliant cladding is increasingly being regarded in Australia as a tell-tale sign of systemic problems that are affecting the entire building industry, its regulatory system and the community of high-rise residents. The VBA's External Wall Cladding Audit Report's findings suggest far more widespread issues than merely problems in the global supply chain of building materials. Initial media reports got it wrong. This was not simply a case of cheap imported products. The findings point principally to a "poor culture of compliance" among the various practitioners across the construction industry and to a "failure of the regulatory system to deal with these issues".[14]

Several industry stakeholders are engaging in the regulatory debate in Australia. The Building Products Innovation Council (BPIC), an organisation that represents Australian building product manufacturers, submitted to the Building Ministers' Forum an action plan with the scope to initiate a radical reform of the Australian building regulatory system. A wide range of systemic "problems" were identified by BPIC and other stakeholders at a gathering held in Canberra in February 2018. The issues raised varied broadly. BPIC raises concerns about matters of knowledge management – such as "brain drain" among

[9] MFB, "MFB Investigation Report on the Lacrosse Docklands Fire" (News Release, 27 April 2015) <http://www.mfb.vic.gov.au>.

[10] MFB, n 9.

[11] Victorian Building Authority, *VBA External Wall Cladding Audit Report* (17 February 2016) 1 <http://www.vba.vic.gov.au/__data/assets/pdf_file/0016/39103/VBA-External-Wall-Cladding-Report.pdf>.

[12] Victorian Building Authority, n 11, 2.

[13] Victorian Building Authority, *Victorian Statewide Cladding Audit* (28 August 2018) <http://www.vba.vic.gov.au/cladding>.

[14] Ted Baillieu and John Thwaites, *Victorian Cladding Taskforce: Interim Report* (Victoria Government, Office of the Taskforce, November 2017) <https://www.planning.vic.gov.au/__data/assets/pdf_file/0016/90412/Victorian-Cladding-Taskforce-Interim-Report-November-2017.pdf>.

professionals, insufficient third-party reviews, lack of clarity and guidelines in the building code – to matters of regulatory administration – such as national "disharmony" due to political expediency, lack of clarity of roles and responsibilities, lack of transparency, ineffective auditing, poor verification procedures and uncertain conflict resolution. The BPIC's "National Discussion Paper" recognises these factors as obstacles to regaining confidence in building regulation.[15]

At the eye of the storm concerning regulatory reform in Australia, there is also the role and efficacy of the philosophy of the performance-based regulation that presently underpins the NCC. A recurring concern identified in grey literature[16] is an Australian failure to "oversee and enforce" the provisions of building regulations.[17] The concern is not new, given a system where verification regimes are reliant, in principle, on the duopoly of public and private building surveyors,[18] but are, in effect, heavily skewed towards a market dominance of private certifiers. In 2013, a study by the World Bank had already cautioned about the vulnerability of the Australian system of control of compliance. After carrying out a case study on the implementation of performance-based reform in the State of Victoria since its inception in the early 1990s, the study concluded with a call for greater "clarity regarding roles and responsibilities" of private certifiers, advocating for further reform with the scope of implementing robust "performance indicators and auditing procedures".[19]

## III. The Past Informs the Future

Against this background, the aim of this article is to feed into the present debate about regulatory reform in the Australian construction industry by identifying and understanding:

(a) the historical genesis of high-rise buildings, based on observations derived from the case of Melbourne (ie the built environment); and
(b) the historical development of the current building regulatory system in Australia.

An explanation of the dynamics of urban transformation over a long period of time can help to understand the broader socio-economic impacts that are at stake. The construction of tall buildings in Melbourne completed from the 1950s to date illustrates changes regarding the practitioners involved in the proposal, the design and construction of such structures, the technologies that bolstered the growth of that typology in urban city centres and the historical shift in their end use and rationale of real estate development.

This understanding needs to be supplemented by an analysis of what underpins our existing regulatory system so as to inform the basis for the apparent disconnect between modern-day building and the levels of non-compliance made evident through the use of combustible cladding. At present, we have a regulatory system that is focused on regulation of the type of construction that dominated the 1980s, namely residential homes and high-rise, commercial office buildings. Office buildings normally entail a development model that aims to provide rentability over a medium to long term, even in the most speculative cases. This development model tends to induce the production of a market-driven desire for spatial and built quality both from an architectural and real estate point of view. In contrast, at present, the prevailing model is high-rise and high-density development, often speculative residential apartments purchased "off-the-plan" for investment purposes. Unlike the case of office buildings, the market drivers in the present market are not necessarily linked with the production of quality or space. There is hardly any market-driven incentive for developers of tall apartment towers to provide long-term built quality as a condition of economic success for their projects.

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[15] Roger Hills, *Rebuilding Confidence: An Action Plan for Building Regulatory Reform* (Building Products Innovation Council, 2018) <https://www.bpic.asn.au/submenu1491260069/BRR-Summit-2018>.

[16] The term "grey literature" is a reference to research that is either unpublished or published in a non-commercial form.

[17] Hills, n 15.

[18] Brian J Meacham, *Performance-based Building Regulatory Systems: Principles and Experiences* (Inter-jurisdictional Regulatory Collaboration Committee, 2010) <http://ircc.info/Doc/A1163909.pdf>.

[19] World Bank, *Good Practices for Construction Regulation and Enforcement Reform: Guidelines for Reformers* (World Bank Investment Climate Department Report, No 77100, 2013) <http://documents.worldbank.org/curated/en/662881468170967367/Good-practices-for-construction-regulation-and-enforcement-reform-guidelines-for-reformers>.

Ultimately, the legal regulatory approach must respond to the current and future built environment – how and why buildings are constructed now in the year 2018 and into the future. We need a system that regulates the new concept of a home, the high-rise, high-density buildings, where new challenges are posed such as the design and construction allowing for the evacuation of hundreds of people and not just a family of four. By understanding the legal and built environment historical perspectives, it is possible to create the foundations for regulatory reform that achieves a renewed balance between competing notions of public safety[20] and economic interest that represents both the present and the future.

