

AWARDS SPECIAL

StructuralAwards2025

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Structural Awards 2025

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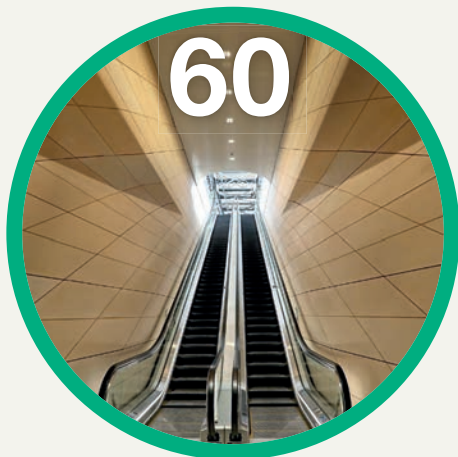
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Foreword

A holistic approach to design



John Orr, Chair of the Structural Awards Judging Panel, is impressed by the range and quality of this year's projects.

For over 50 years, the Structural Awards have celebrated the very best of our global community, and 2025 has been another fantastic year. Entries were received from all over the world (56% of submitted projects this year were from outside the UK) and the awards judging panel has had a difficult, but exciting, task of selecting first the shortlist and then the eventual winners.

Each submitted project is judged not by typology or scale, but against our four key attributes of Planet, People, Process and Profession – covering environmental impact, social value, technical innovation, and collaboration and advocacy. The four key attributes allow the judges to consider each project on its own merits and to celebrate what truly matters: engineering that makes a positive difference.

Making the cut

To get to our shortlist, we have two key stages. First, each submitted project is reviewed by five judges, each of whom brings unique technical expertise, and they can select up to six of their allocated projects for shortlisting. The dedicated IStructE team collates all these responses prior to our first meeting, at which we collectively review each project. Each year I am delighted to see the depth of technical discussion, and the passion that the judges all have for what excellence looks like. The purpose of this first meeting is to arrive at a consensus view on a shortlist, from which we will choose the winners.

Repeating the process of review and selection takes us to the second meeting, at which the panel chooses the 10 or so winners. This is always a tough process, with much

lively debate, and the panel has a huge task in testing and probing all projects in detail. The final step is to choose the best of the best – the project that stands out sufficiently to be awarded the accolade of 'Supreme Award for Structural Engineering Excellence'. I am extremely grateful to the entire panel for all the time and effort they put in, each year, to making this entire process a success.

Our profession in all its glory

The huge range of our profession is truly on show in this year's shortlisted and winning projects. From the world's first post-tensioned bronze dinosaur that will be seen by millions, to a hidden underground wastewater energy transfer system in Toronto.

Careful curation of material is seen in the elegant Oder railroad bridge that combines the old and the new in a beautifully detailed way, precision-engineered timber arranged to form a structurally efficient folded plate roof at La Pêche Town Hall, and a dome that carefully marries carbon fibre, bamboo and paper.

The challenge we face from poorly maintained buildings is dealt with in a calm and cooperative manner at Airedale Hospital – this is the kind of structural engineering that the public will not see, but that shows real technical leadership.

Reuse and retrofit continue to impress, with the structural form of one bridge being informed by the stock of steel sections available for reuse – a principle that I expect to grow as we learn more about deconstruction and reuse. At Shanghai Greenhouse, the addition of a lightweight cable net brings new life to the retained industrial steel frame – juxtaposing

old and new in a technically intricate manner. Retrofit-led renewal is shown at scale in prime London real estate, where 80% of existing structure was retained, setting a remarkable precedent, and one that I hope will put an end to the thoughtless demolition of young buildings.

The Supreme Award winner is an extraordinary demonstration of technical leadership and composure under pressure. Beneath Australia's busiest station, Aurecon and GHD delivered complex top-down construction and overlapping systems in a live, high-risk environment, improving accessibility and reducing carbon while keeping the city moving. It is engineering at its most confident and collaborative: bold, precise, and profoundly public-spirited.

