Network Architectural | Sustainability Awards

Sustainability eBook 2025

Network Architectural

Our cities, as much as they are made of brick and mortar, are also constructs of our imagination. The way we arrange space—how a window opens to a street, how a roofline frames the sky—becomes an open and public argument about how we live now and in the future.

In recent decades, our awareness of our environmental precarity has pushed architecture into a role it has long resisted: that of an ecological partner.

This shift in perception is not simply a matter of better windows or greener materials, though these do matter; it is also about rhythm and restraint.

A building aligned with the seasons gathers daylight as if it were a harvest; one clad in stone quarried nearby will always speak of 'place' rather than one derived from global supply chains. The most successful designs feel less like monuments to human ingenuity than careful negotiations with earth, wind, water, and sun.

Energy, once a background concern, is now an architectural protagonist. Rooftops host panels that wallow in sunlight, while foundations hide pipes that draw warmth from the ground. Such technologies give buildings the ability not only to sustain themselves but to contribute back—surplus power returning to a grid once thought immutable. The grid, in turn, is learning flexibility, decentralisation, and resilience.

Water, an ever-precious resource in Australia, tells a similar story. Rain no longer rushes off rooftops into overwhelmed sewers; instead, it gathers in cisterns, trickles into green roofs, or is coaxed back into circulation through greywater systems. Each drop is treated less as waste than a unit of value.

What emerges is a different picture of architecture: less the skyline heroism of the last century, more an ongoing dialogue with its environment.

To build sustainably is not to renounce style, vision, or ambition, but rather, to imagine a permanence that does not come at the planet's expense.

BRANKO MILETIC, EDITOR

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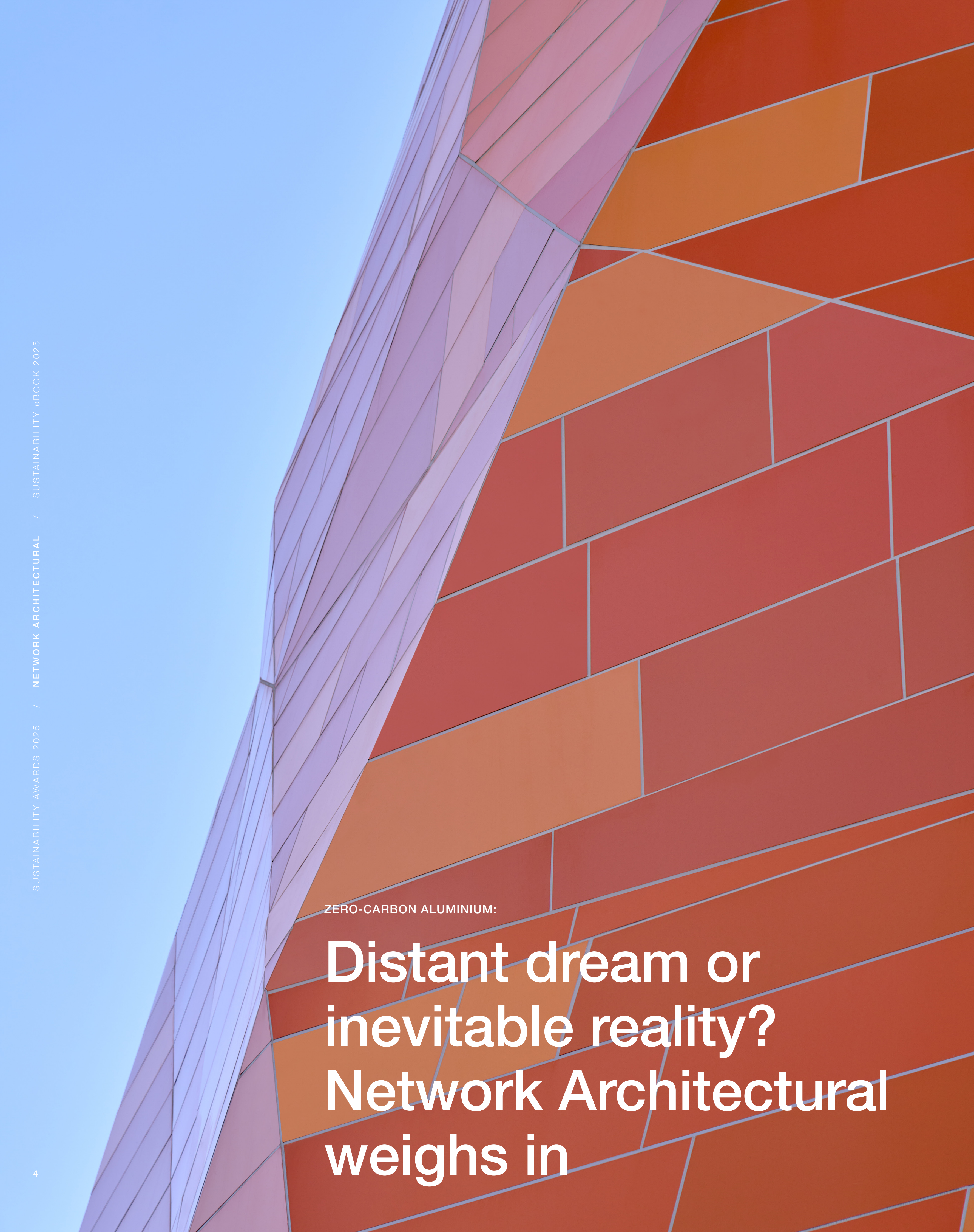


ZERO-CARBON ALUMINIUM:

Distant dream or inevitable reality? Network Architectural weighs in

Aluminium is the quintessential material of modern architecture. Light, strong and endlessly versatile, it's allowed the industry to push the architectural envelope in ways that were impossible a century ago. It is, by all accounts, a material of the future. However, as one of the building sector's most significant carbon culprits, aluminium's undeniable brilliance has also come at a cost which, for decades, has seemed manageable.