## IV. How Did We Get Here? From High-Rise Corporate Towers to Apartments

For the greater part, present concerns about systemic regulatory failures seem generated by incidents concerning multi-storey high-rise buildings, like the Lacrosse Apartments and Grenfell Tower fires. The importance given to these incidents does not mean that other building typologies are immune from these problems. The relevance of high-rise buildings is, however, critical. High-rise buildings give insight into how the building industry has reached this point of crisis. The building typology can be considered as an instrument to reveal the dynamics that may also affect other "high-risk" projects[21] and their associated methods of construction and procurement.

The historical evolution of tall buildings can help to identify the pattern of transformation that led to the present need for reform. The residential skyscraper is the emergent tall building typology and marks a fundamental shift in the way developers operate at large scale that occurred at the beginning of the new millennium. The evolution of tall buildings, as can be evinced from the case of Melbourne, demonstrates the progressive historic transformation of the structures of property development in Australia. Half a century ago, property development took from the post-war system controlled by large institutions (public and private) building iconic projects with long-term tenancies realised with master architects and builders. In the present market, "anyone" can be a developer of high-rise residential buildings. High-rise apartments can be sold off-the-plan, delivered with the design, novate and construct procurement methodology, and controlled by private building surveyors.[22]

High-rise buildings should be seen, at least in the historical interval beginning after World War II until now, as an international phenomenon of the built environment. In present times, they should be seen as a phenomenon of global character. Although not immune from local influences, the international nature of high-rise buildings generally affects the methods of finance of projects, the origin of developers and consultants and that of key subcontractors. Furthermore the regulatory framework of reference for best practice often transcends national boundaries.

For example, in Melbourne, modern tall buildings began to appear in the city after World War II assisted by a stream of knowledge transfer across the Pacific. North American design ideas and trends, new technologies (eg air conditioning) and building products (for instance plate glass) reached Australia in the 1950s and 1960s, irreversibly transforming the local building industry and the streetscapes of Australian capital cities. Such influence commonly went beyond technologies and involved people too. In several instances the design of some landmark Australian corporate tall buildings from the 1950s until the 1980s was commissioned to architects from overseas.[23]

These global interchanges in tall building design and construction continue but carry on in different ways than in the past. The international network of professional and technological activity of Australian

[20] Public safety being intended to minimise the risk to both life and damage to property.

[21] For example hospitals, nursing homes, prisons, hotels and places of public entertainment.

[22] For a broader context of this historical shift about property development and prevailing methods of procurement in Australia, which align with the specific case of high-rise buildings discussed under Part IV, see Jonathan Drane, "The State of Contemporary Property Development Structures and Systems in Australia" (Paper presented at the BPIC, Building Regulatory Reform Summit, Canberra, 21–22 February 2018) <http://www.jondrane.net/wp-content/uploads/2018/04/brrs-jondrane-2.pdf>.

[23] For a detailed survey of the historic American influences in Australian architecture after World War II, see, eg, Philip Goad, "Importing Expertise: Australian-US Architects and the Large-Scale, 1945–1990" (2016) 26 *Fabrications* 357.

high-rise construction has shifted its epicentre. While historically there was a bridge across the Pacific to North America, the most active channels of interchange of the present are within the Australasian region. The shift is not merely about geographical location. The change also involves different ways of commercial collaboration that bring foreign players in the developer arena and establishes supply chains that outsource essential subcontracting overseas. One of the most common examples of such commercial collaboration involves the ownership and development of high-rise buildings.[24]

Tall buildings can be distinguished from other building typologies, contextual relations in urban environments and technological applications. Historically, they have grown with technological changes that have, on the one hand, reduced financial risk for their owners and, on the other hand, ensured efficient methods of construction that did not compromise safety during building and operation.[25]

It can be observed that the key technological systems that are prevalent in contemporary high-rise construction are relatively well-established in historical terms. While there are several examples that are a testament to technological development in high-rise projects through trial and error, it can be argued that in present times a "plateau" of innovation progress has been reached. This is particularly evident for the most recent proliferation of tall buildings worldwide, which from the turn of the century spread beyond the traditional hubs of tall building activity (North America and Australia) into new regions (Middle-East, China, South-East Asia, Eastern Europe and Central and South America).

Recent tall building activity in Melbourne shows that large growth in numbers is not necessarily accompanied by strategic innovation in construction technology. To the contrary, the prevalent techniques used today in mainstream high-rise construction are at least two decades old. These techniques consist of "all-concrete" in-situ structures, which Australian builders mastered during the 1970s. By the early 1990s Australian builders had developed these techniques into state-of-the-art knowledge for use in high-rise applications that was at the forefront worldwide. A quick survey of tall buildings presently under construction in Melbourne's Central Business District (CBD) shows that, leaving aside some marginal differences of detail, the latest generation of skyscrapers in the city is built according to a consistent technological template form.

The present construction of high-rise buildings in Melbourne, despite being conceived in a flexible regulatory environment that encourages performance-based design, adheres to a template of development that changes very little from project to project. A "cookie cutter" approach to technological choice is common, multiplying the use of consolidated methods of high-rise construction. An entire skyline is being rebuilt in Melbourne with towers that revert to three key and well-known technologies: (1) structural cores built with "jump-form" self-climbing methods of concrete formwork (pioneered in Melbourne in the mid-1970s); (2) in-situ or precast blade walls or columns supporting post-tensioned "flat-slabs" (introduced in Australia from central Europe in the 1960s); (3) "unitised" aluminium-glass curtain walls (originating from the 1970s and that in Melbourne began to be used in office buildings of the early 1990s).[26]

This template approach to the construction of high-rise buildings promotes supply and increased confidence in such a building typology. The increase in supply, however, hides the lack of strategic technological innovation and masks the fact that high-rise building developments have remained largely

[24] A survey of tall residential buildings built, under construction or submitted for approval in Melbourne's CBD between 2008 and 2016 shows that a large share of projects is commissioned by developers from China, Malaysia and Singapore. See Giorgio Marfella, "The Future of Skyscrapers in Melbourne: From Hyper-Density to the Uplift Principle" in A Wood et al (eds), *Cities to Megacities: Shaping Dense Vertical Urbanism* (Council on Tall Buildings and Urban Habitat, Chicago, 2016) 382 <http://global.ctbuh.org/resources/papers/download/2899-the-future-of-skyscrapers-in-melbourne-from-hyper-density-to-the-uplift-principle.pdf>.