This year has been another exciting year for the Structural Awards – the panel and I have seen and examined the full gamut of what structural engineers do, and our shortlist and winners illustrate the exciting direction our profession is moving in. The technical excellence on display here is outstanding – but in addition many projects have made substantial contributions across all four key attributes – a reflection of a holistic approach to design that leads to projects that improve the world we live in.

All the teams whose projects made our shortlist are to be commended on the quality and ingenuity of their work. Special recognition goes to this year's winners – those projects that truly set themselves apart in their demonstration of excellence against the key attributes. On behalf of the judging panel, I offer our congratulations to all of this year's winners.

	<p>Planet Efficiency of design, sustainability, resilience, circular economy and alignment with UN Sustainable Development Goals.</p>			<p>People Collaborative design and procurement, adding value for the client and stakeholders, and impact on communities.</p>	
	<p>Process Technical achievement and innovation, influencing briefs, and the appreciation of craft and artistry.</p>			<p>Profession Inspiring others, raising standards of design and execution, and enhancing the reputation of the profession.</p>	

Judging panel



Chair (UK)
Prof. John Orr

John is a Professor of Structural Engineering in the Department of Engineering at the University of Cambridge. His research and teaching address climate emergency through interdisciplinary design. John has secured more than £11M in research funding – he was the first person in the UK to receive an EPSRC Early Career Fellowship in Structural Engineering, won an EPSRC Bright Ideas award, and led the EPSRC Energy Feasibility Study 'MEICON'.



UK
Will Arnold

Will leads the Institution's response to the climate emergency, bringing this action into all aspects of our work, including the publication of best-practice emergency guidance. Prior to his current role, he was a practising structural engineer at Arup for over 10 years, where he was responsible for key aspects of ambitious architectural projects across the world from the UK to Taiwan and Rwanda.



UK
Matt Byatt

Matt is a Co-Founder and Director at Subteno. He is a practising 'hands-on' engineer with experience across a diverse range of sectors, including offshore energy, commercial, retail, industrial and residential. Matt has been actively involved with the Institution since the mid-1990s, serving on numerous panels and committees, twice as East Anglian Regional Group Chairman, Council and the Board, as well as serving as IStructE President in 2023.



UK
Dr Katherine Cashell

Katherine is a Professor in Structural Engineering in the Department of Civil, Environmental & Geomatic Engineering at University College London (UCL) and is also a chartered engineer and a Fellow of both the IStructE and the Institution of Civil Engineers. Prior to joining UCL in November 2022, Katherine worked as a Reader in Structural Engineering at Brunel University London, as a Senior Structural Engineer at the Steel Construction Institute and a Senior Engineer at High Point Rendel Ltd.



UK
Margaret Cooke

Margaret is a Conservation Accredited Engineer and a founding Director of Integral Engineering Design. Since its inception over 25 years ago the practice has specialised in low-carbon design, whether through building reuse or through using low-carbon materials and integrated design to produce the lowest carbon footprint for the lifetime of a building.



UK
Dr Michael Cook

Michael is a consultant to Buro Happold, having been a partner of the practice since 1994 and Chairman from 2011 to 2017. He is well known in the industry for his significant contribution to designing innovative buildings and enhancing the reputation of the profession. Mike is a former Vice-President of the Institution and is now Chair of its Climate Emergency Task Group. He was awarded the Institution's Gold Medal in 2020.



Sweden
Kayin Dawoodi

Kayin is Design Director at Tyrens Sweden. He has been working as a structural engineer on projects worldwide, for almost 20 years, championing the creative design process, typically in complex and unusual design-led projects. He is the current IStructE representative in Sweden and teaches at Chalmers University in Gothenburg. Prior to moving to Sweden 10 years ago, he worked at Arup in London. Kayin co-founded the Bridges to Prosperity UK Charitable Trust and was the 2014 winner of the Young Structural Engineering Professional Award.



