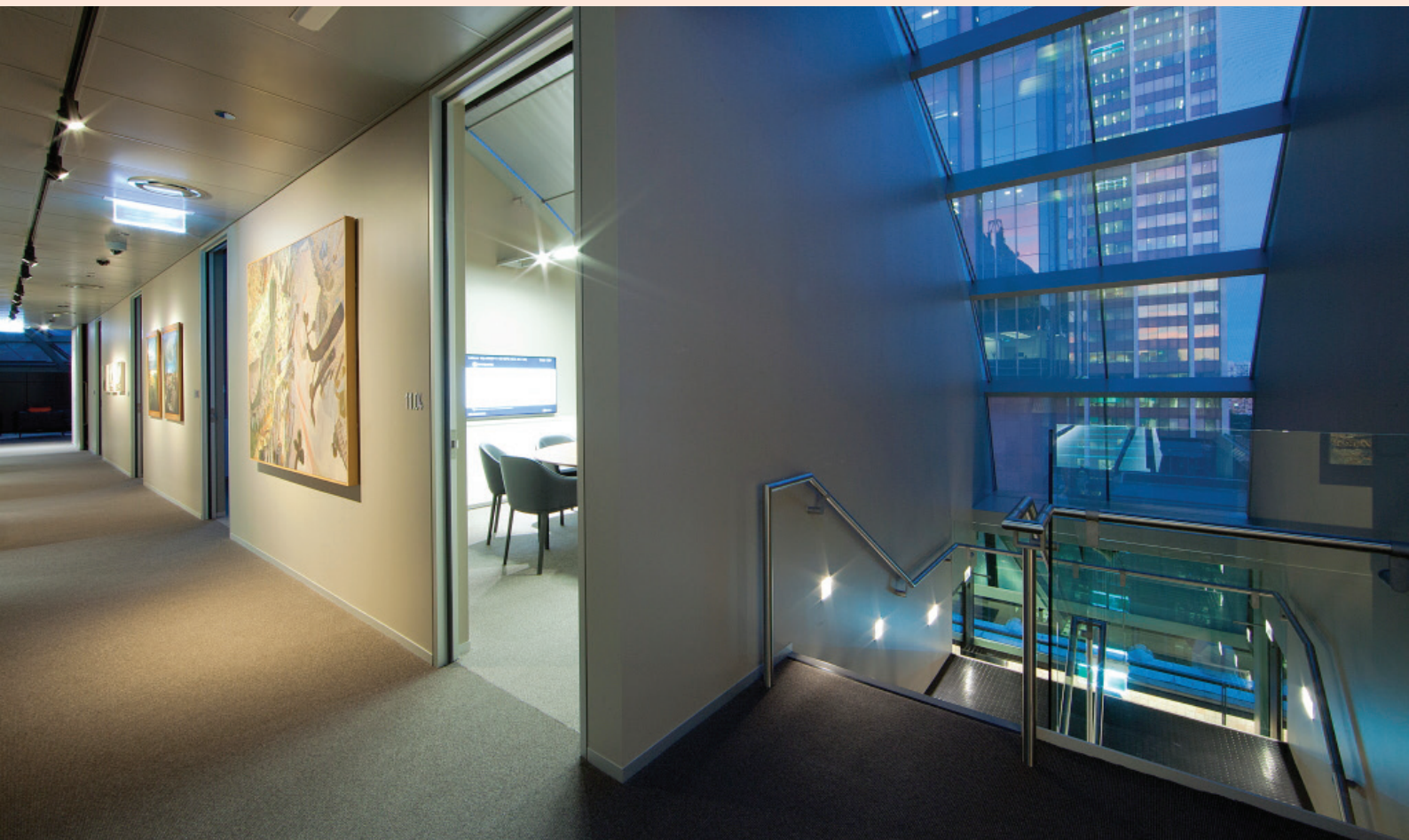


THE RISING VALUE OF INNOVATION



INTRODUCTION

The architecture, engineering and construction industries have all seen a positive uptake in the number and scale of jobs in recent years – a positive development for the professions, manufacturers, clients and the economy on a whole.