[25] This is particularly true of early modernist tall buildings of the post-war, as analysed for the case of ICI House in Melbourne. See Giorgio Marfella, "ICI House and the Birth of Discretionary Tall Building Control in Melbourne (1945–1965)" (2018) *Provenance*.

[26] Giorgio Marfella, "The Five Materials Elements of Austerica" in *Inside the Square Box: Skyscrapers and Techno-economic Developments in Melbourne CBD (1955–1995)* (PhD Thesis, University of Melbourne, 2017) 237–300.

unchanged since the mid-20th century.[27] Since the late 20th century, Australian tall buildings continue to be built, by and large, by relying upon the three technologies mentioned earlier.

The template approach to construction also camouflages the inherent risk differential between designing the picket-fenced home and a high-rise residential tower. The fire risk of the former differs significantly to the latter, yet the template approach masks the complexities of high-rise buildings and encourages a simplistic design outcome. One difference between now and the past, which is driving this template approach, is a progressive departure from high-rise buildings as a traditional form of capital investment (ie to build, hold and not sell them). Rather, there is a move towards the creation of infrastructure to support economic productivity (ie to build and sell them quickly, often before they are constructed, so as to realise the profit immediately).

While the stereotypical image of the post-World War II modern skyscraper was that of the long-term owner-built corporate headquarters, during the 20th century that vision progressively faded. By the end of the century, the dominant rationale of real estate development changed, favouring the creation of tall office buildings as a form of financial commodity. Shorter turn-around of change of ownership and a higher component of real estate speculation were more than often nourished by investments injected in cities by superannuation funds.

This transition in the models of development corresponds with the rise of new aesthetic trends in architecture. From the 1980s onwards, tall buildings also evolved stylistically and superseded the older modernist pragmatic and prismatic forms of the post-war period. The rise of image-driven buildings that started in the post-modern years continues today. The post-modern trend is amplified in the present by the availability of digital design techniques that allow architects to focus their skills on facades, drawing and selling more complex forms than in the past to their clients. These changes in the architecture of tall buildings are not a superficial swing of taste. They are a functional adaptation to short-term and quick-profit models of development, where image-driven differentiation fits with real estate market demands. Image-driven architecture pays more benefits in the short-term than adherence to long-lasting canons of investment via austere functionality and building quality.

Development in Melbourne demonstrates that, over time, the original impetus for the development of high-rise buildings (ie the desire of corporations to occupy prestigious owner-built premises) has progressively been abandoned. Between 1955 and 1965, more than 80% of the net lettable area of tall commercial buildings produced in Melbourne's CBD was in owner-built projects (with insurance companies taking the largest share). Only a modest 15% of tall building activity in this period could be attributed to purely speculative building projects. During the period between 1966 and 1980, the component of pure speculative projects rose to almost half of the new tall building area supplied in the city. Between 1981 and 1995 the market had reversed the conditions of the 1955–1965 period, with 90% of the area supplied by tall buildings being developed not by corporations for owner-built purposes, but instead by speculative developers or superannuation funds.[28]

By the turn of the century, the main purpose for producing high-rise buildings was to create a commodity to be bought and sold, rather than developing infrastructure to be owned long-term. In recent times, this change in the structure of property development has met with the surge of planning policies that promote mixed-use and urban density. Global population growth coupled with the challenge of sustainability has, whether for right or wrong, encouraged urban transformations to allow increased levels of density in existing conurbations and, as a result, an increase in the number of tall buildings in many city centres.

The growth in density, which in some cases – some even in Australia – takes the form of "hyper-dense" city blocks, runs in parallel with the overhaul and re-zoning of the modernist idea of the CBD. The CBD of the 21st century is one where the function of "business" alone – as advocated since the

[27] Giorgio Marfella et al, "Form and Performance: Tall Concrete Structures and Apartment Quality in Melbourne's Residential Towers" in M Lamb (ed), *AUBEA 2017* (Australasian Universities Building Education Association Conference, Melbourne, 2017) Vol 1, 219–226.

[28] Giorgio Marfella, "The Post-Miesian Tower and the Global Issue of Its Interpretation" (2018) 7 *International Journal of High-Rise Building* 138.

post-modern times – does not suffice to meet contemporary expectations of urban design quality and plurality of lifestyle among citizens. Operations of new mixed-use developments, the juxtaposition of residential building towers alongside office towers, and quite often the substitution of older, less dense and unappealing modernist office blocks with slender apartment towers are flourishing worldwide.

The multi-storey apartment tower, in the way generally realised in Australian cities, is a phenomenon of the built environment where development cultures of super-profits and quick turn-around can prosper. There are three conditions that support the proliferation of such a model of development: (1) the availability of reliable and consolidated methods of construction in a particular building market; (2) a context of urban policy that encourages image-driven redevelopment and increased densification; and (3) the existence – or at least the perception of the presence – of a market that is not interested in housing as a long-term "nesting" but rather as an opportunity for financial investment.

Such conditions are the ideal environment for the entry of new actors in the developer market, where the bar for entrepreneurial activity can be set quite low. Such a model of development is in stark contrast with the historical tradition of high-rise construction, where in many countries like Australia and the United States during the 20th century, tall buildings were mostly financed, conceived and commissioned as office buildings by – or at least with the involvement as anchor tenants – of large corporate entities.

