




The forever home.

FORMANCE





**“Outstanding high performance.  
Forever.”**

Nick Hubbard, General Manager, Formance.





# As recommended by Frank Lloyd Wright

**Frank Lloyd Wright was an architectural leader and innovator.  
One of the best. Ever.**

In 1936, the same year that his iconic Fallingwater house made him a household name, Frank Lloyd Wright turned his attention to designing a series of modest, yet well-designed, family homes.

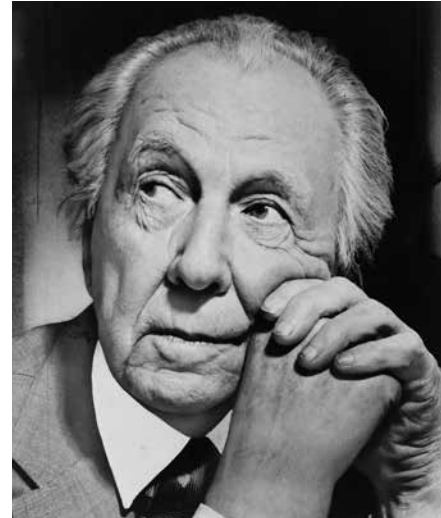
The result: his ground-breaking Usonian residential, single-storey buildings (of which there were around 60) which were also some of the first examples of buildings using Structural Insulated Panels. (SIPs).

Frank Lloyd Wright's vision was a new world of architecture, distinct and free of any previous conventions. He wanted to create homes that were practical, affordable and functional. Forgoing garages, the homes had what Frank Lloyd Wright described as "carports". It's likely he would be astounded by the millions of dollars these homes now fetch, on the rare occasions they're on the market.

However, it was one of Frank Lloyd Wright's students, Alden B Dow, who sought to out-do the master, in terms of the SIPs, adding extra insulation 20 years later and helping create what we now regard as the industry standard.

Formance SIPs continue Frank Lloyd Wright's dream of beautiful homes, which maximize space, leave tradition behind, and start a brave new, affordable world of home construction.

We're very proud to be following in his footsteps.



Frank Lloyd Wright 1954 Portrait by Al Ravenna



Herbert Jacobs Usonian House, exterior and interior, 1937

© The Frank Lloyd Wright Fdn, AZ/Art Resource, NY.  
ARS/Licensed by Viscopy





# It takes a family to think generations ahead

**Formance is a Structural Insulated Panel (SIPs) system that will take New Zealand building into the next millennium.**

Long appreciated overseas, it's now starting to make its mark in New Zealand, backed by leading practitioners and with an impeccable architectural pedigree that can be traced back to Frank Lloyd Wright. In New Zealand, it started just three years ago with the company founded by General Manager Nick Hubbard.

Nick, is a process wiz, committed to continuous improvement. With a background as a tool maker in the automotive industry (he worked on the Ford Territory roof rack), Nick has collaborated with leading designers.

All of this gave him a valuable insight in to the way New Zealand building could be changed, forever. "I'd already worked in a very advanced industry and I could see how the same principles could be applied to building, in New Zealand."

Coincidentally, at the same time, Nick's father, Peter Hubbard, was a consultant working in the USA with a prefabricated home company; just minutes from one of the most advanced SIP factories in the world. The Christchurch earthquakes struck and an idea was born. Nick saw the potential to change people's lives, and create a better environment, faster, and more cost-effectively, by building homes using structural insulated panels.

"We're driven by the positive impact we can have on lives." Nick says. "It's very satisfying seeing people happy and flourishing where they live." Formance makes homeowners' dreams come true on a scale that would make many international architects blush. Nick recalls one client's excitement when she

saw her flat-pack home for the first time. The pre-formed, Formance panels have almost endless bespoke design potential, reduce heat loss, are quick to construct (saving building costs), increase living area, and are light on the land.

Increased exposure to pre-fabrication through TV programmes, including Grand Designs, are helping educate the New Zealand home-building market and drive interest in what until now would've been considered "alternative" building solutions.

Step inside a Formance home and you'll also instantly have a feeling of space and light that would be difficult to replicate with traditional building systems.

**"When people come in to see their panels pre-delivery they just can't stop smiling. It's a nice feeling."**

There's nothing to interrupt the flow of living, or constrain conventionally poorly-used areas like loft space, which can now be features. Nick says he is continually inspired by people who saw the potential for change in the world particularly Martin Luther King Jnr, and Frank Lloyd Wright, along with other leading architects.

