INQUIRY INTO REGULATION OF BUILDING STANDARDS, BUILDING QUALITY AND BUILDING DISPUTES

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<u>Comment on the NSW Department of Finance, Building Stronger Foundations</u> <u>discussion paper 24-07-2019 and;</u> <u>The Legislative Council, Inquiry into the regulation of building standards,</u> building quality and building disputes 28-07-2019

Before I answer some of the 30 questions posed in the discussion paper and the Terms of Reference, I want to say that they do not comprehensively approach the problem and the discussion is too polarised at placing the blame on existing Certifiers.

Certifiers assess written documentation and inspect after the 'fact' meaning their certification is a visual assessment of a completed process. They can't certify what can't be seen yet it appears the Government wants to hold them responsible for the poor work of others.

It is my opinion that a Certifier should be a degree qualified professional engineer and be <u>on</u> <u>site at all times</u> when any tradesperson, labourer is present or any other person who might be involved with any construction or any installation of any component in a building project.

If necessary, an engineer is able to revert their thought processes to first principles and assess the quality of a component or assess the forces applied to a component.

As an example, a Certifier can't assess the steel type, or steel separation clearances or their location in a concrete panel or strip footing after the concrete has been poured. If such items are a problem, they have been introduced by the labourer, trades person or builder at the time they were installed, not after the concrete has hardened. Similarly, where there has been a deliberate attempt to cover or hide non-compliances, there is no guarantee that a certifier will see them in a simple inspection.

As examples, not far from where I live numerous houses are being built and I will highlight three below:

House 1 has a part of its slab and roof built on the boundary. It should be 900mm minimum from the boundary. It's not an easy fix as it is a suspended slab and one large pier is supporting the slab but it too is to close the boundary. A certifier would possibly only see this weeks or months after it had hardened and other construction had taken place on top of the slab.



House 2 has numerous non-compliances. For example, the roof rafters on the lower level have been bricked into and through the outer brick veneer wall and then fastened to the inner timber wall frame. In addition, no flashing has been installed above the rafters which will allow rain water to penetrate below. The rafters are made from plantation pine which is softwood and will absorb any moisture in the bricks when it rains or on days of high humidity. Once the tiles are on the incorrect rafter installation most likely would not be visible to a Certifier. In addition, it is possible that the rafters would not fail until after any statutory warranty expires requiring the full cost of repair to be borne by the house owner.



The concrete footings in House 3 were poured unlike normal practice. The concrete was being poured at the same time a person was assembling the steel to go into the footings. It was not evident that any bar chairs were used to lift the steel above the soil at the bottom of the trench; it was not clear that the trenches were the correct depth; the concrete was not vibrated to compact it properly and remove any air voids (compaction requires a greater amount of concrete hence adding to the cost); and, to get a proper cement coverage of the steel from the top of the concrete to prevent long term corrosion (often called concrete cancer), the concreter began jumping on the steel to set it below the surface (which could also collapse the box section steel shape and also allow it to touch the soil in the bottom or side of the trench.





(No independent Certifier present, only labourers and a concrete boom pump operator)

Again, a Certifier would not know any of this because their inspection is at some time afterwards. This is why I recommend that an Engineer be on site at every time other persons are working on the construction.

Similarly, below is another example of trades persons not caring, even about themselves. Behind the dust cloud with stones flying in the photo below, is a person cutting concrete with a hand held petrol powered circular saw. He was not wearing any eye protection, hearing protection or breathing protection. How can anyone trust the quality of work received and this is why a qualified engineer must be on site at all times.



Such poor work practices are not learned during a person's technical college training studies. They are learned when they begin working on the job with poorly skilled persons and with those persons that don't understand or, don't care about the importance of what they are doing or, intentionally overlook faults. They all need to be supervised by an engineer. As an example, a bricklayer is trained at college to mix mortar in controlled batches say, with full buckets of the component parts, so to attain the correct performance mix but when on site they just use a shovel to load the mixer. Accurate and consistent mortar mixes can't be produced with shovel loading yet you see it used on every building site. The end result is the mortar is too hard or too soft.

Another item that has not been considered in the discussion paper but is of high importance regards the quality of the materials purchased and/or supplied. In my experience, everything is either damaged; outside of specification; doesn't fit; doesn't comply or, is poorly made.

When such items are delivered to site, a tradesperson or labourer might not recognise these problems and/or just can't afford the time to sort them out with a supplier which might take weeks or months plus cause a level of argument. They won't be paid for such delays and

might install the items because they have another job to attend to on another site. They want to get paid and can ignore such problems.