The evolution of high-rise living is not merely a historical trend. It is a predictor of the future reality. In a recent paper published by the Property Council of Australia, renowned urbanist Greg Clarke[29] concluded that each of Australia's major cities was failing by continuing to pursue low-density affordable living. He cautioned that the picket-fenced quarter acre block was not the solution to future living. The key message was that cities like Melbourne and Sydney needed to densify and look more like New York.[30]

If the case of contemporary high-rise developments in Australia presents a demonstration of the drift towards "high-risk" models of intervention in the built environment, it begs the question whether the present regulatory environment is well-suited for the escalation of these trends. While many questions concerning the regulatory framework of the NCC are emerging, it is important to clarify what is the current state of the national legal landscape from which the present building code and its related standards are derived.

## V. The Current Legal Approach to Building Compliance

Since the early 1990s, the approach to building compliance and regulation in Australia can be best described as inconsistent and permissive. Australia has a patchwork of building systems. Each State and Territory does things differently, often using different terminology and promoting a "leave them alone" and "let them do" attitude towards compliance. This approach is encouraged by a national building code intended to promote consistency with an acceptable minimum standard and an acceptable level of risk yet permitted a high degree of flexibility through performance-based solutions.

In the last two years, some highly prescriptive and interventionist changes have been introduced (eg the recent cladding ban in New South Wales and the chain of responsibility legislation introduced in Queensland).[31] However, not only have these changes been adopted selectively, reaffirming the inconsistent patchwork approach between the States and Territories, to date they have only purported to impact the fire safety of external facades.

At the core of this patchwork approach is the omission from the Australian *Constitution* of any matters regarding the safety, health and amenity of people in buildings. Standard convention therefore dictates that responsibility for building compliance and regulation remains with the States and Territories.[32] This

[29] Greg Clarke and Tim Moonen, *Creating Great Australian Cities: Paper Two: Benchmarking Australian Cities* (Property Council of Australia, May 2018) <https://advocacy.propertycouncil.com.au/great-cities-advocacy-priorities>.

[30] Ebony Bowden, "A New Australian Dream: Why Melbourne and Sydney Need to Be More Like New York", *Domain* (13 August 2018) <https://www.domain.com.au/news/a-new-australian-dream-why-melbourne-and-sydney-need-to-be-more-like-new-york-20180813-h13vsg-757904/?utm_campaign=strap-masthead&utm_source=the-age&utm_medium=link&utm_content=pos4&ref=pos1>.

[31] *Building Products (Safety) Act 2017* (NSW); *Environmental Protection (Chain of Responsibility) Amendment Act 2016* (Qld).

[32] Australian Building Codes Board, *BCA History* <https://www.abcb.gov.au/ncc-online/About/BCA-History>.

has resulted in eight separate Acts of Parliament and eight distinct building regulatory systems across Australia. This of itself poses a challenge for any national builder, architect or engineering business, despite there being one building code that provides for some similarity in technical standards and some uniformity.

The cause of the inconsistency does not end there. Often States and Territories pass on or share their regulatory powers with municipal councils. Such is the case in Victoria.[33]

Ironically, this patchwork approach was not the intended outcome. The approach was fuelled by the failed attempt to implement a national approach to regulation, the fragmented approach each jurisdiction took and the misalignment of the timing of the adoption of a national building code with the regulatory reform that each State and Territory embarked upon in the 1990s. With the benefit of hindsight, a building regulatory system should be formulated having regard to the approach to building compliance. In fact, at the time of building regulatory reform in the late 1980s, what was envisaged was largely the regulation of the construction of the picket-fenced home, therefore, the intended approach to the building compliance model was not a performance-based code. The introduction of a performance-based code added yet another layer of inconsistency and flexibility. This disconnect between the approach to building regulation and building compliance is further challenged by changes in the built environment, technological change and globalisation of the business of building.

Looking back, in the early 1990s, the intent was to harmonise the States and Territories through the introduction of the proposed "National Model Building Act" in 1991. The Victorian Auditor-General's Office 2011 report into *Compliance with Building Permits* explains that the National Model was intended to initiate legislative development to facilitate best practice and uniform building regulation in the States and Territories.[34]

At a national level, the fundamental assumption was that a reduction in building regulation would reduce costs for the entire construction industry.[35] This was intended to be achieved through:

(a) the development of a single national market to encourage interstate competition;
(b) provide greater consistency in interpretation;
(c) provide uniformity of qualifications and best practice; and
(d) enable innovative designs in regulation.[36]

The foundation of the "National Model Building Act" was "deregulation with safeguards".[37] The Model allowed for the introduction of a privatised regime for building approvals. However, it was intended to be coupled with a stringent compliance regime to effectively "police" the private certifiers and ensure they discharged their statutory obligations to the community.[38] To this end, it provided that all key building practitioners such as builders, engineers, building surveyors, architects and building inspectors would be registered by a centralised government body and would be required to hold insurance.[39]

There is no doubt that during this period, Australia recognised the need for public safety and health of occupants and users of buildings.[40] However, the focus of the "National Model Building Act", and

[33] *Building Act 1993* (Vic) ss 197, 212, 241(3), 242.

[34] Victorian Auditor-General, *Compliance with Building Permits*, Parliamentary Paper No 91 (2010–2011) 2 <https://www.audit.vic.gov.au/sites/default/files/20111207-Building-Permits.pdf>.

[35] Judita A Mieldazys, *The International Development of Performance-based Building Codes and Their Impacts on the Australia Construction Industry in Offshore Trade* (MASc Thesis, RMIT University, 2004) 45 <https://researchbank.rmit.edu.au/eserv/rmit:6747/Mieldazys.pdf>.

[36] Mieldazys, n 35.

[37] Kim Lovegrove, *The Model Building Act in Australia – The Regulatory Template That Overhauled Liability Regimes Not Limited to Joint and Several Liability in the Early 1990s* (10 May 2018) <http://lclawyers.com.au/model-building-act-regulatory-template-re-shaped-modern-day-building-control/>.

[38] Lovegrove, n 37.

[39] Lovegrove, n 37.

