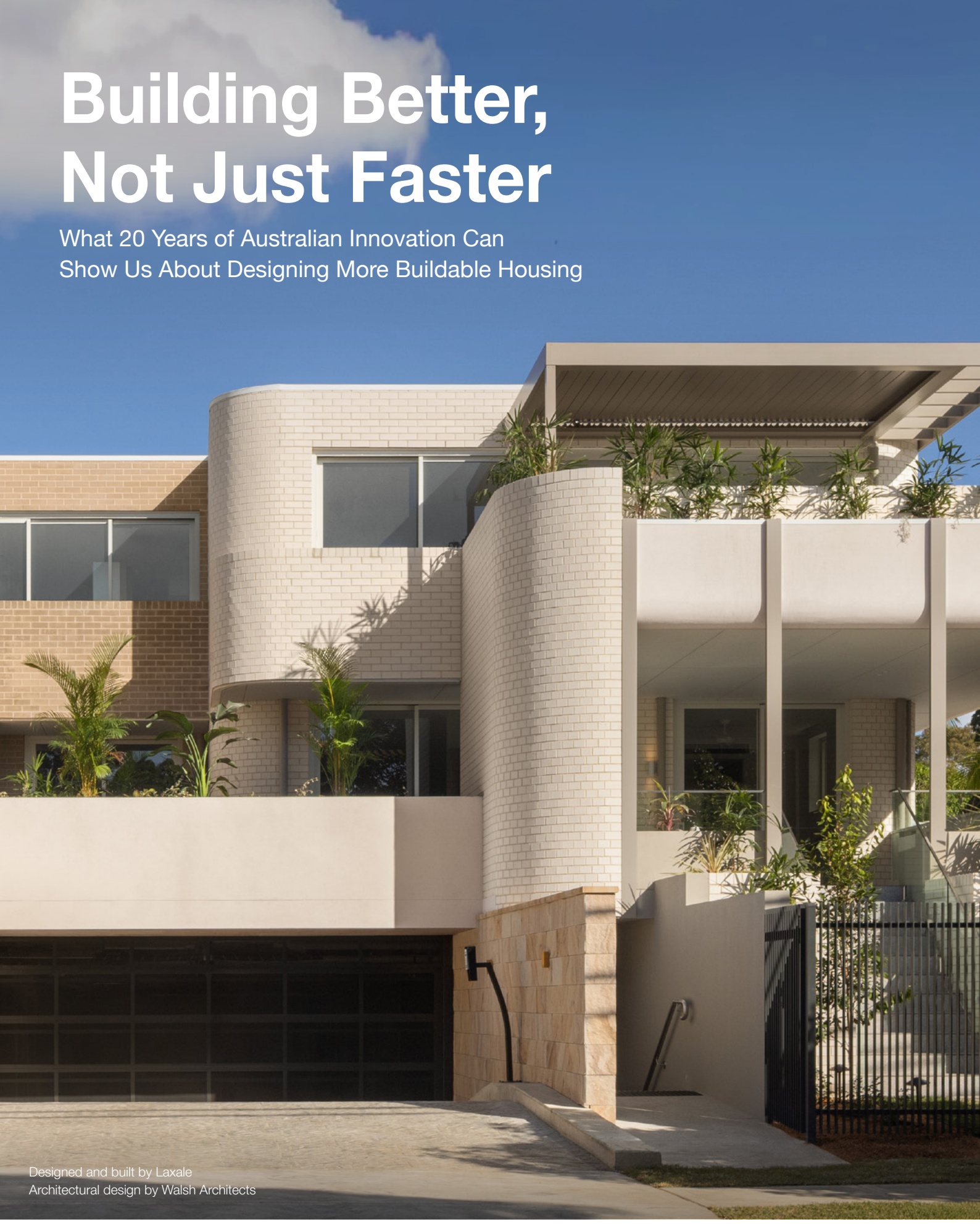
Building Better, Not Just Faster

What 20 Years of Australian Innovation Can Show Us About Designing More Buildable Housing



Designed and built by Laxale
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Introduction

Australia's housing shortfall is usually framed as a supply problem, measured in numbers and speed. For the architects and specifiers designing those homes, the more consequential question is how they are designed and built. The systems chosen at the design stage determine whether performance, compliance and design intent survive the pressure to deliver at pace.

Meeting the task will take more than building in the same ways, but faster. It calls for simpler construction, with fewer interfaces to coordinate and less reliance on scarce trade labour.

For 20 years, Dincel has developed its structural walling system around this approach. This paper uses Dincel as a working case study. It looks first at the gains of simplified walling across building types. It then turns to basements, where the gains are clearest.



Australia needs to design and build differently

Australia has to deliver significantly more housing at a moment when the industry's capacity to build it has stalled. While most sectors of the economy have grown more productive over recent decades, construction has barely moved. The Productivity Commission records that the average time to complete a single detached house reached about 10.4 months in 2023–24, up from roughly 6.4 months a decade earlier.[1]

There are several factors behind this. Skilled-labour shortages, rising material costs, increasingly stringent regulation, persistent defects and rework and increasingly fragmented project delivery are among the most significant. A delay in one trade or a fault in one building element propagates through the program. For the architect and specifier, this is the environment where every design solution and specification needs to survive.