However, with an increasing number of stakeholders and specialists necessary to complete a project, extra time and higher levels of skill are often needed. Labour costs have always represented a significant portion of a project's budget, and Australian construction costs are on the rise, with the costs of construction in Melbourne now reportedly being only second to New York.¹

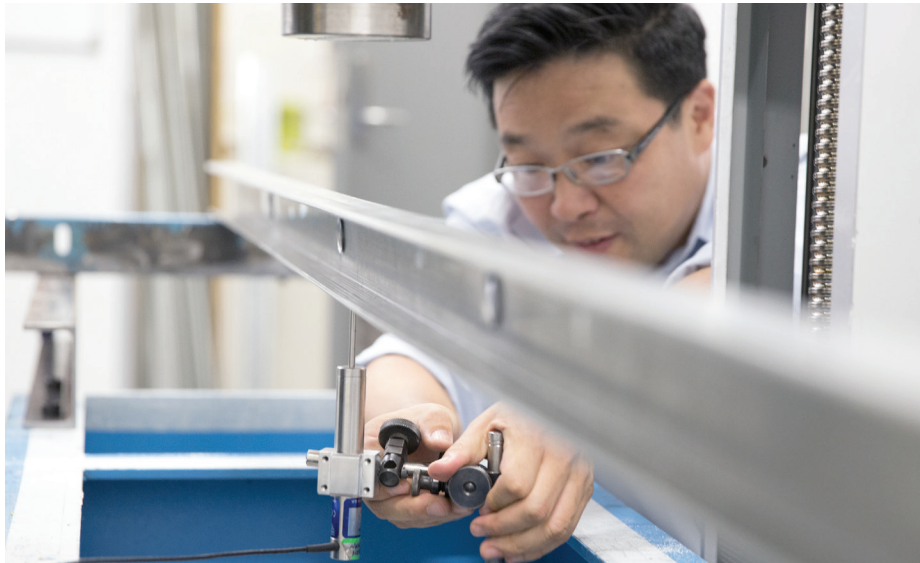
Furthermore, construction wages have been seen to grow disproportionately compared to other professions, while the mid-2012 productivity boost that spurred that growth was fading as of 2014.² Both of those factors are intrinsically linked to the competitiveness of Australia's construction industry, and as a

2015 Construction Leaders Forum discussed, improving this competitiveness cannot be done with lower wages, but rather by looking to increase productivity and innovation.³

That being the case, innovative solutions that speed up construction time and improve resources allocation – simultaneously bolstering productivity – are becoming increasingly important. Cutting corners is not a recommended approach when there are existing technologies such as 3D Modelling, Building Information Modelling (BIM), 3D Printing and Virtual or Augmented Reality designed to assist with real-time, scalable solutions to project concerns.

Having already more than proven their worth in this regard, they hold the additional potential to inform the development of new, more innovative products that can then form a positive feedback loop. Doing so can shift the conversation from the common desire of reducing costs to the opportunity for maximising value.





THE VALUE IN INNOVATION

Innovation can often come across as a marketing gimmick. However, it does have inherent value for when innovation is sought for more than its own sake, and rather to solve a problem. Doing so has the potential to introduce “new products, new processes, new raw materials, new forms of organisation and new markets,” for use and interaction.⁴ New technologies and methods hold long-term potential to alter how buildings end up being designed and built – such as BIM and 3D printing did for the industry. With the challenge of rising construction costs and increasing pressure to build projects faster and to a higher standard, innovation holds significant potential for the construction industry. Furthermore, the technologies and products being developed now have the potential to create a positive feedback loop, whereby they inform each other and pave the way for new developments. These developments must respond to the current state of the industry and its most prevalent concerns.

THE CURRENT STATE OF THE INDUSTRY

With the days of the architect as master builder long since over, the architecture, engineering and construction professions have seen increasing fragmentation as the demand for specialist knowledge rises. The size of teams have risen as projects increase in scope and scale, and in these instances the decisions that are made will undoubtedly affect the whole chain of command. Any delayed decisions or mistakes along the way

have the potential to start a chain reaction of postponements and rising costs, and so efforts must be taken to minimise this occurrence. Additionally, simply relying on how things have been done in the past cannot provide the solutions for the future, even if they may inform them. If current trends of industry development are to be followed, the technologies we rely upon for design, documentation and construction of a project will have to be more intelligent, integrate more of any existing knowledge, and improve upon their predecessors so that they meet the demands of the industry.

