Beyond Minimum: Proposition for Building Surveyors to Exceed the Minimum Standards of the Construction Code

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Abstract

The Australian National Construction Code lays out the minimum necessary standards for buildings. As building regulations have grown more onerous, the cost of construction has also become more expensive. Building surveyors in Australia, mostly operating in private capacity, are thus thrust in the unenviable position of ensuring compliance to these ever-increasing minimum requirements. On the one hand, building surveyors have a statutory role of issuing building permits, conducting mandatory inspections and issuing occupancy permits. On the other, there is a perverse incentive to lower their standards in order to run a viable business. The emerging high-rise combustible cladding crisis in Australia and professional indemnity insurance crisis reveal that building surveyors have been assuming more risk than what insurers were prepared to underwrite. This made it evident that one could meet the minimum standards of the construction code yet fall foul of the building legislature of

being fit for purpose. This paper uncovers the changing expectation in the profession by reviewing the building-related legislature in Victoria, recent court rulings, conflicts between building surveyor and building authority, a new code of conduct, and the professional indemnity insurance crisis facing the profession. These seismic shifts reveal how the role of a building surveyor in the near future will have to be redefined in terms of exceeding minimum standards, which were afore assumed to be sufficient.

Introduction

This paper describes the practice of building surveying (also called building certification in some states) in Australia. It then investigates two case studies which are reshaping the profession of building surveying in a major way: combustible cladding and biotoxin illnesses. Each of these issues were of national importance and resulted in federal parliamentary inquiries into wide-spread and systemic failures. From these lessons we will find the premise and impetus to exceed minimum standards in the areas of fire safety and health of buildings. Although the legislature (Building Act and Building Regulations) are cited from that of the state of Victoria in this paper, it applies across all other states in Australia which have statutes of very similar wording.

A brief background to Building Surveying in Australia

Building surveyors in Australia have a statutory role “to issue building permits, conduct mandatory inspections of buildings and building work and issue occupancy permits or certificates of final inspection” (AIBS Victorian Chapter). There is a finality to a building surveyor’s determination of a

matter, because in the eyes of the law, the building surveyor is the one liable for ensuring the safety, health, amenity, accessibility and energy efficiency of a building.

In Australia, the National Construction Code (NCC) was first published in 1988, laying out the minimum necessary standards for buildings. Broadly speaking these standards initially covered safety, health and amenity. Subsequently, accessibility and energy efficiency were introduced as further objectives in the code.

In the early 1990s, private certification (together with proportionate liability, 10-year liability capping and compulsory insurance) was introduced across all states in Australia through the Model Building Act (Lovegrove, 2018). Before then, building permits and occupancy permits could only be obtained from the local government (i.e. council). Presently, the overwhelming majority of building surveyors operate in private capacity, with only a modest number servicing small developments from within a local council (Lovegrove, 2016).

Shortly after the Model Building Act was adopted, the NCC moved in the direction of a performance-based code, giving private building surveyors wide discretion to accept performance solutions in combination with, or in substitution of, prescriptive stipulations in the NCC.

Code compliance carries with it a cost implication. As building regulations have grown to become more onerous, the cost of construction has also become more expensive. The hike in construction costs outstrips inflation, resulting in many homeowners not having enough by claims to cover the cost of rebuilding even though inflation would have been indexed into the insurance policies (Jory, 2010).

To cite just a few examples, when mandatory energy efficiency was introduced in Australia 2003 (ABCB, 2016a) the cost of insulation and improved glazing was added in increments to buildings as requirements for increased energy efficiency under the Nationwide House Energy Rating System (NatHERS) was gradually ratcheted up. After a major bushfire event in the state of Victoria in 2009, bushfire attack level ratings introduced new construction techniques for ember prevention, non-combustible cladding and, for a house within a flame zone, very specialized roof details (AS3959, Standards Australia, 2018). In the context of bushfire building insurance, the Insurance Council of Australia highlighted that any change to building codes was likely to result in an increase to the cost of rebuilding, as well as insurance premiums, to reflect those higher standards (Caisley, 2020). When the Disability Discrimination Act was implemented, ramps, wider corridors and universal access toilets were mandatory. In this case, the cost of these features was arguably less significant compared to the loss of commercial yield from gross floor area forgone, especially for buildings in high value areas with tight sites. In the most recent update to the code, condensation provisions require vapor permeable membranes, drained cavities and ventilated roofs, adding an estimated $5,000 dollars to an average single-story house by a volume builder (ABCB, 2016b).