China
Prof. Jiemin Ding

Prof. Ding is the Chief Engineer of Tongji Architectural Design (Group) Co. Ltd. Throughout his career he has demonstrated dedication to excellence in structural engineering design. Prof. Ding specialises in steel structures, super-high-rise buildings and long-span complex structural systems. He was awarded the Institution's Gold Medal in 2018.



UK
Ian Firth

Ian is a leading expert in bridge design and construction. During his career he has been involved with world-famous bridge projects like the strengthening of the Severn Bridge, Erskine Bridge and West Gate Bridge, and the concept design of Stonecutters' Bridge in Hong Kong, as well as many smaller pedestrian bridges such as the Inner Harbour Bridge in Copenhagen, Taplow Bridge near Maidenhead and the Sail Bridge in Swansea.



UK
Marta Galiñanes García

Marta, Technical Director of Laing O'Rourke, is a transformative leader in the built environment, known for delivering complex projects across both buildings and infrastructure with a focus on innovation, sustainability, and social value. Her career is driven by a belief that construction has the power to do more than shape skylines – it can shape communities, inspire connection, and create a lasting positive legacy.



Australia
Tanya de Hoog

Tanya is a structural engineer with nearly 30 years of design experience leading a diverse range of award-winning and landmark projects globally and is driven by an ethos of technical excellence. Tanya is presently Aurecon's Chief Engineering, Eminence and Innovation Officer, leading the firm's efforts to empower engineers and designers to consistently deliver technical excellence in a changing industry and attain eminence as leaders in their respective fields.



UK
Prof. Tim Ibell

Tim was President of the IStructE in 2015, and he is a Fellow of the Royal Academy of Engineering. He has a passion for celebrating creativity within our profession, and for using this creativity to inspire students. Tim has been Professor of Structural Engineering at the University of Bath since 2003, including a year's interlude as the Sir Kirby Laing Professor of Civil Engineering at the University of Cambridge in 2017/18.

**UK**
Martin Knight

Martin is one of the leading UK architects specialising in the design of bridges and transport infrastructure and is a Fellow of RIBA and the Institution of Civil Engineers and an Honorary Fellow of the IStructE. He founded international bridge designers Knight Architects in 2006 and his practice has completed more than 50 bridges in the UK and internationally, including the award-winning Merchant Square Bridge in London, the iconic Lower Hatea River Crossing in New Zealand, and the 270m-long Ulm Kienlesbergbrücke in Germany.

**Hong Kong**
Eric Kwok

Eric is a Technical Director of Goldwave Steel (Hong Kong). He received his professional training in the UK and has over 26 years of industrial experience in major international practices. He is a chartered structural engineer and a Fellow of the IStructE, and has extensive design and construction experience across projects in Europe, the Middle East, the Americas, Southeast Asia and China.

**UK**
Toby Maclean

Toby is a structural engineer and established Allt environmental structural engineers in 2020, a firm concentrating on addressing the urgent need to decarbonise the built environment with a particular emphasis on carbon embodied in structures.

**UK**
Michelle McDowell MBE

Michelle is a non-executive consultant and mentor and a Trustee of Skills4Stem, with nearly 40 years' experience in structural engineering design. Previously, she was a Board Director of BDP and led its civil and structural engineering group for 24 years. There, she led the redevelopment of the Royal Albert Hall and the 250-strong design team on the £bn Restoration and Renewal of the Palace of Westminster. Michelle's passion is for interdisciplinary design, creating a platform for truly innovative, low-carbon design.

**UK**
Dr Andrew Minson

Andrew has been Director of Concrete and Sustainable Construction at the GCCA since 2019. His responsibilities include the global whole-life roadmap to net-zero concrete by 2050, the GCCA Net Zero Accelerator Initiative and the GCCA EPD tool. He works with partners such as Fédération internationale du béton (*fib*), ACI, UNIDO IDDI, UNEP Global Alliance for Buildings and Construction as well as architects, engineers and clients to support delivery of a lower-carbon and resilient built environment.