Innovating upon existing solutions is one way to cut down on the amount of time or people involved in a project, either through minimising the number of internal stakeholders, or simply reducing the number of the separate steps necessary to complete a project. Following such practices can allow stakeholders to satisfy the resources allocated internally according to the budget, as well as externally according to the client’s wishes and the brief.

INNOVATIVE TECHNOLOGIES

As mentioned previously, digital technology has held a large part in this, drastically cutting down on the time spent communicating ideas between different stakeholders. BIM is an example of that, simultaneously speeding up the design and documentation processes. Through embedded information regarding the systems and services of a project, multiple stakeholders can be working on a single file at once.



Furthermore, the construction documentation necessary for any project is undertaken to the same level of resolution at the same time, allowing design decisions to be reflected in scheduling and drawings in real-time.⁵

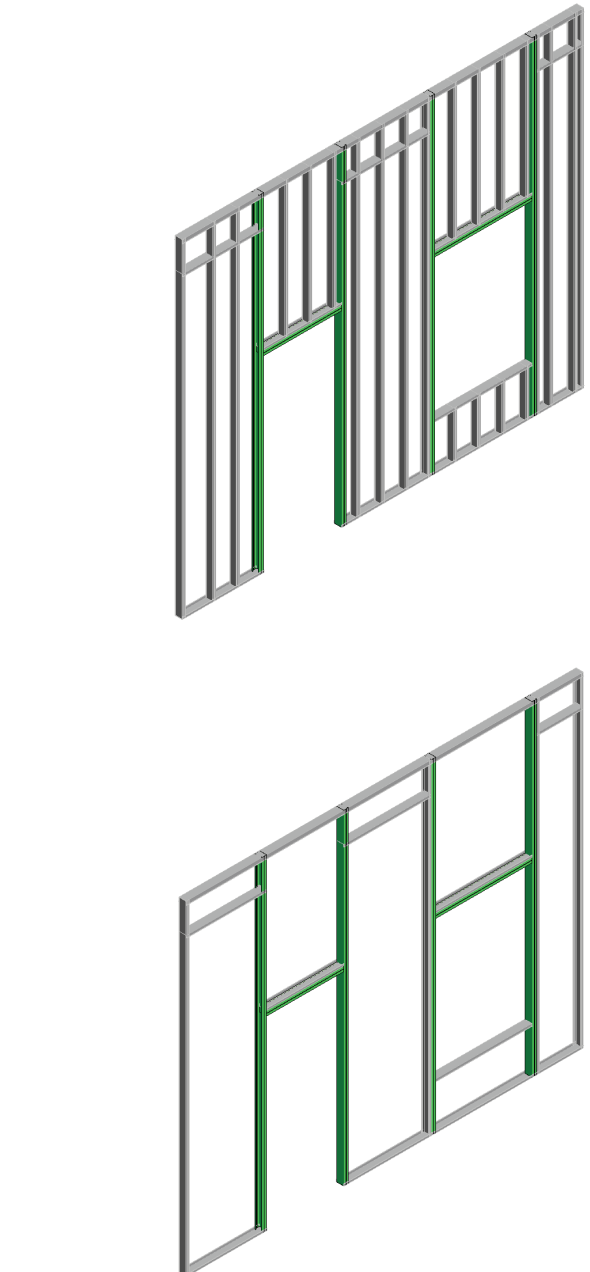
3D printing is a more recent development, having proven itself an accessible and affordable method of rapid prototyping. Constantly innovating on its own methods to deliver faster, more accurate results, 3D printing has also shown its ability to create new product solutions at scale.

Increasingly, Virtual and Augmented reality are being relied upon to supplement both design and construction stages of a project. Their primary strengths lie in their ability to view things at full scale before anything has necessarily been constructed in order to understand the dynamics of the space, and subsequently to show how different building elements will interact with each other. Much like the other listed examples, they can eliminate clashes before they occur. What these digital technologies also provide, however, is the opportunity to invest in new real-world solutions to overcome the problems that they uncover.

WHERE TO FROM HERE?

