Article Information

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Reliance on AI and housing delivery; the perks and pitfalls

In August 2025, the Federal Government unveiled a sweeping initiative aimed at cutting red tape and accelerating housing approvals in response to Australia's deepening housing crisis.[1] Central to this reform is a proposed pause on further residential changes to the National Construction Code (NCC) until mid-2029, alongside efforts to streamline the code using artificial intelligence. The Government argues that builders are spending more time navigating paperwork than constructing homes, and that simplifying the NCC—currently over 2,000 pages—will speed up housing supply.

While the intent to accelerate housing delivery is commendable, there are serious issues associated with relying on AI in the context of construction. Firstly, pausing updates to the NCC could undermine construction quality and sustainability goals, especially as Australia transitions to net-zero emissions. Secondly, and importantly, there is insufficient detail regarding how AI could assist with interpreting and simplifying the NCC in light of the inherent complexity of performance-based compliance solutions and the foundational requirements of engineering design.

Compliance & the NCC

The assumption that AI can "simplify" the NCC overlooks the fact that the code is already structured for targeted use; its perceived complexity is not a flaw, rather, it is a reflection of the intricacy and variability of the built environment. The NCC is divided into three volumes, each tailored to specific building classes and disciplines. Engineers, architects, builders and certifiers only engage with the sections relevant to their scope of work; the 2,000 pages of the NCC is not a barrier to its useability but a reflection of the code's comprehensive and modular design.

Compliance with the NCC can be achieved through Deemed-to-Satisfy (DTS) provisions or Performance Solutions. The latter requires bespoke engineering analysis, site-specific data, and professional judgment.

Attempting to flatten that complexity of Performance Solutions through automation risks stripping away the very safeguards that ensure buildings are safe, durable, and fit for purpose.

AI Limitations in Engineering Design

Generative AI (AI) models are a type of machine learning technology that are able to develop solutions to problems based off an analysis of similar scenarios and examples. In the context of determining compliance against DTS provisions, AI will likely assist but it cannot replace the nuanced assessment and reasoning required for determining performance-based compliance under the NCC. AI can replicate existing designs and develop new designs via extrapolation but is it likely to struggle with reliable solution innovation, contextual interpretation, and ensuring the design is safe, stable, and fit for purpose because it does not have to apply the fundamental principles of engineering.

In the context of NCC compliance, this limitation is critical. Performance Solutions involve complex calculations, material science, and environmental considerations. AI lacks the ability to synthesize these variables meaningfully or to make judgment calls based on incomplete or ambiguous data.

The development of Performance Solutions are not tasks that can be reduced to pattern recognition, statistical inference or extending a design from seemingly similar scenarios. For example, when determining whether a voluntary fire safety

upgrade of an existing building would meet the intent of the Performance Solutions, a thorough assessment of the entire fire safety system of the building is required and includes modeling the existing system, identifying existing constraints such as ensuring no disruption or interruption to the building operation, impacts on or the effect of other existing infrastructure on the work, expert judgement, negotiating with stakeholders and the like.

These critical tasks cannot be replicated by AI because it lacks contextual awareness, accountability, the ability to assess ambiguity, and the ability to gauge whether an assumption is appropriate or whether an assumption could be fatal.

While it is clear that AI can learn, this learning is to some degree limited to extrapolating a result from other examples. With time, the repository of examples from which the learning stems will grow and the decisions or solutions produced by the AI model will become more tailored to the specifics of each scenario. Nevertheless, there does not appear to be a legitimate basis to rely on AI to simplify the useability of the NCC for Performance Solutions because there is no certainty that the scenario at play is properly represented within the AI product.

Moreover, it is not clear whether the useability of the NCC would materially improve given that Performance Solutions are regularly favored in preference to DTS arrangements (because Performance Solutions usually deliver quicker and more cost effective NCC compliance outcomes). The adoption of AI to improve the useability of the NCC is unlikely to speed up design and construction certification if the majority of the works rely on Performance Solutions. It is unlikely that the preference for Performance Solutions will dimmish with the ever increasing costs of materials and labour.

Where can AI make a difference to housing delivery?

The complexity and variability of most builds and the critical assessment required to establish compliance with Performance Solutions under the NCC requires the Federal Government to take a very *very* conservative approach to the implementation of AI lest perceived useability compromises construction integrity.

However, there are areas where AI is able to safely expedite housing delivery. The NSW Department of Planning, Housing and Infrastructure (**DPHI**), with the assistance of several Councils, have been trialing AI solutions with a view to speeding up the planning assessment process for over a year.

The AI uptake in development assessment has been driven by the overwhelming number of development applications in the system. The majority of development applications require detailed and in depth assessment against multi-layered regulatory requirements, in addition to, often requiring referrals to external approval authorities plus consideration of community consultation responses.

The *NSW Planning System Reforms Bill 2025* announced on 17 September 2025 cites an intention to make the planning system quicker and simpler to navigate and to deliver homes and jobs across the State; this intention, is in some part, enabled by the harnessing of AI technology for the development assessment stage.

In the context of development assessment, AI is able to assist applicants with pre-lodgment assessment thereby reducing delays associated with marshalling the correct application materials, and importantly, help Councils (and other consent authorities) with quickly identifying non-compliant elements of a proposal thereby reducing the time invested in the detailed assessment of the development application.

This process will afford development assessment officers more time to consider the problematic components of a proposal, which hopefully, will allow applicants greater opportunity to explore solutions.

If an AI tool failed to identify an element of non-compliance with a proposal, resulting in the approval of a design that breaches a development standard, there are many opportunities and mechanisms to address the issue. The worst case scenario would be the construction of an approved development that does not comply with the relevant controls and causes planning impacts; while very disappointing, such an outcome does not risk the consequence of an improperly designed engineering solution.

Conclusion

AI can be a helpful assistant, but it is not a substitute for professional engineering expertise. Streamlining processes must not come at the cost of weakening the technical rigor that underpins both the NCC and responsible engineering design and construction. The solution is not to outsource to AI the perceived complexity, but to manage it responsibly with qualified professionals at the core of the process.

The danger in over-relying on AI tools will likely produce results that appear authoritative but are technically flawed. This is particularly concerning in a regulatory environment where liability and public safety are paramount.

By contrast, development assessment and planning control interpretation lends itself to AI support and facilitation. There is certainly scope for AI to expedite the assessment and approval process of development applications without creating unnecessary risk.

As we embrace technology for efficiency, we must also respect its limitations and ensure that safety, quality, and professional judgment remain at the heart of our built environment.

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[1] https://minister.dcceew.gov.au/watt/media-releases/joint-media-release-action-red-tape-and-approvals-build-more-homes-more-quickly