It is undisputed that increased legislative requirements drive an increase in construction cost. Although this produces a better-quality product, there are always construction industry associations who lobby hard against any increase to cost. Building surveyors are thus thrust into the unenviable position of ensuring what is perceived as costly compliance to these ever-increasing minimum requirements.

The crux of the problem is twofold: on one hand, private building surveyors are trapped by commercial imperatives to require nothing more than minimum standards, and on the other hand those standards have become increasingly ambiguous in a performance-based code.

Since the aim of certification is to endorse the satisfaction of minimum standards, no building surveyor can demand more than that and still stay commercially competitive. The minimum standard of the NCC, together with those set by state and local governments, is in commercial reality the maximum that a building surveyor can require of clients, be they architects, builders, developers or homeowners. For instance, if it is stipulated by the state that a building surveyor is to make a set number of inspections for a house — such as footing, framing and final — then no building surveying firm could make additional inspections with the expectation of billing the client for the extra work. A building surveying firm setting a higher standard than the mandated minimum increases the cost to clients and firm, rendering such a commercial proposition unviable in such a competitive market.

Building surveyors are not able to prevail over developers or builders with a high-risk appetite and a willingness to go into insolvency rather than fix defective buildings. In Australia, developers and builders are able to go into liquidation midway through a legal battle (Gladstone, 2019). The same parties may subsequently re-emerge as another entity, a maneuver called phoenixing: “a business tool where an operator may close one business with considerable debt only to reopen under another entity a short time later” (Dwyer, 2020). So prevalent is phoenixing in some states that in 2019, New South Wales created the new position of NSW Building Commissioner, who set as one of his first priorities “a target of reducing phoenixing by 30 per cent in the next two years” (McCarthy, 2020).

The compromised position of the building surveyor is further exacerbated when builders operate under design-and-construct contracts. Here, the builder strikes its own contracts with consultants and secondary contractors with the ability to make changes to materials to save cost (Bleby, 2019). Under this scheme building surveyors, being engaged by the builders, are contractually obligated to conform to the builder's timelines and deliverables. This could include having occupancy permits issued by a certain date and thus urging the building surveyor to minimize on rectifications.

There is a well-proven business adage: any business can offer three services, faster, cheaper and better, the client gets to pick any two, but only two. If they want it cheap and good, it will not be fast. If fast and good, then not cheap. If fast and cheap, then not good! Building professionals differentiate themselves by specialization. For instance, an architectural firm could charge more than its competitors because they specialize in a particular type of development, being able to deliver projects with more familiarity and less hiccups compared to the competition. A heritage consultant can understand the statement of significance more precisely than a generic designer. An engineer might be able to design with less materials and higher engineering efficiencies compared to other firms. Essentially, a professional is rewarded by being good at the job.

This brings about the dilemma: if a building surveyor is responsible for minimum standards, how can one differentiate one's service to be worth a premium? How can one charge a higher price by offering value-added service in a market that insists on bare minimum?

Given that compliance involves cost, from the client's standpoint the building surveyor's value turns into one of leniency — the more lenient a building surveyor, the more short-term savings are

generated for the client, and thus the better the building surveyor's worth. In other words, the assumption of risk by the building surveyor becomes the value proposition to the client: the more risk, the better the value for the client. This is not to say that building surveyors mindlessly assume risks. Quite the contrary, decisions are made by weighing out the likelihood of risks, the severity of risks, and the building surveyor's proportionate liability of the risks — essentially allowing compliance to be influenced by its risk management profile.

In the many possible instances where there is no straightforward solution, the building surveyor is faced with the need to modulate professional judgment with risk management, to determine within the grey areas of compliance what a realistic minimum standard can be tolerated in order to run a viable business. Far from raising the bar, building surveyors are under pressure, at times even under duress, to issue permits being fully cognizant that they are not in a position to ensure industry best practices, but instead what level of risk they are professionally prepared to undertake by getting as close to the minimum as permissible (Law, 2020).