He also credits builder Brent Chatterton with sharing valuable insights into how the construction industry operates. "He's been a mentor to me. Also Nino Kozlevcar, a european architectural designer, who works for Formance has bought a valuable skill-set to our company".

"And the good people working hard at Queenstown Lakes District Council and Christchurch City Council who have such an invigorating approach to consents and an open mind to advancing quality of life through better product solutions.". Nick enjoys working with new people and helping them succeed. "Sometimes they're developers, sometimes they're builders who see an opportunity. We're glad to do it."





Nick Hubbard, NZCE (Prod)  
General Manager,  
Formance.



Nino Kozlevar, M.Arch, LBP Design 2  
Product Support Manager,  
Formance.





# Light-on-the-land Formance, wins over Ben and Kylie

**While Ben Crawford has co-founded a successful ad agency, with his sister Libby, the pair are probably best known for winning The Block NZ 2012.**

**No small accomplishment.**

Ben says The Block New Zealand was both exhilarating and exhausting in equal measures; they averaged just 3 hours sleep, per night, over the 8 week project “It was hard work but an amazing experience. It changed our lives and has let us do a load of things.”

Born and raised on a sheep and beef farm, Ben credits this grass roots start to his handiness, work ethic, and awareness of the need to make a crust. “It’s the ‘can do’ spirit, and always looking for a way to get ahead.”

Ben got the property bug early. Starting just after university he successfully bought, renovated, and sold houses in Invercargill, before continuing on in Auckland.

However, building a house from scratch had always been Ben’s dream. And the perfect location presented itself; though not everyone would’ve seen the potential in the steep gully.

The challenges of their site were considerable, but Ben and his fiancé Kylie were determined to work around the spectacular landscape. And, as Ben says, they would never have been happy with a “bog standard” design.



Ben with Formance model home

Kylie embracing Formance product

The concept. Ben and Kylie’s dream home in 3D Stream detail









# Our building system makes it quick and easy

“The site gave us the opportunity to buy into an area normally beyond our means, because our design allowed us to make a piece of land work that no one had wanted to buy for over 6 years.”

Ben and Kylie had always wanted to pre fabricate the house in order to be light on the land, and make the construction process efficient. After exploring the idea of building each pod in a warehouse and realising it couldn't work - as the pods would be too large to transport - builders Haven Renovations introduced the couple to Formance. Ben says the low site-impact combined with the speed of construction, low cost, and thermal properties, “just made sense”.

Ben's innovative plan for the Castor Bay, Auckland, home features two rectangular pods one for sleeping, one for living, connected by a glass corridor that spans a picturesque stream.

And it's not just the exterior that benefited from the use of Formance. Inside open spans, possible thanks to Formance's unique construction, reduce intrusion into the living space. Ben says that's in stark contrast to the three steel beams that would've been required using traditional building techniques for the kitchen and living areas alone. “The result is that there's nothing obstructing the windows, or work areas and the lines throughout are clean and sleek.”

Ben and Kylie, chose to put the kitchen, dining and living areas on the sunniest side of the site, to maximize light, and to optimize the view of the water, and the jaw-droppingly beautiful bush that surrounds them.



1 Ben and Kylie's house exterior



4 As easy as pie! Reviewing panel layout



7 Garrick nailing off the timber spline connector ready for the next panel





2 Ben checking out the panels at the warehouse in East Tamaki



3 Formance Structural Insulated Panels arriving on site



5 Glue application for panels



6 Standing the panels. The Formance walls simply slot onto subplate



8 Ben lending a hand and loving the simplicity of Formance



9 Ben and Kylie looking out the window

# A truly oar-some design

An all around high achiever and former world champion lightweight rower, Tonia is also a second-generation designer. She honed her early skills following in the footsteps of her architect father, who moved the family from the UK to New Zealand in the 1960s.

Tonia combines pragmatism and practical skills with theory and has never been shy of picking up a hammer, or getting her hands dirty.

She credits her drive to succeed to an aversion to taking short cuts, an approach which has driven her career in the UK, Switzerland and New Zealand. Asked how she squeezed so much into her days she replies; “You just get out of bed early.”

When it came to building her own family home, Tonia did meticulous research, informed by her professional experience. The solution she chose was Formance.