The industry has focused on incremental gains, celebrating recycled content while framing the immense energy required for primary production as an impenetrable challenge, positioning the concept of zero-carbon aluminium as a distant dream.

But it's becoming abundantly clear that this environmental price tag is one the industry – and the planet itself – can no longer afford. And according to industry expert Steven Fraser, Ceiling Systems Manager at Network Architectural, that entire perspective is now obsolete.

"The assertion that aluminium's high energy intensity renders zero-carbon production a distant dream is increasingly outdated," he says. "While aluminium smelting is indeed energy-intensive – accounting for approximately 3% of global electricity consumption – advancements in technology, renewable energy integration and supportive policies are making zero-carbon recycled aluminium a tangible goal."

And while Steven admits there isn't an easy, single solution, the pathway forward is an actionable industry blueprint anchored by the strategic integration of robust, existing and emerging solutions. In fact, he is confident that by combining large-scale recycling with renewable energy and innovative smelting technologies, a transition to zero-carbon recycled aluminium that is not only technically possible but also economically advantageous is at our fingertips.

REAL CHALLENGES OR DANGEROUS EXCUSES?

Steven is crystal clear: the challenges ahead are not insignificant. The industry rightly points to high capital costs for upgrading smelters, the technological maturity of innovations like inert anodes, and the logistical and infrastructure hurdles of shifting to renewables. Plus, the global supply chains are dominated by coal-powered production.

"China produces about 60% of the world's aluminium, much of which is powered by coal," Steven explains. "And efforts to relocate smelters to regions with cleaner energy sources, like Yunnan province, face challenges due to inconsistent hydropower availability." This is also compounded by the varying environmental regulations and policies across different countries that can either hinder or accelerate decarbonisation initiatives.

These certainly are real and serious considerations, but to dismiss them as permanent roadblocks is not just a failure of imagination but a rejection of responsibility. As we collectively face profound environmental consequences, loyally clinging to the operational status quo is no longer a viable option because, as Steven points out, the stakes are simply too high.

"Fundamentally, if we don't start aiming to decarbonise aluminium production, we're on track for the planet to lose a food bowl due to climate change," he warns, emphasising the stark reality that to some seems too abstract to take seriously. "Food bowl regions are critical to global food security and their loss would have profound economic and humanitarian impacts and may lead to higher food prices and potential continental mass migrations."

With the gravity of inaction as a sobering backdrop, Steven points to strategic integration of key areas that can help make the technical and economic feasibility of zero-carbon aluminium possible by transforming the material's lifecycle from linear and carbon-intensive to circular and clean.

INFINITE RECYCLING

He says that the most accessible and impactful tool at industry's disposal is recycled aluminium and, rather than a niche solution, it's the primary low-carbon resource stream.

"Recycling aluminium requires significantly less energy – up to 95% less, in fact – than

producing primary aluminium, leading to reductions in energy consumption and associated costs," Steven explains. "Plus, the International Aluminium Institute reports that recycling aluminium can save up to $2 billion annually in energy costs across the global industry." He adds that because aluminium is infinitely recyclable, it should never end up in landfill, which can help minimise disposal costs too. "It's one of a handful of building products where business will pay you to remove it from the site as it has an intrinsic value as scrap," he explains.

Naturally, harnessing this potential involves policy support, enhanced collection systems and – crucially – advanced sorting technologies to ensure high-quality scraps can be reintegrated into a closed-loop system. "These are not simple scrap yards," Steven clarifies. "Modern facilities now use sophisticated methods like X-ray transmission and near-infrared sorting to accurately separate different aluminium alloys, preserving their quality for high-grade architectural applications."

FROM GRID BURDEN TO GREEN PARTNER

Steven also points out that the decarbonisation of aluminium is intrinsically linked to the decarbonisation of our electricity grids, and the material's robust energy requirements can be transformed into an asset in a renewables-led system.

"Transitioning to 100% renewable energy is pivotal for achieving zero-carbon aluminium production," he says. "Given that aluminium smelting is highly energy-intensive, the carbon footprint of aluminium is closely tied to the energy sources used. Shifting to renewable energy sources like hydropower, wind and solar can drastically reduce emissions."

With smelters like Tomago in NSW consuming up to 10% of the state's electricity, the scale of the challenge is evident. But it's also an opportunity – these facilities can act as robust industrial batteries, providing services that stabilise grids with high penetrations of intermittent solar and wind power.

Government support – like Australia's $2 billion commitment in production credits to assist aluminium smelters in transitioning to renewable energy by 2036 – is already galvanising this transition. And Steven points to Rio Tinto's Boyne smelter in Queensland, which has signed a 20-year agreement to be powered primarily by solar energy, as an example of this broader industry shift. "This single initiative is expected to meet about 80% of the smelter's needs, resulting in a substantial reduction in carbon emissions and demonstrating that the large-scale shift to renewables for aluminium production is already underway in Australia."