Beyond Minimum Fire Safety

In November 2014, a single unattended cigarette resulted in a blaze at Lacrosse Tower, a 21-story apartment tower in Melbourne's premium district, the Docklands. The rapid spread of the fire was determined to be from the combustible polyethylene core in the aluminum composite panel used to clad the building. It was alleged by the building authority that the building surveyor "could not have been satisfied that the building work would comply with the Building Act and regulations when he issued the building permit … [and that he therefore] failed to carry out his work in a competent

manner and to a professional standard" (Dow, 2016). Four years later, the Victorian Civil and Administrative Tribunal (VCAT) delivered a verdict (VCAT, 2019) with the builder primarily responsible for most of the A$12.7 million damages, but entitled to reimbursement from the consultants it relied on to guide it. The liability was borne as follows: fire engineer 39%, building surveyor 35%, architects 25% (Hanmer, 2019).

Unsurprisingly, the building surveyor has been appealing the decision with Victoria's Supreme Court of Appeal on the basis that "Judge Ted Woodward erred in law by finding the panels did not comply with the Building Code of Australia as it stood at the time" (Bleby, 2019). Even if the relevant building surveyor for the Lacrosse Tower did not correctly understand the NCC, he would not be alone. To give a sense of how commonplace combustible claddings is, the Victoria government has set aside A$600 million to fix 500 of the riskiest building with combustible claddings (Oaten, 2019), with estimates that there are some 1000 affected buildings requiring cladding replacement (Hanmer, 2019). The main cost of replacement of cladding will fall on homeowners. Taylor (2019) in her incisive paper, "Trial by Cladding" explains the ludicrousness of the situation:

> "Surprisingly, the onus for rectifying non-compliant cladding in Victoria has ultimately been placed on apartment owners: not with the builders, developers, and other professionals who specified and used the materials; not with those who sold the apartments; not with the insurance agencies fond of advertising how awful it would be if a random problem were to happen to your house and 'won't you be glad you had insurance' when it does; nor the local and state government regulators who signed off on the buildings (or the private building surveyors who replaced council building inspectors as part of successive waves of building industry deregulation from the 1990s). Instead, the least culpable group – owners who bought

supposedly compliant apartments – have been the ones compelled to fix an urgent problem created by government and industry." (Taylor, 2019)

What has emerged from the Parliamentary Inquiry into Non-conforming Building Products looking into the combustible cladding crisis (Commonwealth of Australia, 2017) is that there has been ambiguity in the interpretation of "evidence of suitability" in the code which allowed large-scale acceptance of the use of polyethylene (PE) core in aluminum composite panels (ACPs). It needs to be highlighted here, particularly to international readers, that the code is neither a self-standing nor ultimate rule, but is incorporated by reference into the Building Regulations through the Building Act (VIC Building Act 1993, 9(1)) with individual states deciding on any modifications with its adoption, or overruling parts of the NCC by clarification or directive.

The confusion is thus exacerbated, for instance, by the Victoria government sending a building product safety alert encouraging that "significant caution must be given to the supply or use of ACP with a 30% PE core or greater", and that ACP "composed of lower amounts of PE or not, should be treated with significant caution when being supplied, marketed or used" (DELWP, 2018). Other than being a tautological cautionary note, the alert offers no guidance, states no prohibition and gives no basis for arriving at a decision. Introducing a criterion of 30% PE with no indication of suitability (or unsuitability) only leaves building surveyors befuddled.

At this juncture it may be necessary to briefly explain how NCC compliance is to be achieved. The NCC is a performance-based code, compliance with which is satisfied by (1) a performance solution, or (2) a Deemed-to-Satisfy solution, or (3) a combination of (1) and (2) (ABCB, 2019).

Since 1988, the NCC had clearly stipulated that the external walls of high-rise residential apartments were to be “non-combustible”: a defined term citing the Australian Standard, AS1530.1 “Methods for fire tests on building materials, components and structures. Part 1: Combustibility test for materials”. To pass the test, an aluminum composite panel would have to be separated into aluminum and core layers, which individually had to achieve AS1530.1. If any cladding had a combustible core, regardless of PE content, it would be impossible to meet compliance under “deemed-to-satisfy” (or DTS).

The alternative compliance pathway for cladding subsequently found to be combustible was a “performance solution” developed by a fire safety engineer (Cotton, 2019). It is through this loophole that countless buildings are now at risk. Through hindsight we can see how a performance-based construction code could only be properly introduced into the mix of privatized building surveying if there were safeguards specifically designed to manage conflicts of interest (Lovegrove, 2016).