“I’d had some crazy quotes and plenty who said it couldn’t be done in prefab. When I spoke to Formance, the answer was “Yes, we can do that” – so we are!

Tonia’s design for her home is ambitious and demands the flexibility to cater for what is a very challenging site. She says, in the end, the cleverness of Formance was the deciding factor. “It’s high performance, yet it’s snug. It’s not rocket science but it is a very sophisticated solution.” She was also looking at energy efficiency, which is an important consideration for long term sustainability and cost.



“This house is about giving something to my family that reflects my capabilities. It’s really important to me to do things properly.” As part of that legacy, Tonia has enjoyed her young daughters’ enthusiasm for the project; “They’re a very special part of it.”

**“It’d be great to deliver more efficient and cost-effective architectural answers that also provide real benefits to the community.”**

Always keen for a challenge, Tonia’s focus has latterly turned to large project master-planning, and advising and advocating for those looking to build using Formance. Long term, she would like to work on large scale projects including retirement villages and social housing. “It’d be great to deliver more efficient and cost-effective architectural answers that also provide real benefits to the community.”

Tonia says she’s gained a great deal from what she’s done and has always been grateful for having a good team around her. “You learn so much.”





# Health, light and happiness in your build

**Anne Salmond is a Wanaka-based architect with a 30-year commitment to sustainable, healthy, high performance buildings: And she's backing SIPs modular design and construction.**

Salmond Architecture designed the very first SIPs panel house to be completed in New Zealand. They have completed 5 SIP houses and have 2 SIP houses under construction and 4 at design stages.

Impressed by the insulation, sound minimisation, and health properties of structural insulated panels (no cavities so there's nowhere for mould to grow), Anne says she was also won over by the possibilities that the construction system delivers. No requirement for trusses means there's ample room for mezzanines and lofts – maximising the potential use of the building's volume.

"They have a really good structure and the fact they are air tight is a real bonus. There's no air in the walls, no condensation, so no mould growth. This is important for the health of New Zealand children."

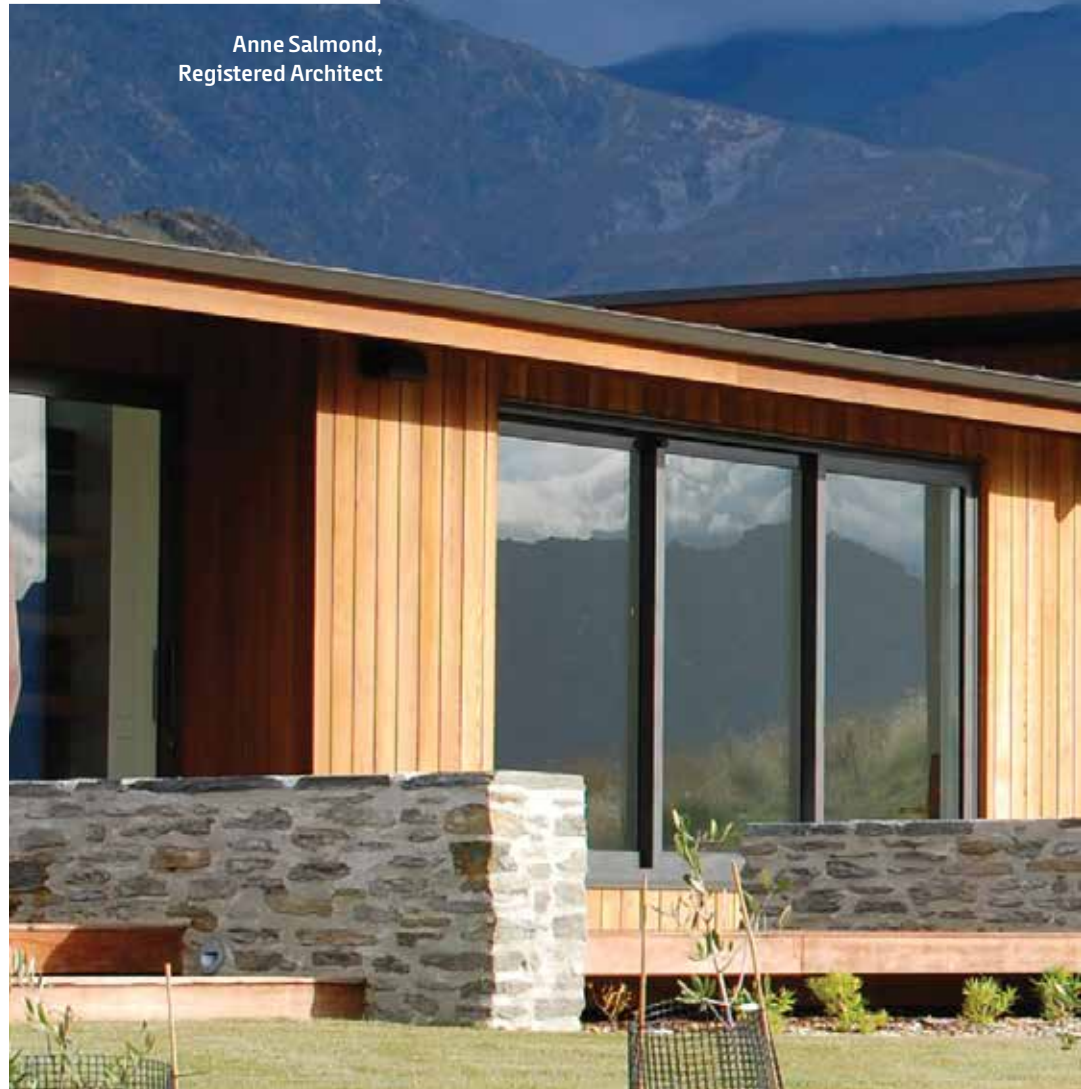
Anne says that the ability to pre-fabricate off site gives a significant advantage in terms of design and build. And superior quality control. Since panels are pre-fabricated, there's less waste and architects know exactly what they are getting.