[40] Mieldazys, n 35, 44, 45.

consequently the legislative reform that it encouraged in each State and Territory was focused on achieving economic efficiencies and reducing the cost for the entire construction industry in Australia.[41] This focus becomes stark when, for example, one looks to the statutory basis for the issuing of an occupancy permit in Victoria. The *Building Act 1993* (Vic) (Victorian Building Act) merely requires a building surveyor to not issue an occupancy permit unless the building surveyor is satisfied that a building is "suitable to occupy". No mention is made of the words "safe" or "compliant". The Victorian Building Act also expressly provides that an occupancy permit does not evidence compliance with the Act itself or the regulations, which include the NCC.[42] This is not unexpected given the Victorian Government at the time commissioned an inquiry by the Regulation Review Unit in 1990 because of concerns that over-regulation was increasing the costs to industry and consumers.[43] This concern saw the shift in Victoria to a system of both private and municipal building surveyors to deregulate and promote efficiencies in the time it took to issue building certification and occupation.

The "National Model Building Act" did not become a uniform national Act of Parliament. All, however, was not lost. That movement is responsible for some of the most significant regulatory features adopted in some, but not all, States and Territories, namely:[44]

(a) private certification of building approvals;
(b) compulsory registration and insurance of building practitioners;
(c) expedited building approval dispute resolution system;
(d) proportionate liability; and
(e) a 10-year liability limitation period with respect to defects.

The first jurisdiction to substantially adopt the "National Model Building Act" was the Northern Territory. Not only did the Northern Territory adopt the five key features set out above, it adopted a totally privatised system of building approval with no involvement of local government.[45]

The next State to act on the "National Model Building Act" was Victoria. In Victoria, the passage of the Victorian Building Act by the Kennett Government in 1993 was touted by the Minister responsible as "a new era in the Victorian construction industry" that was to "take the construction industry regulation into the 21st century".[46] The "National Model Building Act" was used as the basis for the review of the then existing *Building Control Act 1981* (Vic) and the eventual replacement of that Act by the current Victorian Building Act.

However, Victoria's approach was more flexible than the "National Model Building Act". Instead of wholly privatising its system of building approval, Victoria opened up the building permit system to allow building permit approvals by both private building surveyors and council building surveyors, at the building owner and/or developer's discretion. Compulsory registration and insurance for builders and certain other categories of building practitioners were required so as to improve consumer protection. Building permit levies were introduced and various statutory bodies with specific functions to administer the intentions of the Act were established. There are currently five statutory bodies under the Victorian Building Act – the VBA, the Building Appeals Board, the Building Advisory Council, the Building Regulations Advisory Committee and the Plumbing Advisory Council.

Today, Victoria's building control system is made up of the Victorian Building Act; regulations[47] which incorporate and give effect to the NCC as a regulation (and not just a code or standard of conduct)[48]

[41] Mieldazys, n 35, 44, 45.

[42] *Building Act 1993* (Vic) ss 44(a), 46(1), (2).

[43] Mieldazys, n 35, 44, 45.

[44] Lovegrove, n 37.

[45] Lovegrove, n 37.

[46] Victoria, *Parliamentary Debates*, Legislative Assembly, 11 November 1993, 1694 (Mr Maclellan).

[47] The current regulations are the *Building Regulations 2018* (Vic).

[48] *Building Regulations 2018* (Vic) reg 10, formerly *Interim Building Regulations 2017* (Vic) and *Building Regulations 2016* (Vic) s 109.

and other related legislation such as the *Domestic Building Contracts Act 1995* (Vic) and the *Local Government Act 1989* (Vic). The former Building Commission described Victoria's building control system as including:

> [T]he registration and regulation of building practitioners, ensuring compliance with construction standards, building maintenance, building product standards and the protection of health and safety of building users, and maintaining oversight of the building and occupancy permit system".[49]

In contrast, uptake of the "National Model Building Act" in New South Wales was much slower and more limited. For example, the building industry in New South Wales is regulated by a number of different bodies rather than one overarching authority. Building regulation and certification provisions are contained within a number of Acts including the *Environmental Planning and Assessment Act 1979* (NSW) (*EP&A Act*) and the *Home Building Act 1989* (NSW).

The landscape in New South Wales looks quite different to Victoria. Development Approvals issued by local councils permit various types of building development in New South Wales. Once a Development Approval is given, a principal certifying authority must be appointed, being either an independent entity or the local council, who oversee the construction phase, complete mandatory inspections and issue the occupancy certificate. Through construction, various different types of certifiers issue development certificates to confirm they are satisfied the development meets legislative requirements, inspecting building work at different stages.

NSW Fair Trading licenses builders to carry out residential building work, and also licenses various tradespersons who carry out electrical work, roof plumbing work, refrigeration work and air conditioning work in connection with residential, commercial or industrial construction. The Building Professionals Board accredits building surveyors, engineers, land surveyors and hydraulics services consultants to issue a range of certificates under the *EP&A Act* and carry out periodic inspections of building work. Other government boards register architects and land surveyors.

Other practitioners such as building designers, many engineers, disability access consultants, fire protection services consultants and a range of sub-trades are not accredited or licensed by the government, but are self-regulated by industry. Notably, builders working in the New South Wales commercial sector are not currently required to be licensed.[50]

Returning to the key features of the "National Model Building Act", while Australia did not implement a national approach, many jurisdictions, including Victoria and New South Wales, embraced a privatised building approval process. However, the "safeguard" regime did not evolve. No State or Territory introduced mandatory or regular auditing of private building surveyors or building practitioners. Instead, most regimes rely upon consumer complaints to instigate investigations and disciplinary action against registered building practitioners. In Victoria, for example, following the Lacrosse Apartments fire, the VBA launched an external wall cladding audit, the first of its kind in Australia and the first time an Australian regulator employed their investigative powers on such a large scale.[51]

The lack of evolvement of the "safeguard" regime was exacerbated by the introduction in the mid-1990s of a performance-based building code.[52] The introduction of the Building Code of Australia (BCA) (which is now incorporated into the NCC) in 1988, and was progressively adopted by the States and Territories, was to give rise to a truly national building code. In April 1994, the Intergovernmental Agreement was signed establishing the Australian Building Codes Board (ABCB), whose first task was to convert the BCA into a fully performance-based document. The first performance-based BCA was adopted by the Commonwealth and all the States and Territories by early 1998.[53]

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[49] Building Commission, *Annual Report 2011–12* (VBC, 2013) 7.