SMELTING WITHOUT THE SMOKE

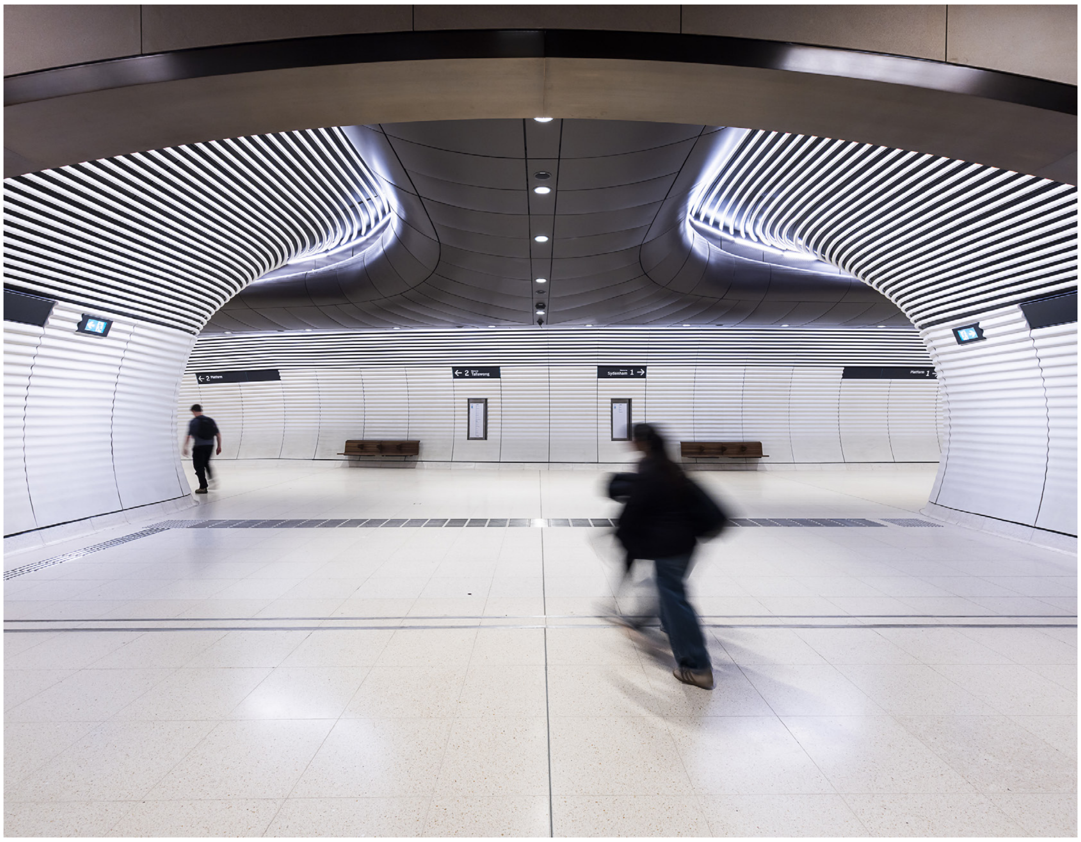
The other piece of this intricate puzzle is eliminating the emissions inherent in the smelting process. Groundbreaking smelting technologies are moving from the lab to commercial-scale reality, fundamentally reimagining the chemical equation of aluminium production. Steven explains that innovations like ELYSIS's inert anode, Hydro's HalZero process and Molten Oxide Electrolysis (MOE) share a common, revolutionary outcome.

"This innovation eliminates all direct greenhouse gas emissions, emitting only pure oxygen as a byproduct," he says, using the joint venture between Alcoa and Rio Tinto, ELYSIS, which replaces traditional carbon anodes with inert materials in the smelting process. "A demonstration plant is underway at Rio Tinto's Arvida smelter in Quebec, aiming to produce up to 2,500 tonnes of commercial-quality aluminium annually without direct emissions."

MOE, on the other hand, is an emerging technology that uses electricity to extract aluminium from ore without carbon emissions. "It offers a pathway to fully decarbonised aluminium production," Steven notes. And, most importantly, when combined with a 100% renewable power source, it encourages a move past just low-carbon and towards zero-carbon aluminium.

SUSTAINABILITY: THE NEW PROFITABILITY

The argument that this transition is too expensive is based on an outdated economic model that fails to factor in carbon risk, market demand or brand value. And Steven stresses that a genuinely sustainable product is no



longer just an ethical choice – it's a significant competitive advantage too.

"As global demand for sustainable materials rises, aluminium produced with low or zero-carbon emissions can command premium prices," he explains. "Manufacturers and consumers are increasingly open to paying more for sustainably produced materials, recognising the long-term environmental and economic benefits."

Plus, early adoption of zero-carbon positions companies ahead of inevitable compliance requirements, potentially avoiding future costs associated with regulatory changes, strengthening supply chains against volatile fossil fuel markets – and attracting investment in a world increasingly guided by ESG principles.

THE SPECIFIER'S POWER

However, this transition will not be driven by producers alone. Architects, designers and specifiers are the gatekeepers of material selection, and their decisions send powerful signals to the entire supply chain. This influence starts with immediate carbon savings through material specification.

"Before we even get to how the aluminium is produced, we should consider how we can use less of it," Steven urges. "This is where material efficiency becomes a powerful tool for decarbonisation. Using a product like ALPOLIC™– aluminium cladding with a non-combustible mineral core, which is known for superior flatness and durability – means we can achieve the same architectural results with significantly less material volume than solid sheeting. It's a simple, immediate choice that can have a direct and positive impact on a project's embodied carbon."

The same principle applies to other aluminium-based architectural elements – including high-performance ceiling systems, which often utilise lightweight panelised solutions designed for extended lifespans, easy installation and full recyclability. "Choosing ceiling systems that incorporate recycled aluminium and are designed with disassembly in mind can make a meaningful contribution to a project's overall sustainability profile," Steven notes.

This principle of efficiency, combined with a commitment to demanding better products, forms the basis of a powerful specification strategy that can actively drive the market forward. "Prioritise sustainable materials: select aluminium products with verified low-carbon footprints for construction projects," Steven highlights. "And, crucially, incorporate circular design principles – design structures that facilitate the reuse and recycling of aluminium components at the end of their lifecycle."

"This push for sustainable specification must be supported by a parallel industry effort to standardise carbon footprinting," he adds. "This will ensure architects have transparent and reliable data to compare products." Underpinned by industry-wide commitment to transparent reporting and education about the benefits of low-carbon aluminium in construction, specifiers have genuine power to accelerate this change. "Starting today," Steven adds.

