

IMPROVING THE ACT BUILDING REGULATORY SYSTEM

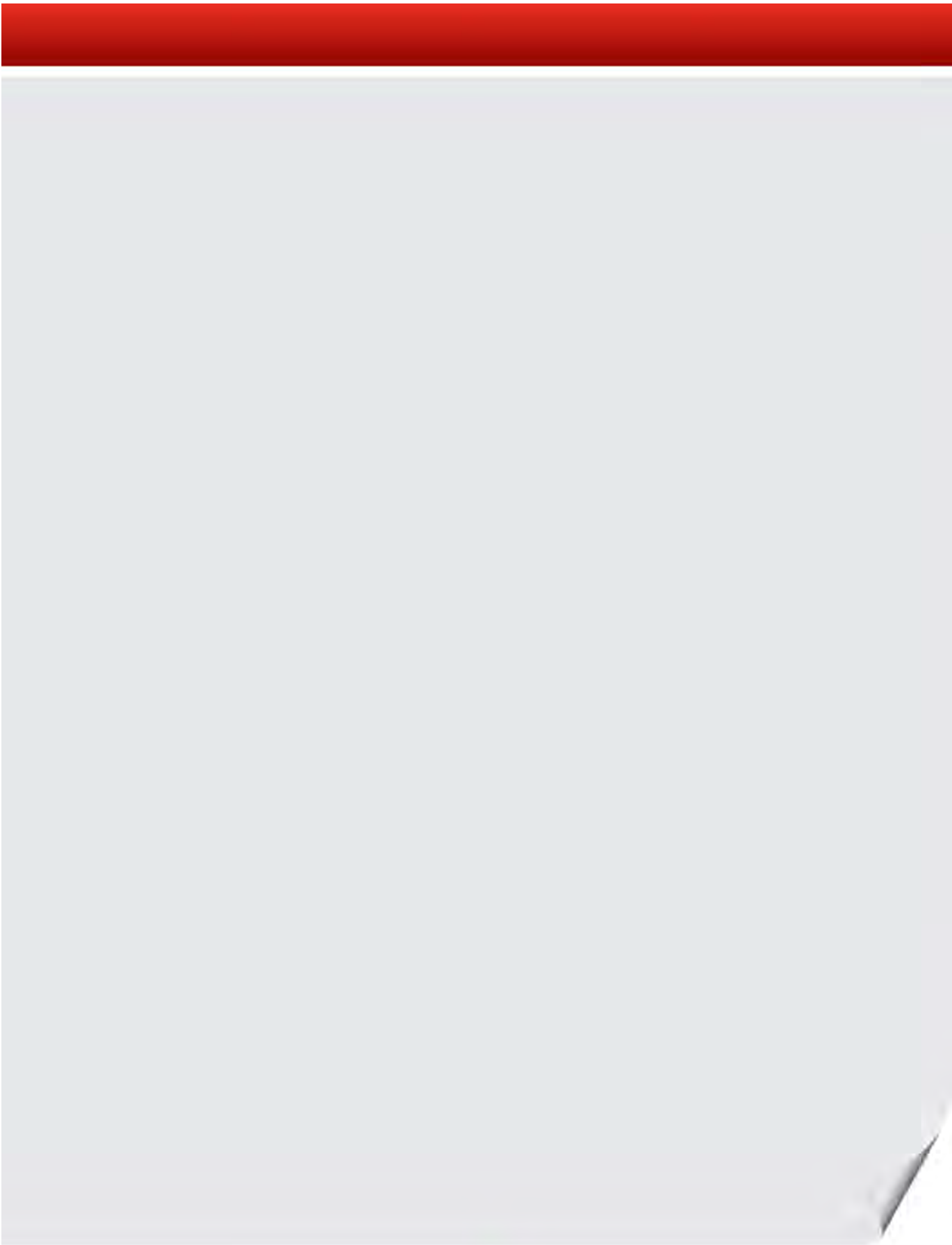
Response to the ACT Government Issues Paper

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1. Introduction

Engineers Australia is the peak body for the engineering profession in Australia. With over 105,000 members, Engineers Australia represents all branches of engineering, and we maintain representation in each State and Territory. Engineers Australia is incorporated by Royal Charter to advance the science and practice of engineering for the good of the community.

In November 2015, the ACT Government published an issues paper proposing improvements to the ACT building regulatory system. This submission provides the formal response to the paper from Engineers Australia. We also provide additional information that we consider to be critical to improving construction quality in the ACT, from the perspective of civil and structural engineers.

Engineers Australia's Canberra Civil/Structural Branch represents over 700 specialist civil and structural engineers working in various specialties with wide-ranging experience. Members of this Branch are highly experienced structural and civil engineering practitioners who frequently work at the coal face, confronting problems in the ACT building sector. They regularly required to write reports that are eventually sent to the ACT government outlining shortcomings in building projects. Some of our members are also asked to work with Bodies Corporate to assist them in rectifying the problems, so we are also acutely aware that repairs can often be one or two orders of magnitude more expensive than it would have been to construct the building correctly in the first instance. This experience has informed the views put forward in this submission.