In managing the numerous demands of rising costs and the expectation for faster construction times and increased quality, there are opportunities to innovate across the sector. Evidence of this has been seen through the technology utilised in the design and documentation stages of a project, with 3D Modelling, BIM technology, 3D Printing and Virtual and Augmented Reality each changing the way we undertake and interact with a project in their own way, allowing multiple stakeholders to rapidly alter and update a scheme according to shifting circumstances.

However, this potential extends into the construction phase of the project too, with those same digital technologies capable of influencing the production of new products to meet their demands. With the design under construction in virtual space, problems with structure and maintaining a cohesive integrated systems strategy will undoubtedly crop up. They represent a valuable source of feedback for manufacturers and suppliers, who are constantly seeking to tackle those exact issues. In doing so the conversation can be shifted from reducing costs to maximising the value of a project.



RONDO

As the first company to design and produce both concealed and exposed ceiling systems in Australia, Rondo has always been at the forefront of developing innovative solutions for the markets in which they operate.

When Rondo added a hem to their Wall Studs and Tracks, they became the first Australian manufacturer to deliver this innovation and offer safer handling on site.

With over 55 years of experience successfully releasing innovative products to the industry, Rondo is in a particularly apt position to develop new system solutions that speed up product installations on site, to deliver both material and labour cost savings. The new DUPLEX Stud® is a single product designed to offer the performance of two, designed in response to the industry need for speeding up construction time and reducing labour costs.

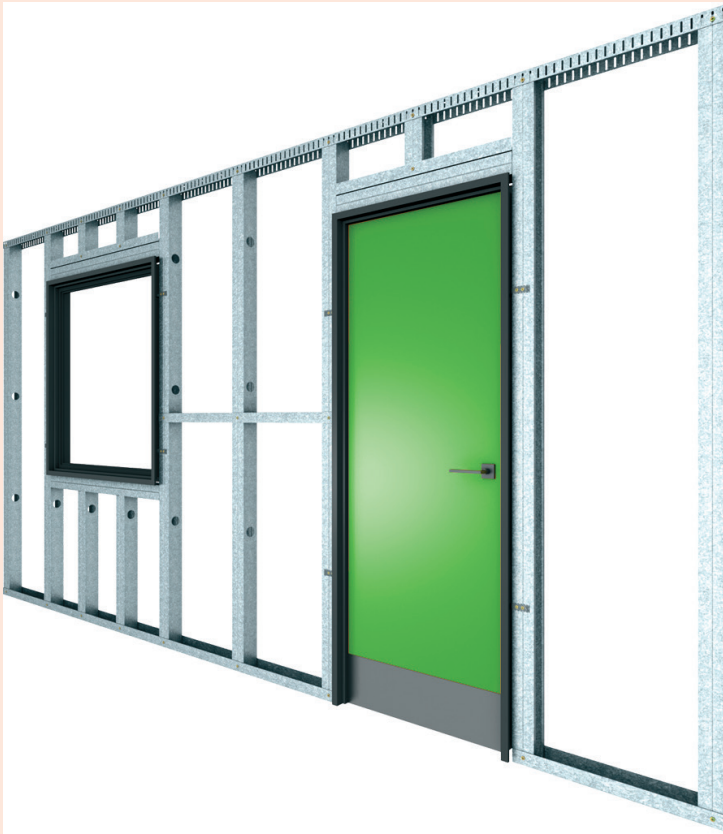
Single DUPLEX Studs can be used to frame door and glazing openings, where traditionally two standard steel studs have often been boxed together. Furthermore, architects,

engineers and construction teams can capitalise on the strength offered by the DUPLEX Stud System®, installing higher walls before noggings are required.

Where typical wall systems lined both sides require noggings past 4.4 metres, wall systems utilising Rondo's latest innovation can be constructed up to 6 metres before noggings are necessary.

Fewer products to install means reduced costs onsite, reduced material usage and faster installation times. By adopting BIM Technology, Rondo can also now provide clients with intelligent 3D model drawings of the DUPLEX Stud System® so that they can more efficiently plan, design and construct their building using the innovation.

"If current trends of industry development are to be followed, the technologies we rely upon for design, documentation and construction of a project will have to be more intelligent, integrate more of any existing knowledge, and improve upon their predecessors so that they meet the demands of the industry."



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