THE INEVITABLE FUTURE

The poignant message emerging from Steven's robust analysis is an optimistic one: the era of carbon-intensive aluminium is genuinely drawing to a close. The fusion of large-scale recycling, abundant renewable energy and revolutionary smelting technology sets a technically viable path to a decarbonised future for this essential material. And considering the disastrous alternative, the towering challenges on this journey now seem more like fundamental milestones than impenetrable barriers. Especially because industry pioneers like Network Architectural, who keenly promote industry-wide adoption of sustainable building materials and practices, are here to help overcome the hurdles.

"As a leader in commercial architectural products, we can significantly influence the adoption of low-carbon aluminium," Steven sums up. Network Architectural offers aluminium building products that utilise low-carbon or recycled aluminium, collaborates with suppliers committed to sustainable aluminium manufacturing practices and – crucially, bringing both sustainability and profitability back into one conversation – advises clients on the environmental and economic benefits of choosing low-carbon aluminium for their projects.

Commercial Architecture (Large) Award Shortlist

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FIRST BUILDING – BRADFIELD CITY CENTRE
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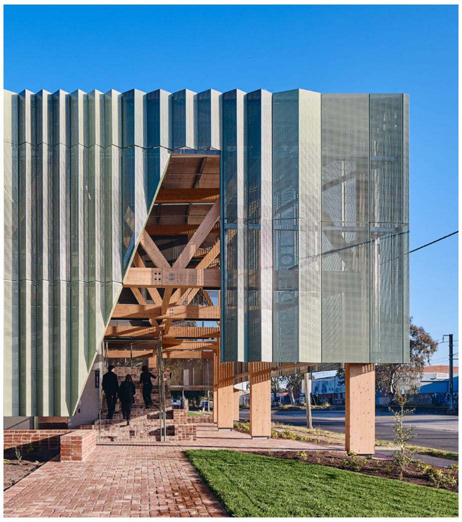
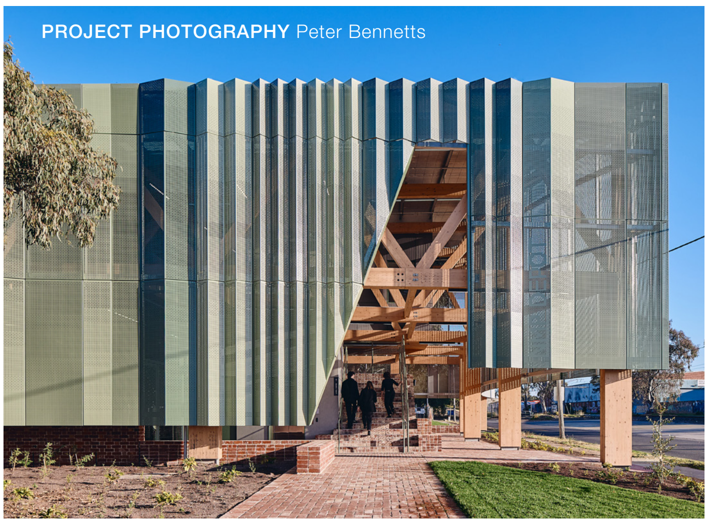


NORTHERN MEMORIAL PARK DEPOT
SEARLE X WALDRON ARCHITECTURE

THE ST LUKES BUILDING
TERROIR

Award Winner



ABOVE Kim Steadman & Suzannah Waldron (Searle x Waldron Architecture) with Anna Fischer (Network Architectural)

WINNER

NORTHERN MEMORIAL PARK DEPOT
SEARLE X WALDRON ARCHITECTURE

Northern Memorial Park Depot is a two-storey mass-timber operations hub for the Greater Metropolitan Cemeteries Trust (GMCT) which challenges the conventional typology of a Depot by providing a beautiful workplace for people who work in emotionally challenging roles, dealing daily with grief and loss. Timber's natural warmth and connection to nature contribute to a biophilic design, improve acoustics in an industrial setting and enhance overall staff well-being.

ABOVE Anna Fischer (Network Architectural) with Yann Frampton (Hassell)

WINNER

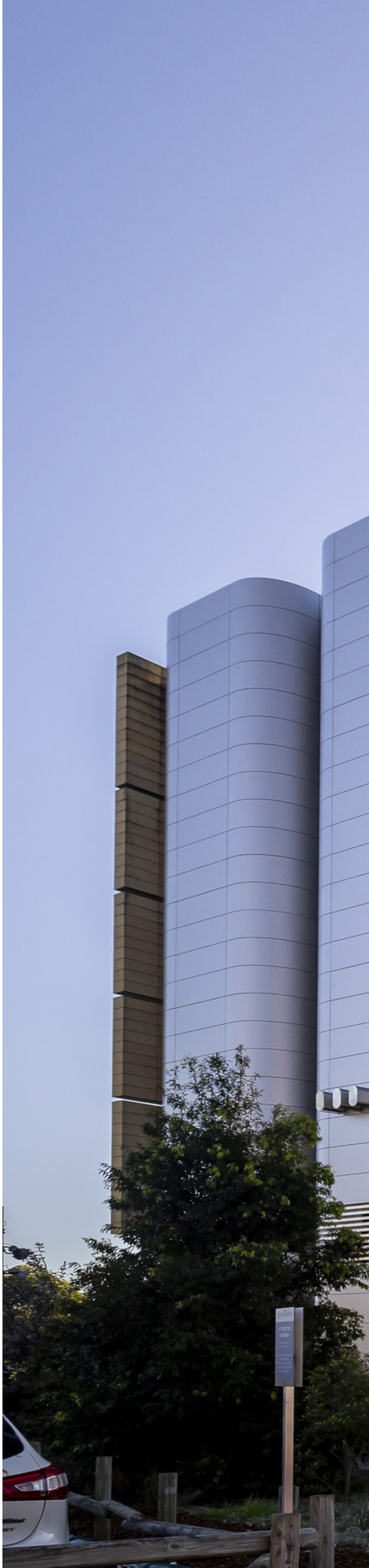
FIRST BUILDING – BRADFIELD CITY CENTRE
HASSELL

As the first completed building in Australia's newest city — Bradfield City Centre — First Building houses stage one of the Advanced Manufacturing Readiness Facility (AMRF), an innovation accelerator. Designed with adaptability, circularity, and resilience, it sets a new benchmark for how cities can be regenerative and integrate with Country. Guided by First Nations cultural research and design agency Djinjama, the design is deeply embedded in Dharug Country, honouring, and respecting the building's location on the Cumberland Plain and the ephemeral waterways of Wianamatta.