The submission concludes with recommendations for action by the ACT Regulatory Reform Team. Engineers Australia would welcome the opportunity to meet with you to discuss this submission in greater detail.

2. Response to ACT Government Paper

Engineers Australia's ACT Civil/Structural Branch Committee has carefully considered the issues paper. The comments below seek to focus on the needs and long-term interests of final owners, customers and users of buildings in the ACT. We have not sought to address all points raised in the discussion paper; rather, we have focus on matters germane to our professional role as engineers.

The experience of our members generally supports the views expressed in the issues. We make the important distinction that most of the problems are in the multi-unit residential development sector, but can also occur in single dwellings and townhouses. In contrast, our experience is that commercial developments tend to have a much higher level of architectural, structural, hydraulic, mechanical, electrical and fire engineering documentation, and fewer problems, primarily because the developer will often continue to own the development once it is completed.

Put simply, many more building problems arise where the developer/builder is fundamentally focussed on selling the properties, and many of the most serious problems are only discovered long after the properties have been sold. More specific comments follow.

Design and Documentation

Engineers Australia supports the proposal in the paper to implement a design review process established to provide an independent review of proposed plans for apartment buildings before an application for building approval is made. We agree with the issues paper, this would "allow regulatory and building experts to highlight issues that need to be resolved".

Stage Inspection and On-site Supervision

Engineers Australia strongly supports the proposal in the paper to create the role of an independent designated inspector "*who is independent of the developer and builder or other interests in the project.*" The key role for this inspector is to "*reduce the likelihood of defects and minimise reliance on expensive post-construction rectification, litigation and penalty process.*" We believe this will greatly reduce the conflicts of interest that can arise when a developer also has an interest in a building company. In these circumstances the

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builder is effectively selecting the certifier, which we consider is **an indefensible conflict of interest**.

Furthermore, we believe that the designated inspector should not review critical structural elements of buildings that are outside the inspector's area of training, experience and expertise. Engineers Australia is strongly of the view that inspectors should be assisted by experienced and competent structural engineers in these circumstances.

Other major problems

As engineers most of the problems we see in the building industry are related to:

- Waterproofing.
- Passive fire rating.
- General structural design.

Each issue has important implications for design documentation and for on-site supervision.

Waterproofing

Inadequate waterproofing is an ongoing concern, and in our experience is caused by the following factors:

- a) There are often no architectural drawings beyond plans and elevations. Consequently no detailing has been carried out. Issues like set downs to balconies are often insufficient or non-existent, so proper repairs are also extremely difficult. Flashings are not detailed so the builder, or more often the subcontractor, is left to solve complex problems through whatever mechanism comes to mind, and with little reference to industry recommendations or Australian standards.
- b) Even when design details are provided, they are quite regularly not compliant with Australian Standards and are unfit for purpose. This is typically a problem with the design of gutters and downpipes which are not signed off by a hydraulic consultant.
- c) Some products used for balcony membranes are unsuitable, poorly applied or impossible to cure during a Canberra winter. The contract documents often contain no specification for seals or membranes, so the cheapest products are often used.
- d) Builder's supervision of subcontractors can be poor or non-existent.
- e) Some certifiers appear to take little interest in these important aspects of the work.

These deficiencies require improved documentation, design certification and supervision if the situation is to change.

Passive fire rating

Over the past 10 to 15 years a significant proportion of units and other building developments in the ACT have been constructed using very small (100mm or less) cement filled steel columns, and small (150mm or 200mm) steel beams, purporting to be suitably fire rated. However, in many instances we have seen no evidence to support the rating for a particular project.

This raises serious concerns about the level of risk posed to residents of units and aged care facilities, in the event a fire occurs.

Engineers Australia believes that an effective response to this problem requires:

- An effective registration process for engineers practising in this field.
- Effective performance monitoring of engineering practitioners.
- Requirement for provision of credible and documented evidence to support any "alternative solutions".

Structural Design and Inspections

In our experience structural design in the commercial sector has been relatively good, with commercial clients paying suitable fees for good documentation. In contrast, in the residential unit sector the fees are generally far less for similar sized projects, and this had

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led to a much lower level of documentation, and poorer outcomes. Some of the identified problems could have serious safety consequences, while others have been more related to serviceability issues, such as excessive deflections or failure to cater for masonry expansion.

For example, for M Class sites (with moderately reactive clays and silts) there have been a significant number of floor slabs which do not comply with the requirements of AS 2870 – Residential Slabs and Footings. This approach reduces the cost to the builder, but can lead to extensive cracking over the next 20 years. The costs of rectifying the cracking will then fall to the future owner of the property.

This problem can only be rectified through regulation of structural engineers so that developing companies know that they will be made accountable for their designs by the regulator.

Prior to private certification the government employed engineers to ensure that Australian Standards were adhered to and that the standard of engineering documentation was sufficient to describe the works to be constructed. Since then we have moved to a situation where every consultant knows that no one with any engineering expertise is likely to review their work. This situation has resulted in some designs that satisfy a market demand, but do not comply with Australian Standards.