**UK**
Roger Ridsdill Smith

Roger is the Head of the Structural Engineering team at Foster + Partners. He is a Fellow of the IStructE and a licensed professional engineer and structural engineer in the USA. He was awarded the Royal Academy of Engineering Silver Medal in 2010, and the IABSE Milne Medal in 2017.

**UK**
William Rogers-Tizard

Will is a chartered structural engineer working in the humanitarian sector. He holds an MEng in Civil Engineering from UCL and a postgraduate Master's in Interdisciplinary Design in the Built Environment from the University of Cambridge. Will previously worked for nine years as a structural engineer at Price & Myers on projects ranging from community workshops to major pieces of national infrastructure. In his current role, Will leads RedR's Climate and Engineering programmes with the aim of strengthening the capacity of humanitarian response around the globe.

**USA**
SawTeen See

SawTeen is President of See Robertson Structural Engineers and provides consulting design services; she is partly retired. SawTeen was the Managing Partner of Leslie E. Robertson Associates from 1991 to 2017. She has extensive experience in the structural design of the full spectrum of building types with particular expertise in tall building design and long-span structures. SawTeen was the partner-in-charge of the structural engineering of iconic structures including the Shanghai World Financial Center; the Lotte World Tower in Seoul and the Merdeka PNB 118 Tower, Kuala Lumpur.

**New Zealand**
Katie Symons

Katie is Principal Advisor, Engineering, in the Building System Performance branch of New Zealand's Minister of Business Innovation and Employment. She is leading the New Zealand Government's work to reduce whole-of-life embodied carbon emissions of buildings. Katie is a chartered professional structural engineer in New Zealand and the UK, and has over 15 years' experience designing building structures in both countries. She has particular expertise in assessing the embodied carbon of buildings and construction materials.

**France**
Peter Terrell

Peter is the founder of Terrell Group and currently President of their Supervisory Board. After early years with Ove Arup, Peter set up as sole practitioner in 1982 in Paris, building a practice that is today recognised as one of the leading structural and multidisciplinary engineering consultancies in France, with over 120 employees in France, UK and the Middle East. In 2023, Peter stepped down after four years as Chairman of the Board of Trustees of the IStructE.

**Canada**
Claire Young

Claire is a chartered structural engineer and passionate advocate for sustainable design within the built environment and the recipient of the Young Structural Engineer of the Year Award 2024. She previously worked as an Associate Engineer and Sustainability Lead at Civic Engineers in the UK and has recently relocated to Vancouver, Canada, to focus on designing in mass timber and to be closer to the great outdoors. She believes that knowledge-sharing and collaboration are critical to helping the wider industry combat the climate crisis.



Find out more
Read full biographies of all the judges at
www.istructe.org/structural-awards/judges/.

Image: ComFlor 80® Closed Ends, Luton Airport

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Location Yorkshire, UK



Airedale General Hospital RAAC remediation programme

Awarded for an outstanding, people-centric example of advancing the industry's response to RAAC remediation.

PROJECT TEAM

- **Structural designer:**
Curtins
- **Client:**
Airedale General Hospital (AGH) Solutions
- **Principal contractors:**
Robertson Construction
AT Lee Properties
- **Architects:**
P+HS Architects
Ellis Williams
- **Key contractors:**
CAD21
Hive Projects
Kenmac Associates
NG Bailey
WT Partnership

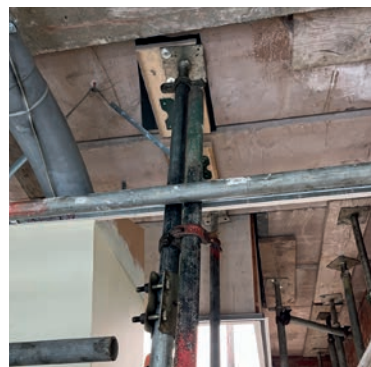
IN BRIEF...