In regard to non-complying or poorly made items, I once managed a product type approval scheme and most of these suppliers are just well-meaning entrepreneurs who see an opportunity to import an item and make some money without understanding what compliance with standards means. Often their overseas supplier might provide test results but the importer entrepreneur lacks the educational or technical skills to detect that the test results are not relevant or don't even apply to goods they just imported.

Every item that is imported from Asia and China; and where compliance with standards is claimed, should be independently certified and any results from the home country ignored. Flammable cladding is an example.

In addition, the NSW Government should lobby the federal Government to review the Free-Trade agreements as they sometimes do not mandate compliance of imported goods but say the home country should <u>try</u> to comply with Australian required standards (the Australia-China free trade agreement is an example). Another example is often welding rods are marked with statements saying all the recognised approval certification standards have been applied for to the appropriate organisations but there is nothing to indicate approval has actually been granted. It is easy for a person to misunderstand what these misleading statements mean which could lead to subsequent welded steel beam failure.

The question of insurance has been raised to protect building purchasers and home owners. The average life of a house or building should be expected to be 100 years or more. In this time, large multi-story buildings might undergo substantial refurbishment being stripped down to the skeleton-like concrete superstructure. In reality, 100 years should be the run out time for insurance where negligent defects had been introduced at the beginning, but it is impractical to expect a person or company to do this hence my suggestion of a government controlled sinking fund or levy that would be managed in perpetuity. A levy of say, 1% of the body corporate fees could be paid into the sinking fund. It could possibly be greater for large or tall buildings where repairs could be more expensive. Note that poor quality major material faults and poor building technique might not become apparent for 10 or 20 or more years such as, ground movements or items subject to environmental degradation where it is claimed they are designed against such degradation.

In addition, there is no point lumbering certifiers and engineers with high cost insurance when current requirements only provide guarantees for six or seven years. Independent persons can't afford the insurance plus the six or seven year run-off period after a person ceases business is prohibitive as the money to pay those extra years has to be accumulated beforehand. This can have the effect of reducing the number of experienced qualified certifiers/engineers entering the business. As an example, if a highly experienced engineer of 55 years age decides to set up a certifying business but retire at 65 years of age, they have to make 17 years of insurance premiums in 10 years plus make the additional money

that covers the insurance premium increases over that time. This will have the effect of keeping the best people out of the certifying business.

Furthermore, federal legislation needs to be put in place to stop persons deregistering a company to avoid liability. Directors should be held liable throughout their entire life.

The next point of contention is around certifying to the Building Code of Australia (BCA). Discussion has been made that a Certifier/Engineer should provide a clear statement that what they inspected meets the BCA.

It is my opinion that no one can practically make such a statement and if they have, they don't understand what they are certifying to. The BCA describes basic building requirements but it also calls up Australian Standards which in turn might call up other Australian or international standards. If a Certifier/Engineer signs off on the BCA they are also signing off on these other Standards.

For instance, the BCA calls up AS3000, the electrical wiring rules which also refer to other standards say, the requirements for the resistivity or purity of the copper used in the wiring and, so on. Anyone who says what they inspected meets the BCA are signing off for this cascade of standards without realising it.

It therefore has to be made very clear exactly what a certification applies to. It also has to be very clear what liability they have where they rely on other person's or manufacturer's certifications. For instance, it is well documented where about seven years ago some imported electrical wiring was absent of titanium dioxide in the insulation which could lead to a long term break down of the insulation and cause a fire. A visual inspection would not identify this; only chemical analysis would. I think that it is unfair to hold a certifier/ engineer liable for deliberate attempts by others to mislead the purchaser.

Furthermore, as another example, I have come across a similar problem with a product where the manufacturer has made running changes to their design several years ago but has not documented it. I found the change by accident when inspecting a technical drawing sent in an email that was intended to show something else.

Another item worthy of discussion is what exactly is a certifier signing off for? Is it quality of work or compliance? In my experience of inspection I have come across many examples of poor quality and workmanship but they still would have complied with the standard. Is the certifier responsible for quality of work?

In regard to the questions posed on the discussion paper, the following is relevant:

1. What kinds of plans should be signed off and declared by a statutory declaration?

Any plan that requires calculations or design outside of an existing prescriptive standard or policy.

2. Could plans be statutorily declared at the CC/CDC stages? If not, why not?

No. The compliance/quality of all of the products/materials to be used are unknown at this stage.

3. To what extent should changes to plans be submitted to the regulator?

Any change to a structural or dimensional change to a building

4. Should a statutory declaration accompany all variations to plans or only major variations?

All variations

5. Are there any obstacles that would prevent a person from submitting a statutory declaration for variations? If so, what are those obstacles?