[50] Building Professionals Board, *NSW Planning Review: Submission from the Building Professionals Board* (4 November 2011) 8.

[51] Victorian Building Authority, n 11, 2.

[52] Lovegrove, n 37.

[53] Australian Building Codes Board, n 32.

The performance-based BCA was adopted nationally and sought to drive consistency across Australia. However it empowered and encouraged bespoke and innovative approaches to building and also allowed for cost savings in building by:

(a) allowing designs to be tailored to particular buildings; and
(b) permitting the innovative use of alternative materials and methods of construction or design while still allowing existing building practices through Deemed-to-Satisfy provisions.[54]

Across the States and Territories, different approaches to regulation, building product standards and the unfettered discretion given to building practitioners to adopt, implement and approve performance-based building design solutions drove inconsistencies and freedoms. These were not contemplated by the "National Model Building Act" that laid the foundations for deregulation of building regulation in this country. In fact, at the time of the "National Model Building Act", it was not contemplated that there would be a performance-based building code.[55] The regulatory model that laid the foundations for building regulation in Australia was, by its construct, not inherently well equipped to manage the inconsistencies in interpretations, approaches and standards permitted and encouraged by the BCA.

Having said that, the Productivity Commission in its research report on the *Reform of Building Regulation* released on 1 December 2004 acknowledged that the ABCB had made progress in reducing regulatory differences across Australia through the BCA.[56] However, the Productivity Commission recognised that the reform work that had been commenced in the 1980s was far from complete and more work was needed. The Productivity Commission concluded that the future agenda for building regulatory reform should include further reducing variations across jurisdictions, better articulation of performance-based requirements and reducing the erosion of a national approach caused by local governments and examining the BCA's approach to fire safety.[57] Interestingly, these recommendations continue to be needed today and we remain no closer to an intergovernmental agreement that nationalises building regulatory reform.

Despite the additional powers that have been given to regulators in some States since the Lacrosse Apartments and Grenfell Tower fires, the question remains whether these additional powers are appropriate or effective to manage the discretion-based performance solution aspects of the BCA and the less prescriptive Deemed-to-Satisfy provisions. Even if they are effective, on a practical level many of the new powers introduced in Victoria place significant funding and resourcing pressures on the regulator and municipal councils to monitor construction sites. This is an onerous obligation considering that economic growth and an expanding population is resulting in unprecedented construction activity. In Victoria, in the year ending in the March quarter 2018, the value of work done in residential construction activity was $23.1 billion.[58] In addition, the onus is made more challenging as builders often have the contractual discretion to substitute products and construction methods, they may not build strictly in accordance with the building permit and the relevant building surveyor is not statutorily required to monitor compliance through construction or certify compliance when issuing an occupancy permit. The new powers are also too late for the high-rise and high-density building boom that has occurred since the 1980s which has seen a dramatic change in what is being built, who is building and why.[59]

Added to that legal landscape is the bout of new legislation being introduced in reaction to the combustible cladding issue. For example, the new *Building Products (Safety) Act 2017* (NSW) that came into effect in New South Wales on 18 December 2017[60] empowers the Commissioner for Fair Trading,

[54] Mieldazys, n 35, 47.

[55] Mieldazys, n 35, 47.

[56] Productivity Commission, *Reform of Building Regulation*, Research Report (17 November 2004) xx <https://www.pc.gov.au/inquiries/completed/building/report/building.pdf>.

[57] Productivity Commission, n 56, xx.

[58] Master Builders Association, *Victorian Building and Construction Industry Outlook* (24 April 2018) <https://www.mbav.com.au/news-information/economic-information/victorian-building-and-construction-industry-outlook?economyfinance>.

[59] As set out in Part IV of this article.

[60] Richard Crawford and Jeanette Barbaro, *Building Products Safety Laws Come into Effect in NSW* (27 November 2017) <https://www.minterellison.com/articles/nsw-building-products-safety-bill>.

Department of Finance, Services and Innovation to prohibit the use of a specified building product in a building if the Commissioner is satisfied on reasonable grounds that the use is "unsafe". No other State or Territory has introduced similar legislation banning certain cladding products. The Commissioner recently exercised that power and announced a ban on external cladding with a core containing more than 30% Polyethylene or PE.[61] For buildings that already have external walls with such cladding, the question remains what do they replace the banned cladding with and who will pay that cost? Of equal concern is that the ban illustrates the failure of both the BCA and the deregulated building compliance system to safeguard the levels of safety and risk expected by the community as it is possible that these banned building products could have been used in a compliant manner and in accordance with the BCA.

## VI. What Changes Are Needed to the Legal Landscape – The Case for a Two-Tiered "System-based" Solution

What history has shown us is that:

(a) there are a growing number of complaints about the condition of newly constructed buildings;
(b) there is increasing evidence of the widespread use of non-compliant building materials and methods, particularly as regulators complete cladding audits across Australia;
(c) there are increasing reports of the use of non-compliant building products generally such as structural steel bolts, structural plywood products, copper pipe tubing, glass sheets, leaky building syndrome in New Zealand and the Infinity Cable recall which affected over 40,000 Australian homes;[62]
(d) the consequences of using non-compliant materials, for instance when fires do happen, are potentially horrific for life and property;
(e) the buildings being most affected are high-rise and/or high-density constructions often employing a "cookie cutter" approach to design and construction and using innovation to reduce costs rather than deliver on the standards set by the BCA;
(f) the demand for high-rise and/or high-density construction is fuelled by growing populations, lifestyle choices and the growth of the developer who does not intend to be an owner/occupier but rather an "off-the-plan" vendor with a short-term economic strategy;
(g) the existing system of regulation is founded on the "leave them alone" and "let them do" approach;
(h) there is a reactionary "scatter gun" approach to the problem solving of these issues; and
(i) there is a fragmented and inconsistent approach to building regulation across Australia.