- Due to defects in the primary structural frame and the vast extent of reinforced autoclaved aerated concrete (RAAC), Airedale General Hospital could not be safely refurbished. The RAAC remediation programme aimed to maintain safe operation and clinical capacity of the hospital until its replacement could be designed and constructed.
- Initial surveys categorised RAAC planks into high, medium and low risk, which were recorded in RAAC survey plans. High-priority planks were remediated or propped as required, focusing initially on areas with lowest operational impact. A strategy was developed to allow services and patients to be decanted from RAAC-affected areas to allow full remediation. This was a difficult task given that over 80% of the estate is affected by RAAC.
- Esri UK's GIS mapping and data analysis software was used to create a digital twin of the hospital. The location and RAAC risk of each plank was recorded, with survey data logged in real time. Inspection



CURTINS

→ The largest flat roof in the NHS, 30 000m² with around 40 000 RAAC planks in total split between loadbearing floors/roofs and non-loadbearing internal and external wards



→ Emergency propping was required to maintain the safe operation of the hospital

CURTINS

data was collected on iPads using digital mapping.

→ It was important to make people feel safe even with visible emergency propping. This was done by carefully explaining the risk to staff and patients. Staff were briefed about safety measures as well as what to look out for, such as roof leaks or unexpected dust/cracking. The structural engineers and building surveyors worked hard to build a rapport with staff, which has made them feel at ease and made the process of re-surveying much smoother.

→ An embodied carbon study comparing timber vs steel supporting structures was undertaken. After identifying an opportunity to reduce embodied carbon by up to 67%, the client instructed all future works to be in timber



CURTINS

JUDGES' COMMENTS

A quietly exceptional project that puts communication, care and professional responsibility at the forefront of structural engineering. Delivered in a fully occupied hospital, the work sets a clear benchmark for RAAC remediation, combining technical leadership with people-focused decision-making.

Through open dialogue, smart digital tools and a calm response to risk, the team helped shape a new standard for critical infrastructure remediation.

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Cast steel structural components can be designed to offer material savings over their fabricated counterparts.

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Enhanced strength and stiffness

Castings are well-suited for arduously loaded structural connections, where elevated strength or stiffness may be required.

Cast steel is isotropic, ideal for use in connections that are subjected to complex stress states. In the design stage the stiffness of cast joints can be accurately predicted and tuned.

Simplified fabrication

When steel castings are used to replace complex fabrications, they improve quality; they can be used to eliminate complex or heavy weldments and can therefore offer risk reduction to contractors and their clients.

Improved constructability

Castings reduce risk in the field and can provide total installed cost savings.

Cast steel components provide precision and accuracy at a level that is unachievable via conventional fabrication, improve site fit-up, and reduce rework costs and the associated delays. Castings can be designed to eliminate the need for field welding.

Improved fatigue life

With cast steel nodes, weld access, fatigue performance, and service life are greatly improved as compared with conventionally fabricated connections.

Aesthetics

Castings enhance the aesthetic appeal of architecturally exposed structural steel in projects of any size and budget.

Designers can leverage casting manufacturing to achieve geometries that are not possible with conventional fabrication techniques. Utilizing cast steel connections significantly reduces craftsmanship requirements in the fabrication of complex connections.