"It's also a lot lighter and much quicker to construct, which benefits both the builders and the home owners: The time benefit is quantifiable."

Anne says she was also impressed by the fact that Formance can be used for floors, making it a true "envelope" for the building. "It's incredibly strong, and you can just build a shell giving a closed-in and protected structure at an early stage."



Anne Salmond,  
Registered Architect







Queenstown houses. Anne Salmond.  
Pegasus Bay (concept house).



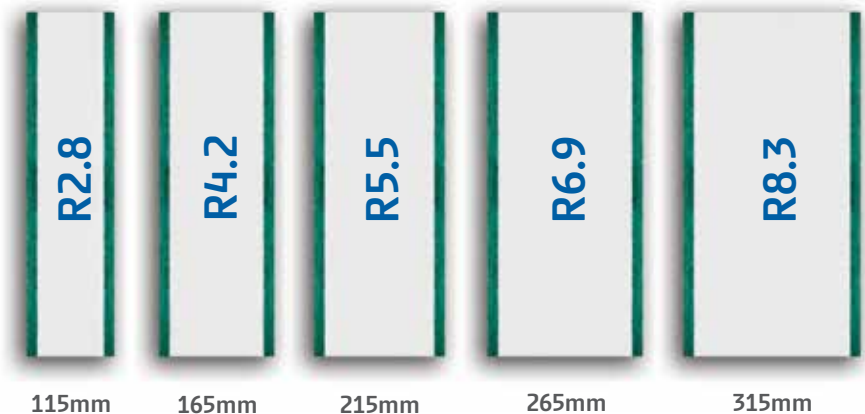


# Designing with Formance panels

**Designing with SIPs is easy. Panels connect together simply, to form a continuously insulated structural element.**

Some points to note when designing with SIPs.

- Formance panels come in a range of thicknesses. Choose a thickness for your desired level of insulation and refer to load tables for roofing spans. The thicker the panel the further it can span. Walls are typically 115 or 165mm and roofs are typically 215, 265 or 315mm.
- Formance panel thicknesses are designed to be compatible with standard framing timber sizes, 90mm, 140mm, 190mm etc. The EPS foam core is sized to match so when adding trimming timber it fits in between the skins.
- In some cases floor to ceiling windows can be incorporated easily in your design by utilising the edge member (trimming timber) of the roof panel as the lintel. Simple box forms work really well like this.
- Bracing with SIPs is simple, SIPs inherently provide a strong contribution to the overall bracing of a building; in some cases eliminating the need for any other bracing elements.