Conventional concrete wall construction shows how these pressures play out. It depends on multiple trades, extensive formwork, heavy material handling and specialist workmanship. At each of these points, cost or quality can slip. The more steps and interfaces a system requires, the more places design intent can erode between concept and finished structure.

Challenging conventional wall construction

Burak Dincel, a structural engineer who had also worked as a builder and developer, set out to rethink how concrete walls are built. In 1989, he founded Dincel & Associates Consulting Engineers, a firm that worked across commercial and residential projects. This gave Dincel a clear view of the recurring failures of concrete walling: slow construction, concrete cancer, awkward on-site handling and questionable durability.

The question Dincel asked was not how to make conventional wall construction faster at the margins, but why it required so much coordination and resources: a range of trades that have to be organised in sequence, formwork that needed to be erected only to be stripped away and heavy handling and specialist labour.

After five years of research and development, the answer took shape as a permanent polymer formwork system. The system is made up of hollow PVC profiles that snap together on site, are reinforced and filled with concrete and stay in place as a durable, waterproof skin. Since its launch in 2006, this internationally patented, Australian-made product has been shaped by an ongoing commitment to development.

For architects and specifiers, the significance of this innovation lies less in the product than in the premise. The wall, its formwork and its waterproof skin could be resolved as one system rather than assembled from separate trades. That premise was never limited to one building element. It applies wherever concrete walls are needed, from party walls and lift cores to retaining walls and basements.

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Twenty years of development

Milestone	Industry problem	What Dincel was trying to change
2001–06 R&D, Dincel system launches	Traditional wall construction involved multiple trades, significant formwork, material handling, labour and construction time.	Build structural walls faster and more simply, while improving handling, durability and site productivity.
2016 275 Dincel and 155 Dincel profiles introduced	Projects were becoming larger and more structurally demanding, particularly basements, retaining walls, cores and multi-storey construction, where conventional heavy wall systems can become slow and costly.	Extend permanent formwork into heavier-duty structural applications. Dincel positions the 275 mm range for applications including basements, tanks and lift/stair shafts, with speed and cost advantages over conventional approaches. Dincel also launched a 155 mm range, primarily targeting intertenancy party walls and façade walls.
2021 Install crews and the Dincel Academy	The industry was increasingly grappling with skilled-labour constraints, inconsistent workmanship and greater scrutiny of construction quality.	Move beyond supplying a product to actively supporting its correct installation. Dincel explicitly links its training offer to productivity, workmanship, site safety and reducing shortcuts that compromise quality.
2022 Void Free Warranty	One of the inherent risks with concrete-filled wall systems is whether concrete has been properly placed and compacted inside the formwork.	Reduce latent-defect risk by pairing the system with a specified self-compacting concrete (SCC) method, training and site involvement, backed by a warranty against voids.
2023 Dincel Waterproof Warranty	Lack of full system warranties within the market leading to responsibility split across several parties.	Move from supplying wall formwork to a supply and install model for tanked basements, with one party responsible for the waterproofing outcome.
2024–26 Regional expansion	Faster construction solutions have limited value if product, training and technical support aren't accessible where construction is happening.	Introduce Architectural & Engineering Specification Managers to take the system, training and support model closer to projects nationally. This included direct "in-office" learning sessions and institutional and compliance presentations.

2026 and beyond

Australia now faces housing supply, productivity, labour and affordability pressures at once. In that context, Dincel's original aim of simpler, lower-risk construction matters more than it did in 2006. For architects and specifiers, the useful lessons begin with productivity.

Productivity across building types

Productivity is more than speed. For specifiers, the better measure is how many interfaces and dependencies a system removes, since each one removed reduces room for error. Dincel profiles act as formwork during construction and remain as the wall's waterproof skin, so nothing is stripped or removed from site. A 3-metre length of 200 mm profile weighs around 13 kg and needs no crane. That takes a piece of machinery and a set of temporary works out of the sequence. It also reduces reliance on specialist formwork labour.

As Dincel wall is a structural wall rather than just a basement product, these gains apply to facade walls, intertenancy party walls, blade walls and columns, cores, shafts, retaining walls and tanks, as well as basements. One system and one set of technical documentation can potentially cover several wall types on the same project.

Performance carries across these applications. The core of a Dincel wall is ordinary reinforced concrete, so its fire resistance period is calculated by the structural engineer in the same way as a conventionally formed concrete wall. Testing shows that the Dincel polymer shell does not reduce that resistance period. Based on testing for fire hazard properties, Dincel wall has no restrictions on its use and is also compliant for use in fire-isolated stairs.