In the wake of the Lacrosse Apartments and Grenfell Tower fires, these realisations point to it being the right time for regulatory reform in Australia. However, the convergence of intentions for change from several stakeholders will not suffice. What is needed is the support of political willingness and leadership to intervene and drive change in the same direction. It is also important to stress that, while there is a clear industrial consensus that reform is needed, there is less clarity and agreement about the kind of changes that are right for Australia.

Consequently, there is even less understanding of the impact that an overhaul of the present regulatory framework may have on a critical sector of the Australian economy namely the construction industry. The sense of urgency triggered by widespread problems, such as the cladding "epidemic" currently affecting strata communities living in high-rise buildings, may, paradoxically, induce legislators to intervene with the effect of introducing yet another patch in the already convoluted quilt work of lawmaking across States and Territories.

To recognise and manage (but not hinder) the impact of technology, innovation, changing lifestyles and population growth, the global market for design and construction, the speculative drift of home ownership and increased accessibility across Australia, a national approach to building compliance is needed in Australia. The legal approach necessarily must have at its core consistency – in what

[61] Notice under *Building Products (Safety) Act 2017* (NSW) s 9(1) <https://www.fairtrading.nsw.gov.au/__data/assets/pdf_file/0007/392821/Section-91-Notice-SIGNED.PDF>.

[62] Lee Wilson, *Australia's Reluctance toward a Performance-based Code* (24 July 2015) <https://sourceable.net/australias-reluctance-of-a-performance-based-construction-code/>.

constitutes compliance, in how compliance is measured and policed and how non-compliance is defined and penalised.

If the intent is that of finding changes with more enduring effects, then a sensible approach to follow would be that of returning to the past, or in other words, recovering the spirit of reform that led to the "National Model Building Act". However, it should this time be accompanied by a concurrent review of the NCC (including the BCA) and an understanding of how and why the construction of buildings in Australia has changed over the last 30 years.

Recovering the spirit of reform of the 1980s and early 1990s will require reinvigorating the two socio-economic motivations behind that period of reform. The first being the elimination of unnecessary red tape, which is an inevitable side effect of prescriptive regulations and the second the promotion of project-based innovation in design and construction technology. Concerns for the elimination of red tape and desires for evermore growing productivity are far from being overlooked in the Australian construction industry. But in the face of present phenomena and problems like those emerging in the multi-residential market, the industry has little room left for complacency about its capacity to innovate strategically.

A project of regulatory reform should be approached as a historical opportunity for the construction industry to rethink its present attitude towards innovation. A pressing issue to be faced is that of establishing whether innovation should continue to prioritise concerns on productivity at the level of organisations and their peers within a sub-sector, or if it should consider shifting priorities towards pathways of innovation where change can be channelled into long-lasting benefits for the industry at large as well as for the occupants of buildings.

Further, a reform of the legislative framework at the national level could hardly operate without a radical rethinking of the NCC. Arguably, with the benefit of hindsight, it is now apparent that some warnings that concerned the Australian system of regulation – the case of "leaky buildings" in New Zealand, and explicit concerns expressed by the World Bank about Victoria in 2013 – may have been overlooked.

It is also important to recognise that at the core of the NCC there is a contradiction. In reality, the NCC is a hybrid of two regulatory approaches that are diametrically opposed in principle: the "Deemed-to-Satisfy" provisions versus the "alternative solution" or "performance-based" approach. The former approach being prescriptive, the later permitting flexibility and creativity. Both approaches co-exist within the one code allowing the user to decide the approach they wish to take based on time and cost considerations. As a way forward towards futureproofing of the regulations, it would be worth considering some alternatives.

An informative study by JA Mieldazys into the development of performance-based building codes in a number of different countries found that, at an operational level and on a global scale, there are no international building codes or regulations that are used uniformly by the global building industry or by government regulators, although there was a suggestion that their development and use is forthcoming.[63] Mieldazys recognised that at the minimum level there are standard construction contracts to aid project management of buildings in various countries but their use was limited by the lack of uniform legal systems between countries. Australia cannot wait for a global approach. With a growing population and a significant shift in housing, a local focus is necessary. However, in the interest of consistency, the local focus must necessarily be national and not State-based.

Regulatory "systems" are not necessarily limited to the two opposites of prescriptions against performance outcomes. A third system worthy of consideration is that of "system-based" regulation, which may be applicable to certain classes of high-risk buildings, for example high-rise residential buildings. "System-based" regulatory frameworks are already in place in some industries where a component of high risk for the public is present, and yet where technological innovation is nonetheless recognised as necessary and for the public benefit, for example in aviation, food production or nuclear power.[64] In essence,

[63] Mieldazys, n 35.

[64] Concept and some examples of "system-based" regulations are explained in Peter J May, "Regulatory Regimes and Accountability" (2007) 1 *Regulation & Governance* 8.

the industry should seek a model of regulation that can work to harmoniously balance public interest theories, which argue that regulation should aim to improve social and economic welfare, and private interest theories, where private interest and economic efficiency are satisfied.[65]

The "system-based" approach could be used for example for some classes of buildings, but excluded from the construction of building typologies – such as one to seven storey residential buildings – that can be easily governed by prescriptive regulation, thereby requiring compliance with the Deemed-to-Satisfy provisions of the code. This would ensure that conventional domestic construction, and low-to-medium scale multi-residential buildings would be responded to in accordance with the rules set out in the codes. In effect, for such construction, public safety and consumer protection are the drivers rather than innovation and economic efficiencies, which will rebalance the focus that we have seen fuel development in the last 30 years. In contrast, for some high-risk categories of "super projects" – like high-rise residential and commercial towers, large hospitals and hotels – the developer would be facing the opportunity of using performance-based solutions for construction. However, in doing so, the requirement of innovation, true innovation, should be met subject to more stringent verification, proving that the methods and materials used for construction achieve a standard that is higher than the minimum standard set by the regulations.