This is not to say that meeting the deemed-to-satisfy parts of the NCC is in itself altogether sufficient or correct. Whilst adherence to deemed-to-satisfy prescriptions of the NCC may confer a degree of immunity to the building surveyor, the results could still prove to be unfit for purpose. The objectives of the NCC can, arguably, be met through a permissive interpretation of the evidence of suitability, however, the legislature makes clear what are the expectations of occupant and public safety. The Building Act (1993) serves the objective of protecting occupant safety and health, and the Building Regulations (2018) places a duty on the building surveyor to prohibit use of material that is found

unsuitable or unfit for purpose. In other words, the legislature requires that buildings be fit for the health and safety of its users.

Although it may not be immediately obvious, these are not the same as the intent of the NCC which "sets the minimum required level for the safety, health, amenity, accessibility and sustainability of certain buildings" (ABCB, 2019, NCC Volume One). It has now come to light that whilst the cladding selection could, conceivably, meet the evidence of suitability in the NCC, combustible cladding clearly failed the expectations of occupant and public safety under the Act and Regulations.

To illustrate the difference between code and legislation, we turn to the latest version of the NCC (2019) with the newly introduced section “Condensation management”. One of the requirements was that all buildings in climate zones 6, 7 and 8 are to have vapor permeable membranes (NCC 2019, Vol. One F6.2, and again in Vol. Two 3.8.7.2). Vapor permeable sarkings are permitted to be used where non-combustible building elements are required if they “do not exceed 1 mm in thickness and have a Flammability Index not greater than 5” (NCC 2019 Vol One C1.9(e)(vi)).

The flammability test (AS1530.2, 1993) is much less rigorous and only requires a flame source in unspecified room conditions, as opposed to a furnace setup in a fire-testing facility for the non-combustibility test (AS1530.1, 1994). Furthermore, the applicability of this test is questionable for vapor permeable membranes since the test is “unsuitable for materials which melt readily or shrink away from an igniting flame” (AS1530.2, 1.1).

Now, what are vapor permeable membranes made from? From the datasheets of the main Australian manufacturers, they are listed as polypropylene and polyethylene (Fletcher Insulation, 2020), or polyolefin (CSR Building Products Ltd, 2019). It should be noted that polyolefin is the chemical category which includes polymers such as polyethylene and polypropylene. Importantly, unless treated with chemical fire retardants, all polyolefins are combustible and burn with hot flames (Green, 1982).

To summarize by way of application, the NCC now requires that in places such as Melbourne (Climate zone 6) the walls must be wrapped with vapor permeable membranes — sarking that is exempt from the non-combustibility test, and adopting a flammability test method that is ill-suited to plastics — made from the same material found in the cores of combustible cladding that the Victorian government is spending A$600 million to replace. Simply put, should vapor permeable membranes be installed in walls that were intended to be non-combustible? In terms of NCC compliance, yes; in terms of public safety, no.

In a call for public comment to an amendment that preceded the latest 2019 version of the NCC, the peak engineering body in Australia, Engineers Australia, had already responded by raising their concerns with combustible sarking. In their submission, they commented:

> "Even sarking materials that comply with C1.10 can present an unacceptable risk. … As there are non-combustible sarking, this clause is unnecessary and simply addresses commercial interests rather than an engineering need. If a combustible sarking is to be used, it should be justified by a certificate of conformity or a performance solution rather than a redefinition of what is and is not

combustible. The NCC DTS should be a minimum requirement rather than an endorsement of inappropriate industry practice." (Engineers Australia, 2017)

The Professional Indemnity Insurance Crisis

Caught in the middle of the current storm of combustible cladding and impending storm of combustible sarking are the building surveyors with their statutory duties and compulsory professional indemnity insurance. Building surveyors could well be left to defend themselves on why they followed the NCC and signed off on buildings wrapped in sarking material as much a fire risk as combustible cladding. The question would have then morphed from whether the NCC has been complied with, to how could building surveyors have permitted a building to be built and occupied when it was not fit for purpose, despite what was stipulated in the NCC.

Following from the Lacrosse ruling in Feb 2019, the four professional indemnity (PI) insurers concertedly hiked premiums and introduced exclusions to combustible cladding, forcing state regulators to allow building surveyors to have insurance that was less than comprehensive (Minear & Frost, 2019). In July 2019 the first building surveying firm to close its doors because of insurance was one that had been operating for 20 years in Tasmania (an island state where a total of 42 buildings have combustible cladding and only one has been identified as "increased risk"). The building surveyor, Mr Connors, reported that his renewal on PI insurance trippled in premiums, and excesses increased tenfold.