SPECIFYING SUSTAINABLE ALUMINIUM:

Understanding the real environmental footprint of façade materials with LCA

The concept of Life Cycle Assessment (LCA) is by no means new. However, while in many instances it remains in the "nice-to-have" category, Llewellyn Regler, Network Architectural's National Technical Manager, predicts a shift. "In the next 5-10 years, we expect LCA to move to a compliance necessity, especially as embodied carbon caps and government procurement standards tighten," he explains.

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However, despite LCA's undeniable importance, a substantial gap between principle and practice can significantly hinder the sustainable specification of building materials, such as aluminium cladding.

SAME BUT DIFFERENT: THE ALUMINIUM ASSUMPTION

"One of the biggest misunderstandings we encounter is the assumption that all aluminium products have roughly the same environmental profile," explains Llewellyn, who earlier this year ran an in-depth CPD course on the topic. "In reality, there are vast differences depending on factors like core composition, coating technology and end-of-life recyclability."

Understanding LCA is essential to deciphering these differences. To help architects distinguish between sustainable products and those that merely claim to be so, we asked Llewellyn to demystify the methodology and outline how to turn complex data into a powerful design tool that satisfies the demands for environmental accountability, including those outlined in the National Standard of Competency for Architects 2021.

WHAT IS LCA?

At its core, LCA is a systematic analysis of the environmental impacts of a product across its entire lifecycle. To properly assess a product, an LCA is conducted using specialised software according to standards like ISO 14040 and ISO 14044 to examine everything from raw material extraction to disposal, including manufacturing processes, energy consumption and the material's recyclability. It also considers factors ranging from long-term life expectancy and maintenance requirements to the depletion of fossil fuels, offering a nuanced and comprehensive view of a product's lifecycle impacts.

DECODING LCA'S VERNACULAR

To understand this intricate data and avoid the common specification misunderstandings, it's essential to grasp LCA's vernacular, starting with cradle-to-gate and cradle-to-cradle.

In simple terms, cradle-to-gate refers to the first part of the lifecycle, encompassing the impacts of raw material extraction, transportation and manufacturing – everything required to prepare a product for shipment from the factory. While it's a vital metric covering the A1-A3 stage, it's not the whole picture. Cradle-to-cradle, on the other hand, represents the complete, holistic view that architects should strive for. It assesses the entire lifecycle, including the use phase, end-of-life processing and the potential for the material to be reused or recycled into new products, closing the loop.

Being able to differentiate between the two, Llewellyn stresses, is essential. "A key knowledge gap lies in differentiating between embodied carbon at early stages (A1-A3) versus operational impacts and end-of-life scenarios," he elaborates.

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THE STAGES OF LCA

LCA enables industry professionals to bridge that gap, providing essential data about a product's impact across the critical lifecycle stages that answer fundamental questions about the material or product in question.

PRODUCT STAGE (A1-A3): WHERE DOES IT COME FROM AND HOW IS IT MADE?

Includes raw material supply, transportation, and manufacturing.

CONSTRUCTION STAGE (A4-A5): HOW DOES IT BECOME PART OF THE BUILDING?

Encompasses the transport of the finished product to the site and the installation process.

USE STAGE (B1-B7): HOW DOES IT LIVE IN THE BUILDING?

Covers long-term maintenance, repair, and replacement needs, plus operational energy and water use.

END OF LIFE STAGE (C1-C4): WHERE DOES IT GO WHEN IT'S DONE?

Includes deconstruction, transport from the site, waste processing, and final disposal.

BENEFITS BEYOND STAGE (D): WHAT IS ITS NEXT LIFE?

Accounts for the future benefits of reuse, recovery and recycling, linking directly to the circular economy.

FROM ENERGY-INTENSIVE STAGE A1…

Understanding the impact of each stage – and giving it appropriate weighting – is paramount. Llewellyn explains that Stage A1 is often the most significant contributor to environmental impact due to energy-intensive mining and refining processes, particularly with virgin aluminium.

Understandably, architects usually focus on this stage the most. However, he notes that it's the frequently overlooked end-of-life stage that presents significant challenges and opportunities.

… TO THE UNDERESTIMATED STAGE C

"Stage C is often underestimated," Llewellyn explains. "Many assume materials are recycled or disposed of responsibly without truly understanding the environmental cost or practicality of doing so."

While aluminium itself is infinitely recyclable, using just 5% of the energy required for primary production, complexity arises with aluminium composite panels (ACPs), where the core materials may not be recyclable.

Network Architectural, an Australian distributor of the advanced ACP ALPOLIC™ panels, for instance, address this consideration head-on. The company's take-back partnership with PanelCycle creates a verified pathway for recycling the panels, ensuring that the aluminium skins and mineral cores are properly separated and recovered, turning a theoretical recycling claim into a tangible reality that can be verified through the product's EPD.

And that, Llewellyn adds, is the key. "The actual recyclability depends on product design, which is why we recommend project teams request EPDs that include complete Stage C and interrogate manufacturers' claims regarding recyclability and landfill," he explains, stressing the importance of challenging suppliers to translate abstract figures into practical, project-specific terms.