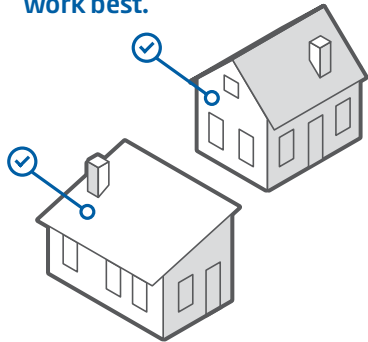
- Electrical cabling is fitted either by directly fixing it to the inside surface of the panels, or by utilising pre-fabricated holes within the panels. These holes are typically at 250mm and 1050mm from the bottom of the panel horizontally, and in the centre of each panel vertically.
- Besides supplying precision pre-cut panels for your project our service can include engineering sign-off on the SIP elements of the building, and design guidance during the detailed design phase.
- When you choose Formance panels you're collaborating with a team of experts who work with you every step of the way. We're here to answer your questions, and do everything we can to make sure your project proceeds smoothly and successfully.





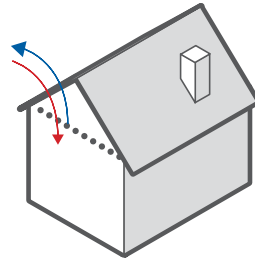
# Formance design tips

## Clean simple designs work best.



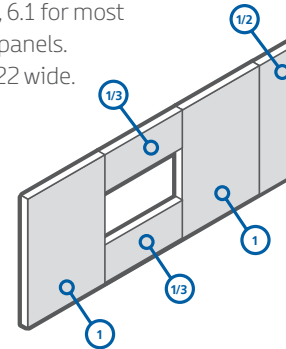
## Maximise the opportunity for a healthy indoor environment.

Install a heat recovery ventilation system - using a bypass heat exchanger.



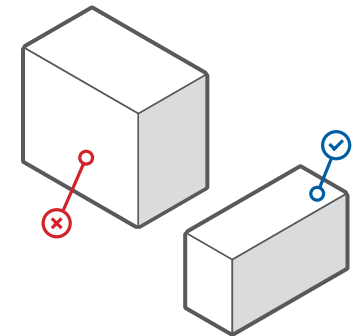
## Use full panels wherever possible, or easy fractions of panels ( $1/2$ , $1/3$ , $1/4$ ).

Work within standard panel heights of 2.44, 2.74, 3.0, 6.1 for most effective use of panels. All panels are 1.22 wide.

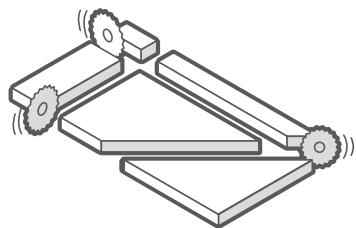


## Minimise the size of heating/cooling units.

Allow for the much greater insulation capabilities of SIPs.

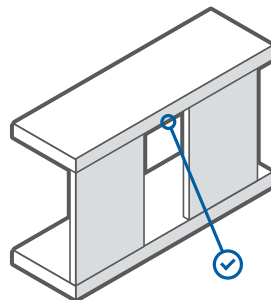


## Minimise panel cuts.



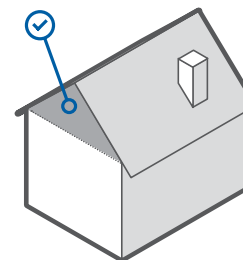
## Make use of the boundary joist in the roof panel as a lintel.

Floor to ceiling windows are super easy!



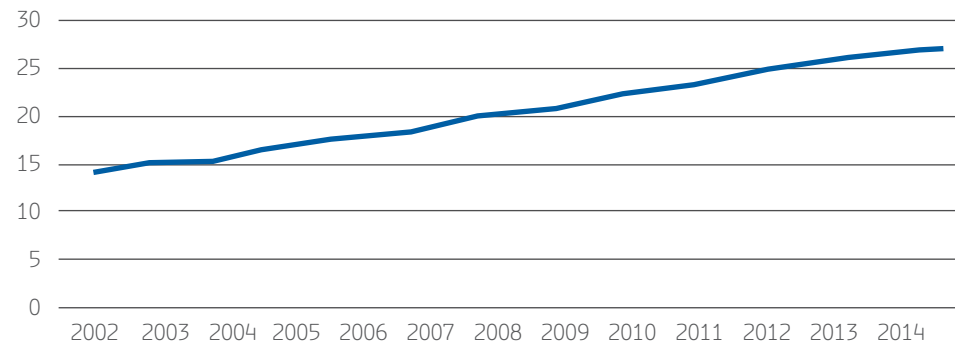
## Use the loft space!