> Mr Connors said homeowners typically adopted a “scattergun” approach when making insurance claims: private certifiers get added to a list of who is legally liable, regardless of fault, when a builder refuses to fix a problem. “That’s nothing to do with us,” he said. “The building surveyor is there for just one little moment in the building process — to inspect the footing, the frame and the final (inspection). A total of one hour. But when a builder decides he’s not going to do anything, lawyers for the homeowner say ‘We’re going to throw everybody into the mix because we’ve got proportionate liability’ — the building surveyor, engineer and designer are normally the ones with professional indemnity insurance.” Mr Connors says his previous insurer settled last year’s claims for small amounts ranging from $8000 to $20,000, but the new $50,000 excess for each individual claim elevated the risk to unmanageable levels. (Norington, 2019)

By May 2020 building surveyors were paying PI insurance premiums close to ten times what they did just two years ago (Lawson, 2020), together with huge excesses and broadened exclusions (Insurance News Pty Ltd, 2019). A poll taken within 6 months of the PI insurance premium hike indicated 11% of building surveyors have ceased providing statutory building surveying services over the past 12 months due to problems with PI insurance, with an additional 9% reducing their scope of services due to PI insurance cost (Heaton, 2019).

Australian Institute of Building Surveyors chief executive Brett Mace said, "If something goes wrong, everyone goes looking around for who they can get money out of and building surveyors are there holding insurance so they're an easy target." (Lawson, 2020). Beyond combustible cladding, building surveyors have, in a sense, become de facto guarantors for builders. “A PBS [private building surveyor] is regularly joined to a claim for defective building works by owners. It comes as a surprise

to many a PBS that they could be held liable for some defects, when they see the legislative framework establishing their role as imposing important, yet narrow duties on them. They often see their role as quite a limited one, when contrasted with the main players in a building project. However, judgements have made it clear that the PBS is seen as having an important role as a "gatekeeper" in the building industry, to enforce minimum standards and practices (Donaldson, 2012).

It is now increasingly evident that these minimum standards in the NCC and practices hitherto accepted by consensus, have been too low as to be fit for purpose. In the context of the Lacrosse ruling, Weir, a prominent construction lawyer, explains:

> "The message for building surveyors is clear. Applying DTS [deemed-to-satisfy] is not a tick box or paper collection exercise. The courts will expect building surveyors to undertake a reasoned analysis of the proposed design having regard to the context of the BCA [Building Code of Australia, a part of the NCC] as a whole even where DTS solutions are used. The clear intention of the BCA is to provide for public safety and amenity. This is what the community expects. That is the lens through which the BCA must be interpreted at all times." (Weir Legal & Consulting, 2019)

There is a clarion call that building surveyors need to take a more conservative interpretation of the code, one where the building surveyor avoids the grey areas of ambiguity and takes an interpretation that will be indisputably for the public good. In this respect, the newly introduced Code of Conduct

for Building Surveyors in Victoria (Victorian Building Authority, 2020) shines another light on this issue. Near the opening section it states the principle of acting in the public interests includes "ensuring that when in doubt as to the possible interpretation of legislation, the NCC or standards, you prefer the interpretation that best serves the objectives of the legislation and the interests of the public, rather than your interests or that of an applicant or client." (1.1.2)

Beyond Minimum Health

Compared to other developed countries, Australia was a relative latecomer to energy efficiency, mandating it in houses only in 2003 (ABCB, 2016). The discovery that tightly sealed houses heated round the clock would lead to condensation followed in much the same trajectory of countries such as Canada, US, Germany and UK, albeit a few decades later. In 2019, the consideration for how condensation and mold would affect occupant health was finally included in the NCC. This being a new provision, buildings constructed prior to this could well have condensation issues for which the building industry could claim no wrongdoing. In other words, one could have a code-compliant building full of mold within a matter of months as it encountered its first winter (Law & Dewsbury, 2018).

The World Health Organization (WHO, 2009) in its extensive review of literature concluded that, "Sufficient epidemiological evidence is available from studies conducted in different countries and under different climatic conditions to show that the occupants of damp or moldy buildings, both houses and public buildings, are at increased risk of respiratory symptoms, respiratory infections and exacerbation of asthma." (p.93) This is one of the most cited health impacts of mold in damp

buildings and used in a number of position statements, such as that of the American Industrial Hygiene Association (American Industrial Hygiene Association, 2013).