INTEGRATING LCA INTO THE DESIGN WORKFLOW

With that in mind, when is the best time to integrate this holistic methodology into the design process to maximise its potential for a project's sustainability profile?

"The best time to apply LCA thinking is during schematic design when material decisions are still flexible and cost modelling is underway," Llewellyn explains, adding that embedding it into early-stage concept presentations and specification checklists can help it become second nature. "It has to become a non-negotiable part of the workflow."

To start, he suggests that specifiers should shortlist products with third-party verified EPDs – ideally EN 15804-compliant and from trusted program operators, such as Australasia EPD or Global GreenTag. Doing that helps avoid greenwashing, mitigates the risks of internal, unverified LCAs – plus, specifying products with verified EPDs can directly contribute to earning points in rating schemes like the Green Building Council of Australia's (GBCA) Green Star.

Once shortlisted, Llewellyn recommends comparing each EPD's most crucial data points. In addition to the Stage C data he's mentioned, he highlights a few other points architects and designers should pay attention to ensure sustainable aluminium cladding specification:

- Global Warming Potential (GWP): The primary carbon footprint metric.
- Recycled vs. Virgin Content: A key indicator of upfront embodied carbon.
- Durability and Maintenance (Stage B): Indicators of how long the product will last and what the environmental cost of its upkeep is.

PUTTING THEORY TO THE TEST: AN LCA CASE STUDY OF ALUMINIUM CLADDING

Now, the transformative potential of EPD-backed data comes to the fore when specifying aluminium cladding. The material is energy-intensive to produce but can be highly durable and recyclable – and the physical construction of different cladding types directly impacts their environmental footprint.

With various aluminium cladding options available on the market – including older-style solid aluminium, modern ACPs like the non-combustible mineral core ALPOLIC™ NC/A1 and lighter-weight but less durable corrugated and honeycomb panels – LCA becomes essential.

NOT ALL ALUMINIUM CLADDING IS ENVIRONMENTALLY EQUAL

An EPD-based comparison for 1m² of different cladding types reveals significant differences. To start with, ALPOLIC™ NC/A1 has a GWP of 48.9 kg CO_2e, which is significantly lower than a typical 3mm solid aluminium cladding at 86.8 kg CO_2e and a generic composite panel with no recycled content at 95.2 kg CO_2e.

"Solid aluminium generally has a higher GWP due to its significantly greater mass per m² and the energy required to produce virgin aluminium," Llewellyn explains. "And this is especially important in cladding, where the surface area is vast and minor improvements in GWP per m² can scale up quickly."

This performance gap widens during the use stage. A typical 3mm solid aluminium panel uses a PVDF paint coating and requires periodic cleaning to maintain its 15-year conditional warranty. It is also prone to oil canning – visible distortion from thermal expansion and contraction – and can suffer from inconsistent colour between panels, even those from the same batch. In contrast, ALPOLIC™ NC/A1 features a superior Lumiflon FEVE paint coating, which has a life expectancy of over 50 years and is guaranteed not to fade. "ALPOLIC NC's 20-year maintenance-free warranty can help reduce impact during Stage B," Llewellyn says. "Which often gets overlooked in specifications."

And while both ALPOLIC™ NC/A1 and solid aluminium are recyclable, the solid aluminium panels' higher mass per m² leads to greater energy use in processing. "As a result, ALPOLIC™ NC/A1 offers a lower overall environmental burden at end-of-life, thanks to its efficient material use and design for recyclability," Llewellyn explains, highlighting ALPOLIC™ NC/A1's stronger performance in Stage C.

FROM THEORY TO REALITY: A SYDNEY PROJECT TRANSFORMATION

A recent commercial project provides a real-life context for this data-driven comparison – and highlights the importance of employing LCA thinking early in the process.

"The project team initially specified 3mm solid aluminium cladding. However, after reviewing independently verified EPDs and assessing the embodied carbon impact across the façade, the team switched to ALPOLIC™ NC/A1," Llewellyn describes. "The outcome was significant – a 38% reduction in GWP across the façade."