Free extra floor space available - make the most of it!



# Formance just makes sense

Energy prices per c/kWh in New Zealand



## Energy costs

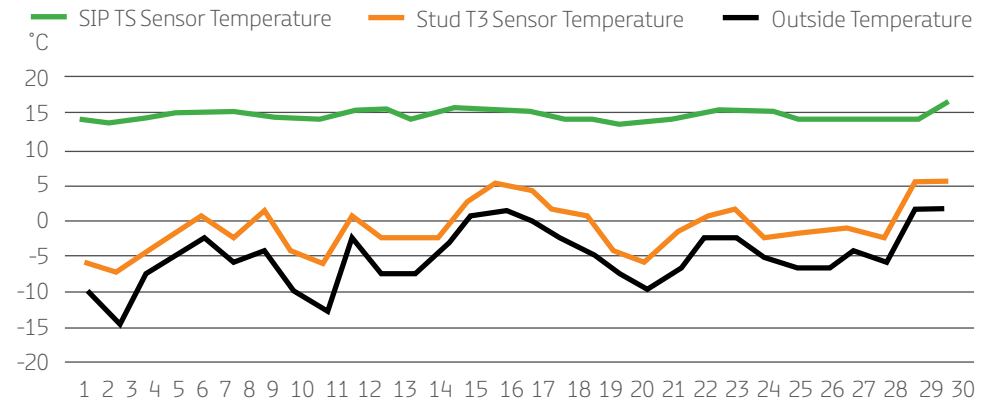
With electricity costs predicted to continue their upward trend, Formance can help balance the budget.

The graph above reflects the MBIE figures to date, based on sales of delivered energy.

Because of increased thermal efficiency, Formance, over time, can help you keep your heating bills down.

For older clients, (or owners in later life) this can be especially important, helping deliver certainty on costs. Some clients have said that they can heat their homes simply by leaving appliances (e.g. TV and computer) on standby. Remarkable.

T3 Sensor (Mid Wall) Readings, Stud Wall vs SIP Wall. (USA, January 2001)



## Side-by-Side Study Proves SIP thermal advantage

A Brock University study, by Dr. Tony Shaw, confirmed the superior thermal performance of SIPs over conventional building systems. Dr. Shaw's work involved a side-by-side evaluation of nearly identical residential buildings – one constructed with SIP exterior walls and one with conventionally framed studs and batt insulation. The framed wall was 140mm, (thicker than normal) with up-spec'd batts. Based on the heat loss data collected in the study, a natural gas heated, 2,000 sq. ft. SIPs house, at the time, would save US\$88 on a monthly heating bill in an average winter month over a conventionally constructed home.

Further an Oakland Ridge National Labs report shows that SIPs significantly out performs, and enhances living comfort, compared with traditional construction when it comes to maintaining constant interior temperatures.





## Backed by CodeMark

New Zealand product certification (CodeMark) is a voluntary scheme established by the Building Act 2004 and is administered by the Department of Building and Housing. It provides an easily understood and robust way to demonstrate that a building product or system (in this case, Formance) meets the requirements of the New Zealand Building Code.

A CodeMark-certified product, or construction method must be accepted by any building consent authority as complying with the Building Code, so long as it is used as specified. This gives both architects, and builders peace of mind. CodeMark is a real benefit and assurance to manufacturers and suppliers of products that are innovative and/or new to the New Zealand market.

Formance is enormously proud to be part of that.



## Building is more efficient with Formance

Aside from the superior thermal properties, long-term cost savings, and environmental qualities, Formance actually makes building faster and easier.

Builders are continually impressed by how efficient it is to put up a Formance home. Speed and ease of construction are outstanding and the result is a much higher quality build. All panels are pre-fabricated in the Formance factory, according to each design, then assembled onsite on a pre-laid footplate.

Using Formance allows access to demanding sites, and significantly reduces waste – helping keep costs down and reducing hassles.

Formance's streamlined process also means a building can be sealed from the weather faster which allows the interior and finishing contractors to get on with their jobs sooner. This helps make the whole build timely and cost efficient.



# FORMANCE

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