The effects of molds on building occupants are varied. It could be 1. allergenic to some (like asthmatics); 2. invasively pathogenic to others (Kendrick, 2000); and 3. cause toxicosis through skin contact, inhalation or ingestion: of particular concern in cool climates, as toxin production usually increases at low temperatures (Wannemacher & Wiener, 1997). Most health practitioners will be familiar with the allergenic, pathogenic and toxicological effects of mold.

In contrast, it is the aspect of Chronic Inflammatory Response Syndrome (CIRS) that is not as well known, and not broadly medically recognized in Australia (McGowan, 2018). The federal parliamentary inquiry into Biotoxin Illness in Water-damaged Buildings (Commonwealth of Australia, 2018) has brought to public awareness this group of highly-sensitized individuals for whom the built environment has been and is failing. Due to a genetic susceptibility, some people suffer from CIRS where accumulated biotoxins (from mold, bacteria and actinomycetes) cannot get effectively excreted, causing an over-sensitized immune response that places individuals under chronic inflammation (Shoemaker, 2011).

Whichever the malady may be, any one would contravene the objectives of the Building Act by being "a danger to the life, safety or health of any member of the public or of any person using the building" (Victoria Building Act 1993, Section 103). Thus, the entire building stock could actually be deemed unfit for purpose if buildings so much as affected the health of even a small percentage of the population ("any member of the public") deleteriously.

The biotoxin inquiry further recommended the conduct of "further research into the adequacy of current building codes and standards related to the prevention and remediation of dampness and mold in buildings" — a tacit indication that the inquiry found the NCC to be inadequate at the time when it was conducted (2018), a year before the condensation provisions were first introduced into the NCC.

Amongst the many factors that could result in dampness, such as plumbing and cladding leaks, condensation is a particularly hairy problem. New Australian houses have no requirements for air tightness, and when measured, averaged a high infiltration rate of 15.5 ACH@50Pa nationally (Ambrose & Syme, 2017). Thus, when condensation happens in the interstitial spaces, the biotoxins can be circulated into the leaky houses, even though the bulk of mold remains invisible. Furthermore, since condensation is not a listed event under house insurance, there is no reference point, no prior state to which a house can be restored to. On top of that, all insurers list mold as an exclusion from home and contents policies. Homeowners and tenants have come to realize that when faced with a mold problem arising from condensation, they are largely without recourse.

Through referred cases from the Victorian Building Authority to the author, it has been found that building surveyors are already presently embroiled in disputes between owner, mold remediator, hygienist, microbiologist and physician over whether a house is fit for occupation. As seen in the issue with combustible cladding, the building surveyor will always be implicated by virtue of a

building surveyor being the certifier for fitness of purpose. Yet many will find themselves out of their depth to deal with matters of condensation and mold when such guidance is absent from the NCC. To cite a few examples, there are no guidelines, codes or standards in Australia around mold found on lumber stored improperly during construction, or of how interstitial condensation is to be mitigated by avoiding thermal bridging, or how vapor is to be managed in tightly sealed buildings. The NCC is silent on these matters, leaving building surveyors with not even a semblance of protection should an occupant litigate over an unhealthy building.

Conclusion

As building approvals have become more complex, the grey areas of ambiguity are increasingly commonplace. As a profession it is not sufficient for building surveyors to take a risk-management approach in accepting marginal code minimums, seeing that these may fall afoul of meeting the demands of the Regulation and Act of fitness for purpose.

Instead of competing to meet the barest requirements for the lowest fee, the proposition is that building surveyors should set the expectation to be that of fitness for purpose. In this paper, we have considered at least two areas — fire safety and healthy buildings — for which there is ample reason to exceed the NCC. Though this is a radical proposition, it is one way that can deal with the multiple crises facing building surveyors: PI insurance, combustible cladding, sick buildings, and scattergun-style litigation that always involved the building surveyor.

Despite these tumultuous times where building surveyors are leaving the practice in droves, there remains the opportunity and impetus, to refine, and possibly redefine, the art of building surveying to one of certifying the construction of quality buildings for the public good.

Data Availability Statement

No data, models, or code were generated or used during the study.

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