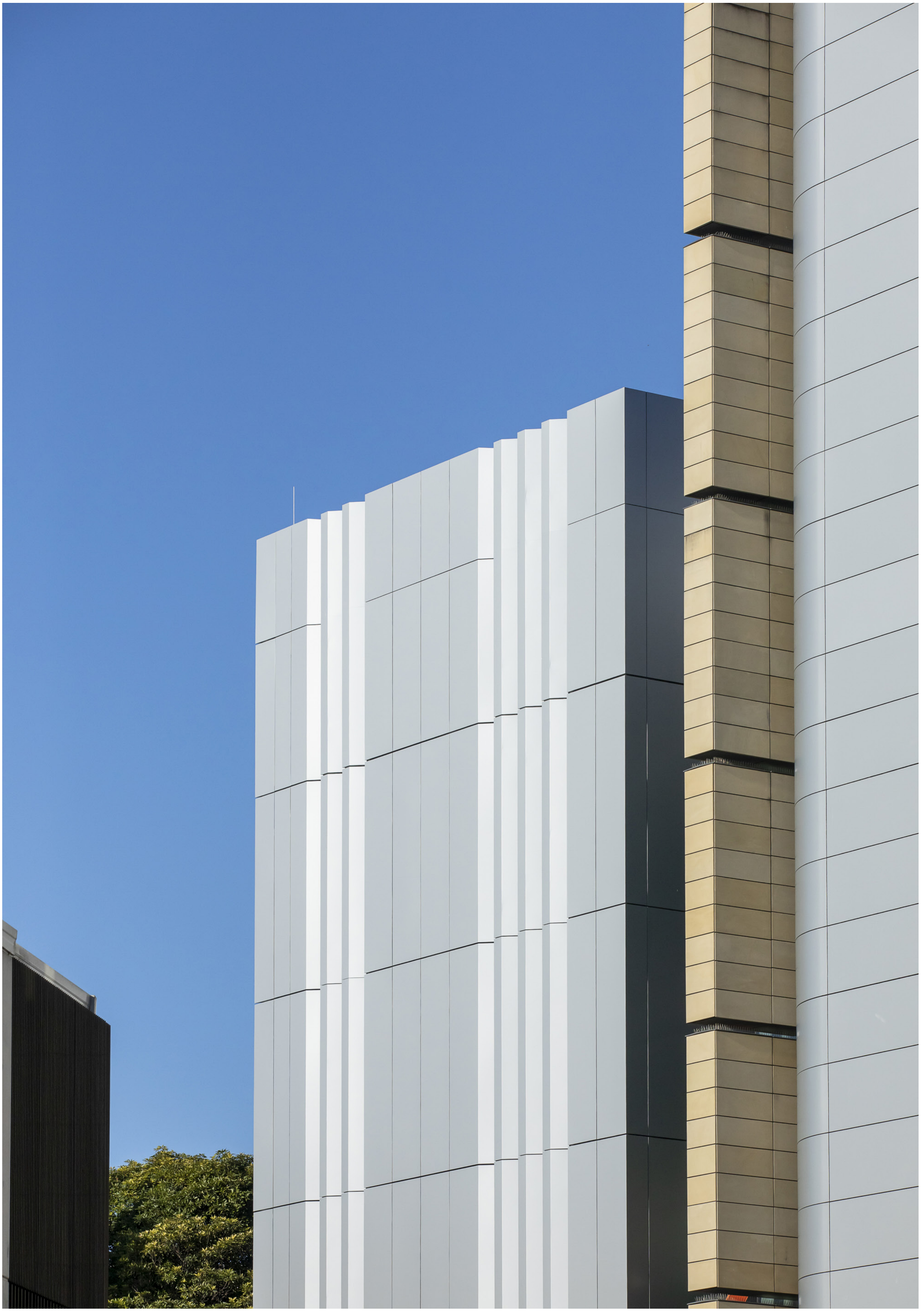
He adds that, beyond the environmental gain, the switch also delivered practical benefits. "ALPOLIC NC/A1's lighter construction and greater dimensional stability meant faster installation and reduced engineering complexity, particularly important given that solid aluminium is more prone to oil canning and often requires additional stiffeners and a heavier gauge frame."

Plus, the ongoing maintenance and cleaning costs were significantly reduced, positioning this project as a powerful example of how sustainability, performance and cost efficiency can successfully align when decisions are informed by precise, comprehensive and verified data.

THE FUTURE IS MEASURED

This holistic, data-driven approach genuinely empowers architects to master the complex balancing act of weighing critical environmental outcomes against functionality, design versatility and lifecycle costs. And, as Llewellyn points to a deeper integration of LCA with BIM, which will enable real-time assessments during the design phase in the next few years, the message is clear – the time to build LCA expertise is now. And Network Architectural is ready to help navigate this transition.

"We're committed to staying ahead by providing not just compliant products, but education and support that empowers better decision-making," Llewellyn concludes. "From CPDs to 1:1 spec support and transparent EPDs, we want to make sustainability practical. Our role is to simplify the complexity of LCA so that architects can specify with confidence, knowing the material they choose aligns with both performance and planetary responsibility."



A DECLARATION IS A DISCLOSURE, NOT A SUSTAINABILITY GUARANTEE:

Network Architectural debunks the EPD myth

The industry's collective pursuit of increasingly ambitious environmental agendas is often anchored by Environmental Product Declarations (EPDs), which, over the last few years, have become an undeniable cornerstone of sustainable design.

Navigating complex certification requirements can be a particularly time-consuming and detail-oriented exercise, and this demanding process has inadvertently solidified the role of EPDs as efficient seals of approval in many specifiers' minds. We've grown accustomed to the idea that if a product has an EPD, then it must be sustainable.

Unfortunately, warns Llewellyn Regler, National Technical Manager at Network Architectural, this common and largely well-intentioned assumption is a critical oversimplification. "The belief that the mere presence of an EPD makes a product sustainable is a myth," Llewellyn says. "And one that risks undermining the very goals a project might be aiming to achieve."

THE DREAM OF SIMPLICITY

According to Llewellyn, this misconception is rooted in a desire for clarity in an increasingly complex field. "EPDs have become synonymous with sustainability in many procurement and certification processes," he explains. "There's a misconception that the presence of an EPD means a product meets a certain environmental standard – but in reality, an EPD is a disclosure tool, not a rating system. The growing demand for sustainable design has driven architects and specifiers to look for straightforward ways to demonstrate environmental responsibility, and, unfortunately, that's often led to a 'tick-box' approach."

Llewellyn adds that this is particularly true for large-scale commercial projects, where decisions must be made and documented with exceptional efficiency. However, by treating EPDs as an administrative formality, the industry risks overlooking the rich, nuanced data they contain, which could potentially lead to suboptimal material choices.

THE INDISPUTABLE VALUE OF AN EPD

This is not to say that EPDs don't hold immense value – they do. And they are an indispensable part of the sustainable specification process. "EPDs provide transparent, standardised data on a product's environmental impacts throughout its life cycle – most notably in the A1–A3 stages, which cover raw material

"Its durability exceeds 50 years, helping reduce waste, lower lifecycle emissions and deliver better long-term value."

extraction and manufacturing," Llewellyn notes. "This makes them valuable for comparing products within the same category and for contributing to lifecycle assessments and certification schemes like Green Star."