The adoption of such a two-tier model would require a legislative landscape that is able to support it. At its simplest, unless tied to compliance with the Deemed-to-Satisfy rules, the adoption of "system-based" regulation would require the existence, and the enforcement, of a regime of safety and quality procedures and inspections that is superior to the norm and to be carried out by independent parties and according to a common standard of verification and control that is clearly regulated, and not left at the discretion of those who should check. There should be confirmation of compliance with set quality standards, and not merely "suitability" or "safety". Such systems of verification should not be misunderstood as guarantees of infallibility, since much weight for the success of these safeguards would still depend heavily on professional responsibility and competence. The system-based approach for the construction industry would be one that trusts, but nonetheless verifies.

At its most complex, the "system" that permits performance-based construction requires something more. This starts with ensuring sufficient skill levels, education institutions and adequate training facilities for each practitioner, compulsory registration for all disciplines (including trades responsible for undertaking the work, as often the builder is not on the tools) and ensuring that codes are written and can be understood by every level of the industry, including the trades that carry out the work.

In this regard, the recommendations for reform made in the recent report of Shergold and Weir, commissioned by the Building Ministers' Forum, would sit well within a two-tiered "system-based" model. The recommended reforms allow for better education and training, clear articulation of practitioners' roles, quality control and documentary repositories accessible by building owners and regulators, audit and compliance certification and controls over product importation and certification – ideally on a national, consistent, uniform basis.[66] Such changes would contemplate the two-tiered "system-based" model, working consistently with the culture and outcomes that the approach would encourage. Without the right regulatory system foundation, these and recommended legislative changes that are being introduced across Australia continue to be temporary patches applied to a systemic problem that has not been treated at its core.

In addition, each performance solution for a category of "super construction" ought to be first peer reviewed by a competent panel of industry experts appointed by the regulator to ensure that innovation that raises the minimum bar set by the NCC has in fact been achieved. The test ought to be innovation that ensures public safety and compliance, not merely speedy construction and the reduction of building costs. The peer review panel should be a professional body with dedicated, experienced and expert

[65] Mieldazys, n 35, 47.

[66] Peter Shergold and Bronwyn Weir, *Building Confidence: Improving the Effectiveness of Compliance and Enforcement Systems for the Building and Construction Industry across Australia* (Building Ministers' Forum, February 2018) <https://www.industry.gov.au/sites/g/files/net3906/f/July%202018/document/pdf/building_ministers_forum_expert_assessment_-_building_confidence.pdf>.

industry professionals appointed for a fixed term. Ideally, the peer review panel should be a national body available to anyone across Australia seeking confirmation that their design meets the requirements of the NCC. The peer review panel could also make certifiers available nationally to certify construction in accordance with the building regulations and the NCC. Alternatively, such a peer review panel could be located in each State and Territory, convening periodically to ensure consistency of approach and shared learnings at a national level. This pre-eminent peer review should also be available to owners at any stage of the construction process to provide confidence that any aspect of a building design or construction was compliant with the requirements of the building regulations and the NCC, and to provide certification of compliance.

The NCC, the instrument that sets the minimum standard required of construction in Australia, should be elevated in each of the other States and Territories to the status of a regulation, as it is in Victoria,[67] and not be merely a code to be contractually adopted by the parties. Such a change would reinforce the significance of the standards it sets, particularly within a two-tiered system. It also provides a clear statement of expectations of both consumers, industry and practitioners.

Further research into the fitness of "system-based" regulation in the Australian context, at least for some building typologies like tall buildings, where a need for higher safeguard is apparent, would surely not cause harm. As a minimum, the benefit of further knowledge in that direction would help in defining plausible alternatives with which the dichotomy between prescriptive and performance regulations could be bridged with better outcomes for the future.

## VII. Conclusion

The impact of technology; changing lifestyles; population growth; the global market for design, construction and building products; the speculative drift of home ownership; and increased accessibility have changed the context in which building is taking place and will continue to do so into the future. Those factors have changed who can build and how to build.

Those factors challenge how "acceptable risk" as it has been defined and measured in the past applies to the future. The Grenfell Tower and Lacrosse Apartments fires have established that our appetite for risk is no different than it was after the Great Fire of London in 1666 – we would like to hope that fires do not happen but if they do we do not want lives at risk. However, to attain an "acceptable level of risk" we need to have regard to the context in which buildings are being built today and their present and future purpose. The definition and measure of "acceptable risk" currently applicable to a weatherboard house, a school in a rural area or an inner suburb medium-rise apartment block can hardly be the same as those of highly bespoke, large and complex projects conceived and procured with international professional networks and supply chains.

Those factors are calling for us to redefine what is "acceptable risk" in light of the new world we live in. If we do not heed that call, we may find ourselves saying more often "how could that happen"?

One way forward for the Australian construction industry could be that of investigating the applicability of a two-tier approach to the regulation of building activity. Such two-tier approach would make clear distinctions and set different expectations between (1) low-risk, conventional typologies where Deemed-to-Satisfy conditions could be easily prescribed and applied and (2) large, high-risk, complex projects open to more flexibility and subject to a more advanced "system-based" regulation, but where conformance with performance-based procedures and higher than standard outcomes is verified.

The legal landscape needs to change. It needs to be consistent nationally. It needs to be focused on safety and compliance. It needs to be targeted at driving behaviours that measure and verify compliance through design and construction at the time of design and construction, and not after the fact through enforcement action that leaves building owners to pick up the pieces. It needs to allow for peer review by an independent group of experts tasked with ensuring safety and compliance is achieved during the design and construction process so that builders and consultants too can make decisions with certainty and without increasing risk.

[67] *Building Regulations 2018* (Vic) reg 10.