To address this issue, we recommend that a system of peer review of structural designs be instigated, so that accountability is returned to the system. These reviews could be conducted on a sample basis that could, say, represent only 10% of a designer's work unless the designs are found to be problematic. In the latter case, more frequent reviews could be instigated (at the cost of the designer).

Engineers Australia is strongly of the view that inspections of structural items should be carried out by competent practicing structural engineers and not certifiers. We have anecdotal evidence that suggests that certifiers are beginning to operate outside their field of expertise by carrying out inspections that are largely ineffective, because they are unaware of ramification of critical elements of the inspection.

3 Additional Issues

Inadequate Record keeping and Record access

The current regulatory system for building work in the ACT does not provide for adequate record keeping by the private sector or the government sector, as set out below. Section 1 of the ACT Government paper touches on this subject, but we provide further background perspectives and suggestions below.

With respect to private sector record keeping (by designers and/or builders) our members have often found that the first line of defence for poorly or even dangerously constructed buildings is that the structural drawings have 'gone missing'. The second common claim is that the drawings cannot be released without the builder's permission. We note that it is never in the builder's interests to open the design up to scrutiny, so the permission is frequently withheld.

In a similar vein, we note that the builder is obliged by law to provide drawings to the body corporate. However, in our experience this does not always occur because there is no penalty for non-compliance.

With respect to government record keeping, our experience is that over the past decade or so there has been much less rigour. The drawings for a particular project (which have been lodged and accepted) often contain little detail, or may only be preliminary drawings which do not reflect the finally constructed works.

A significant consequence of this inadequate record keeping is that if there is a catastrophe, such as a building collapse, and structural engineers are asked to assist with the rescue operation, the relevant drawings will not be on the public record. This could put lives at risk.

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To address these record keeping shortcomings, Engineers Australia recommends that:

- Certificates of Occupancy should not be issued on a building until a representative of the unit responsible for achieving and storing the drawings (and the certifier) has signed a document to verify that the drawings issued to the department are all of the relevant 'work as executed' structural, architectural, mechanical, electrical, hydraulic, fire and landscape drawings.
- These drawings should be provided in PDF format, with the PDFs of sufficient resolution to ensure that all details are clearly legible. In the future it might be possible to adopt a proven BIM technology for such records.
- Certifiers who do not comply with the above regulation should be suitably disciplined to ensure compliance.
- Obligations on builders to provide accurate drawings to bodies corporate should be greatly strengthened, policed and penalties applied.

Regulation of Engineers in the ACT

In 2012 the ACT Government proposed the regulation of engineers practising in the ACT in a formal registration scheme. Engineers Australia understands the ACT government has intended that this change would be operational by 30 June 2014. However, this has not occurred. Engineers Australia urges implementation of registration of practicing engineers as soon as possible.

In the last 12 months Engineers Australia has launched a new National Engineers Register (NER) for registration of professional engineers. This arrangement is open to both members and non-members of Engineers Australia. We strongly urge the ACT government to adopt the NER process for engineers practising in the building sector in the ACT.

Re-birthing of engineering companies

In structural engineering it often takes a period of some 5 to 10 years before mistakes in design become apparent to the owners. This is because many phenomena such as creep, shrinkage, masonry expansion, soil moisture changes, active earth pressures etc. are time-dependent.

Corporate phoenixing has become a significant issue in the ACT with engineering companies sometime closing down, but a company with very similar name subsequently registered. Such companies often convey the impression to the public that they are a company with a long and proud history in the ACT and elsewhere. Engineers Australia regards this practice as detrimental to sound building practice to say nothing about the ethical issues involved. We believe that the ACT authorities should take steps to avoid these practices such as basic checks of a company's history and exclusion of offending entities from work on government projects.

4 Conclusion and Key Recommendations

- 4.1 Engineers Australia strongly urges the introduction of a compulsory registration scheme for engineers involved with building work in the ACT, as proposed by the ACT Government in 2012. We urge the government to proceed with the registration process in a timely and collaborative manner, and to consider using the Engineers Australia NER system.
 - 4.2 Engineers Australia supports the proposal in the issues paper to implement a design review process to establish an independent review of proposed plans for apartment buildings before an application for building approval is made. We believe this process has the potential to identify poor design and documentation prior to construction commencing. We strongly recommend the engagement of qualified and experienced structural engineers in this review process.
 - 4.3 Engineers Australia supports the proposal in the issues paper to create the role of an independent designated inspector who is independent of the developer and builder or other interests associated with a project. We believe that the designated inspector should not review critical structural elements of buildings that are outside the
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inspector's area of training, experience and expertise. Engineers Australia is strongly of the view that inspectors should be assisted by experienced and competent structural engineers in these circumstances.

- 4.4 Engineers Australia recommends that record keeping for building documentation be upgraded as described in Section 3 of this submission. Detailed and accurate plans should be lodged with the ACT government and lodgement should be verified by signature by the responsible officer. All documents should also be lodged with Bodies Corporate. Certificates of occupancy should be withheld until lodgement has occurred.
 - 4.5 Engineers Australia commends the other suggestions made in this submission to the ACT Regulatory Reform team for active consideration.
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