Basements: where the gains are clearest

The benefits are easiest to measure below ground, where excavation, groundwater and heavy formwork often sit on the critical path. Independent quantity surveyor MBM compared conventional basement construction with Dincel across submerged and non-submerged scenarios and a range of ground conditions.[2] It reported savings for Dincel in every scenario evaluated:

- 18% against in-situ concrete in submerged sandy and clay conditions;
- 27% against in-situ and 16% against blockwork in non-submerged sandy conditions;
- 21% against in-situ and 12% against blockwork in stiff clay and soft shale;
- 19% against in-situ and 11% against blockwork in hard shale and sandstone;
- 18% against conventional reinforced concrete in the stiff-clay, concrete-pile scenario.
- These are whole-of-build figures. A system priced higher per unit can still cost less once the trades and temporary works it displaces are counted.

The next evolution: Dincel Waterproof Warranty

Basement waterproofing remains a major source of defects and costly rectification. In a conventional basement, responsibility is split between the wall system, membrane supplier, installer and builder. When a leak appears, establishing who is at fault can take longer than the repair.

Regulation is raising the stakes. Under NCC 2025, Part F1 now explicitly covers sub-surface water as well as surface water. Adoption dates vary by state. In NSW, basements that intercept groundwater also face state water regulation, and drained basements need a water management plan for the life of the building. Groundwater and waterproofing strategy are now design-stage decisions. With more of the risk regulated, it also matters more that one party answers for the outcome.

Dincel's response is the Dincel Waterproof Warranty. For a tanked basement supplied and installed by Dincel, product, installation method, concrete specification, training and site support sit with one party. That party is responsible for the outcome and any remedy. The warranty does not apply where Dincel is used only as a wall system.

Bring construction thinking into design earlier

You can only shift accountability to a single system if you choose that system before construction begins. You can only remove interfaces if you design them out. You can only cost the whole build accurately if you understand the trades, equipment and other dependencies involved. By the time work starts, most of these choices are already made because the design has locked them in.

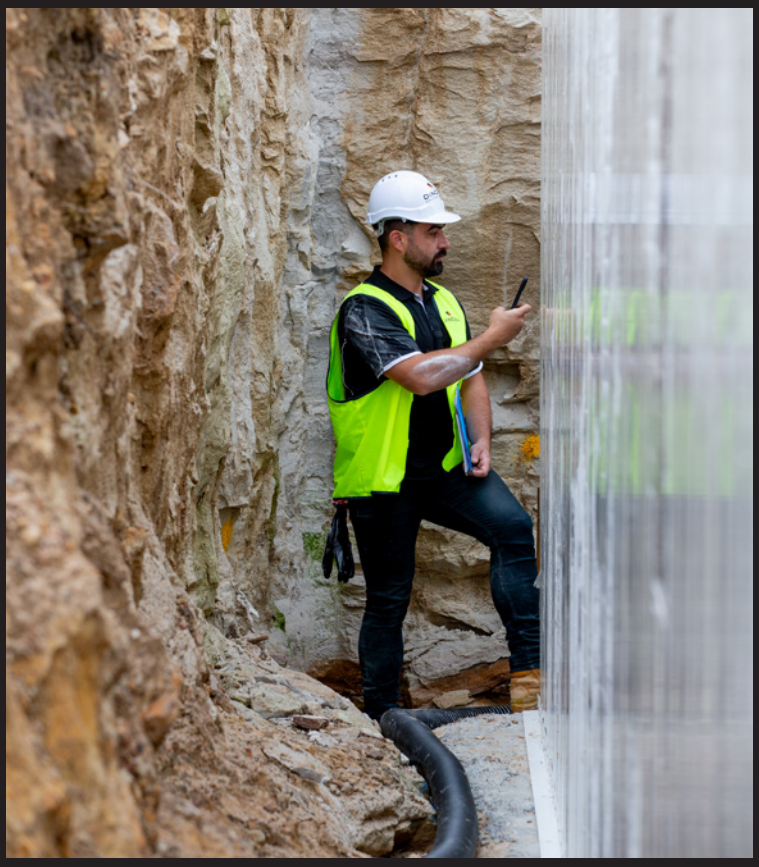
That is why buildability should be considered at the design stage, which means architect, structural engineer, builder and manufacturer working together from the outset. When the wall system, structural design, waterproofing, finishes, service routes and construction sequencing are worked through together at the start, they can be resolved in an effective and holistic manner.



Building smarter for the next 20 years

Australia's housing task will not be met by building more of the same, faster. Dincel's 20-year record is useful less as a product story than as an example of where gains can be made. Across building types, simplified walling removes trades and temporary works. Where responsibility has been fragmented, as in basement waterproofing, a single accountable system makes the new NCC requirements easier to meet.

None of this resolves the housing shortfall on its own. The task is to design and specify in ways that remove cost and delay rather than absorb them. Architects, engineers, builders and manufacturers each hold part of that answer.



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REFERENCES

1 Australian government. “Housing construction productivity: Can we fix it?” Productivity Commission. https://assets.pc.gov.au/research/completed/housing-construction/housing-construction.pdf (accessed 11 September 2026).

2 MBM. “Basement Construction Costing Comparison.” Dincel. https://www.dincel.com.au/theme_dincel/static/documents/comparison/mbm-basement-construction-comparison.pdf (accessed 11 September 2026).

All information provided correct as of October 2026

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