Their superpower is undoubtedly their ability to help assess a product's embodied carbon, measured as Global Warming Potential (GWP). And as ESG reporting becomes non-negotiable, this data is more vital than ever, making an EPD a crucial starting point. However, Llewellyn points out, that's precisely what an EPD is: a beginning. To find genuine environmental guarantees, industry professionals must dig deeper. What exactly should they be looking for?

LOOKING FOR GUARANTEES, NOT DECLARATIONS

In short: context. "An EPD simply presents data," Llewellyn explains. "It does not interpret that data or provide context. Two vastly different products can both have EPDs, but one may have triple the embodied carbon of another."

Llewellyn adds that this is a critical distinction, particularly for materials like façade cladding. "For instance, our recent CPD comparing GWP from fossil fuels demonstrates significant differences between three different types of aluminium products," he adds. "A 3mm solid aluminium panel has a GWP of 61.45 kg CO_2e/m^2. In comparison, a corrugated core panel sits at 34.10 kg CO_2e/m^2, while a mineral core panel – like ALPOLIC™ NC/A1 – comes in at just 19.74 kg CO_2e/m^2."

This disparity highlights the fact that, although all three products may have EPDs, it's clear that they're not as sustainable as one another. Their embodied carbon footprints are worlds apart and streamlining an EPD review to a quick box-ticking exercise would completely miss this crucial performance difference.

But that's not the only challenge – Llewellyn notes that EPDs often fail to capture other vital long-term sustainability factors. Durability, maintenance requirements, warranty conditions and lifecycle costs are all critical considerations that fall outside the conventional scope of an EPD but have profound environmental and economic consequences over a building's life.

"A product may have a low impact at the manufacturing stage but require regular repainting, refinishing, or early replacement," Llewellyn goes on. "And that drives up environmental impact and lifecycle costs."

CRUCIAL TRADE-OFFS AND HIDDEN IMPLICATIONS

In practice, this means that when architects and designers interpret the sole existence of an EPD as a sustainability guarantee and don't scrutinise its contents, they can inadvertently specify materials that inflate a project's environmental footprint. A façade product that appears compliant on paper might come with high embodied carbon, or its warranty might be contingent on a demanding and costly maintenance schedule.

"Take cladding, for example," Llewellyn says. "Some products may require bi-annual cleaning or treatment to maintain warranty and appearance. Over the lifespan of a commercial building, this leads to increased labour, water, energy use and resource consumption – and adds hidden costs that aren't reflected in the initial product price or even the EPD."

This is precisely where a holistic evaluation reveals a product's true value. "In contrast, ALPOLIC™ NC/A1 not only has one of the lowest embodied carbon footprints in its category but also offers a 20-year full-cover warranty with no requirement for ongoing maintenance," Llewellyn continues. "Its durability exceeds 50 years, helping reduce waste, lower lifecycle emissions and deliver better long-term value. These are the kinds of insights that can help specifiers make decisions that are genuinely sustainable, not just superficially compliant."

On large commercial projects, these differences scale up dramatically, affecting everything from environmental performance and building management budgets to tenant satisfaction.

THE DREAM OF SIMPLICITY

It's abundantly clear that a truly sustainable specification process involves more than checking if an EPD is in place – it's about adopting a broader perspective and considering the comprehensive environmental and operational impact of materials.

So, we ask Llewellyn which metrics specifiers should pay extra attention to when evaluating EPDs as they compare products to make sure they gain a proper understanding of a product's sustainability performance. Here's a handy breakdown:

- GWP: Scrutinise the A1-A3 data to understand the upfront environmental impact.
- Durability and service life: Assess the expected lifespan of the product before it requires replacement.
- Maintenance requirements: Check if there are long-term inputs required to maintain the product's performance and warranty.
- Warranty conditions: Verify that the warranty is comprehensive and covers materials, labour, and rectification without onerous conditions.
- Fire compliance and safety: Familiarise yourself with this non-negotiable aspect of risk management and occupant safety, especially for façades.
- Lifecycle cost: Consider the total, long-term cost of ownership, including maintenance, repairs and eventual replacement.
- Supply chain and local support: Ensure the product is made responsibly and that local stock, technical support and compliance documentation are readily available.
- End-of-life: Scrutinise whether the product is genuinely recyclable and if it offers a practical pathway for resource recovery in Australia.

Using ALPOLIC™ NC/A1 as an example, Llewellyn explains how these factors can help create a much more comprehensive environmental picture. "ALPOLIC™ NC/A1 is manufactured in Japan by Mitsubishi Chemical Infratec Co., Ltd, a globally respected company known for its ethical production and strict environmental controls," he offers. "But what makes it especially practical for Australian projects is its local stockholding and support through Network Architectural, which ensures shorter lead times, reduced local freight emissions and direct access to compliance documentation and warranty support."

OUTCOMES OVER CHECKLISTS: THE MEASURED FUTURE

Now, Llewellyn is clear that this demand to move beyond a simple EPD box-checking exercise doesn't just lie with the specifiers. As we continue to shift further away from passive compliance to a more sophisticated whole-of-life approach to sustainability – "a good thing," he points out – manufacturers and suppliers have a responsibility to provide greater transparency and deeper insights.

"That's why, at Network Architectural, we take a proactive approach," Llewellyn explains. "And not only supplying materials that meet stringent compliance and performance standards, but also educating the industry on how to specify better. We offer detailed product guidance, warranty transparency and CPD presentations that unpack lifecycle costs and risks."

And while EPDs will continue to anchor the sustainable specification process as a vital assessment tool, it's paramount for industry professionals to integrate this data with critical performance, durability, compliance and ethical sourcing insights.

"Our vision is a construction sector where environmental responsibility is measured not just in checklists but in real-world outcomes – materials that perform for decades, reduce maintenance waste and lower carbon emissions across their full lifecycle," Llewellyn concludes. "That's how we can build better buildings – and, ultimately, a better built environment."

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