No. All variations should be documented as they might affect other areas of the construction.

6. What other options could be workable if there are variations to plans?

All variations should be lodged so as to overcome any internal pressure from a company to require staff to alter plans that might have known non-compliances in them.

7. How could the modifications process be made simpler and more robust?

A simple system could be on-line direct to the relevant authority and it checked by two government engineers using a guaranteed turn-around processing time.

8. How should plans be provided to, or accessed by, the Building Commissioner?

At least one set of hard copy as it is too easy to miss detail with on-line copies.

<u>9. What types of documents should 'building designers' provide to the Building Commissioner?</u>

Overall description and assessment procedure written in English. Copies of any test results.

<u>10. In what circumstances would it be difficult to document performance solutions and their</u> <u>compliance with the BCA?</u>

Where there is propriety in-confidence information involved. In this case a second certification should be supplied by a person internal to the company.

<u>11. Would a performance solution report be valuable as part of this process? If not, why not?</u>

A performance solution is no guarantee that what is installed is identical to that assessed.

<u>12. Are there any other methods of documenting performance solutions and their compliance that should be considered?</u>

Testing of components representative of that installed with a certification that what is installed is identical to that tested.

13. What would the process for declaring that a building complies with its plans look like?

(i) Itemised check that every component; its location; and installation, is identical to the design.

(ii) A registered Engineer should sign a compliance document that the construction will be exactly as submitted and it should be countersigned by the Board Directors if a company or the owner in other circumstances

14. What kind of role should builders play in declaring final building work?

That they will ensure all processes meet the plans. That all items that comprise the construction are as specified. That all persons on site are supervised by a registered Engineer.

<u>15. Which builders involved in building work should be responsible for signing off on buildings?</u>

All builders along with a registered Engineer.

16. Are there any circumstances which would make it difficult for builders to declare that buildings are constructed in accordance with their plans? If so, what are those circumstances?

(i) They have not been on site on every day throughout the building process.

(ii) They rely on unsupervised and/or unqualified sub-contractors.

(iii) If they are not in fact the builder nominated in the papers. They might illegally be using another person's licence. They might not have the English speaking skills or educational intelligence to understand what it is they are actually doing.

<u>17. Are existing licensing regimes appropriate to be accepted as registration for some builders and building designers, such as architects, for the new scheme?</u>

No

<u>18. What occupations or specific activities are involved in 'building design' and should be in</u> scope for the registration scheme?

Engineers and Architects. Builders should be under the control of a registered Engineer.

19. What should be the minimum requirements for a registration scheme?

A degree qualification from a recognised university including being a CPD member of Engineers Australia or RPEng of Professionals Australia or equivalent organisation with similar approval schemes. They should have a peer group review panel to assess complaints.

20. What form of insurance should be mandatory for 'building designers'? Why?

Nil. There should be a government controlled sinking fund as some design or construction faults might not became apparent for 10 or 20 or more years. A levy of say, 1% of the body corporate fees could be paid into the sinking fund. It could possibly be greater for large or tall buildings where repairs could be more expensive.

21. What kinds of minimum requirements should be prescribed for the insurance policy (for example, value, length of cover, etc.)?

The average life of a house or building should be expected to be 100 years or more. In reality this should be the run out time for insurance but it is impractical to expect a person or company to do this hence my suggestion of a sinking fund or levy.

Legislation needs to be put in place to stop persons deregistering a company to avoid liability. Directors should be held liable throughout their entire life.

22. What skills should be mandatory for 'building designers'?

Architecture or Engineering degree (but not necessarily explicit to a specific engineering discipline).

23. Should specific qualification(s) be required?

Yes

24. Should there be other pre-requisites for registration?

See answer to question 19.

25. What powers should be provided to the regulator to support and enforce compliance by registered 'building designers'?

Access to all building sites and authority to remove files, papers, test results etc. Introduce an offence to knowingly withhold information or destroy salient information, data etc.

26. Which categories of building practitioners should owe a duty of care?

Every person involved with the building so that they all become responsible or the part of the item they supplied. This includes labourers and trades persons.

27. What should be the scope of the duty of care? Should it apply to all or certain types of work? If so, which work?

See answer above

28. How will the duty of care operate across the contract chain?

Clear records to show which person worked on which part of the construction so that all aspects are traceable.

29. What types of consumers should be owed a duty of care?

All building owners and subsequent owners.

30. On what basis should a particular consumer be afforded the protection?

Where an item does not meet specification or agreed plans including non-compliance of any item provided as part of the construction, throughout the life of the building.