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Location Sydney, Australia

Central Station Metro

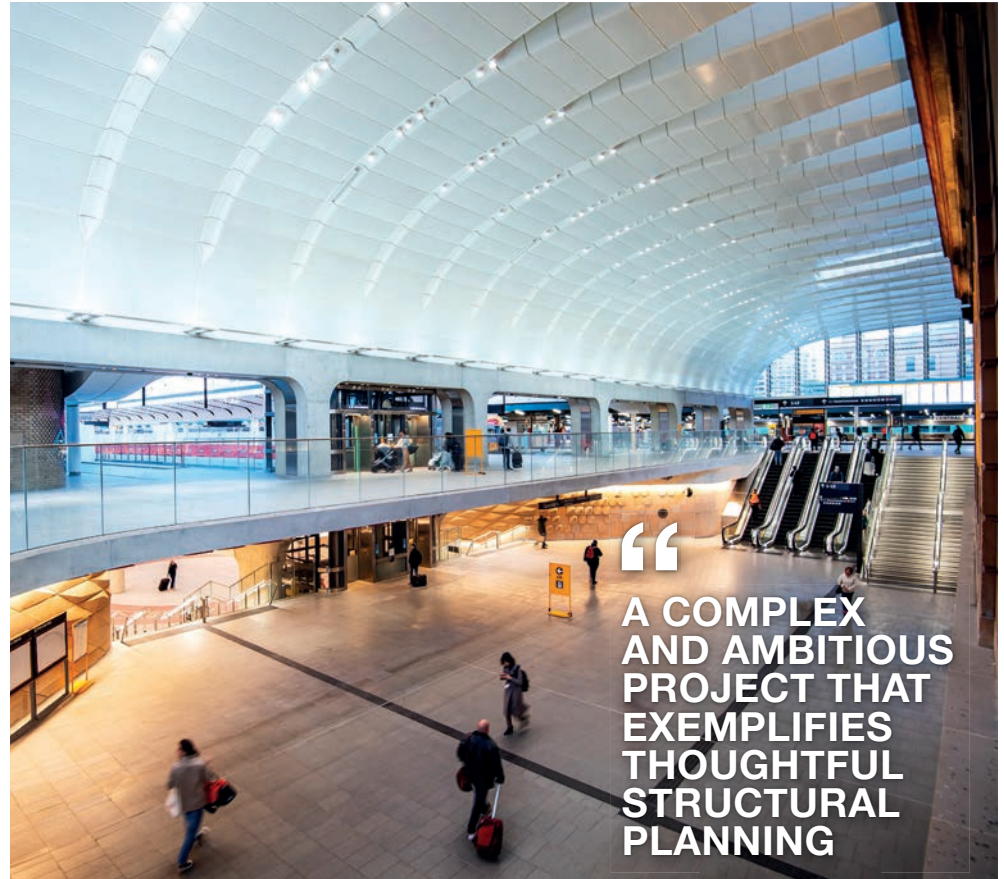
Awarded for exceptional ingenuity and technical excellence delivered in a live, high-risk environment through engineering leadership.

PROJECT TEAM

- **Structural designer:** Aurecon and GHD Joint Venture (AGJV)
- **Client:** Laing O'Rourke
- **Principal contractor:** Laing O'Rourke
- **Architects:** Woods Bagot
John McAslan + Partners
- **Key contractors:** AGJV
Taylor Thomson Whitting Engineers (TTW)

IN BRIEF...

- A major addition to Sydney's underground metro system integrates a new station and pedestrian tunnels beneath Australia's busiest rail terminal. The project comprised four key elements: metro box, Northern Concourse, Central Walk and Devonshire Street Tunnel.
- A ground-breaking top-down construction solution was developed, which allowed the upper levels to be built and supported independently of tunnelling operations below. Temporary vertical plunge columns provided initial support, inclined struts anchored into surrounding rock to straddle the load over the excavation, with loads progressively transferred to the raking columns via a sophisticated hydraulic jacking system.
- The subterranean metro box, 230m long, 27m deep, 30m wide, was constructed within an operating live station, located beneath existing platforms.
- A new upper concourse level was added to the Northern Concourse, including a 10m cantilever comprising exposed-concrete and organic, curvilinear forms mirroring the historical arched geometries of the heritage station.



“
A COMPLEX AND AMBITIOUS PROJECT THAT EXEMPLIFIES THOUGHTFUL STRUCTURAL PLANNING”

→ The canopy roof sits over one of the most highly utilised commuter pathways within Australia's busiest railway station

→ The cantilevered Intercity Concourse extends horizontally 10m from tree-head columns

JUDGES' COMMENTS

A complex and ambitious project that exemplifies thoughtful structural planning and clear technical leadership. The engineers refined and improved the reference design, introducing a clever top-down sequence to meet demanding programme constraints. With reusability and demountability carefully considered, the structure demonstrates how intelligent problem-solving can shape construction and achieve long-term value.



→ The new metro platforms replace the maze-like passageways of the past with a seamless, efficient interchange

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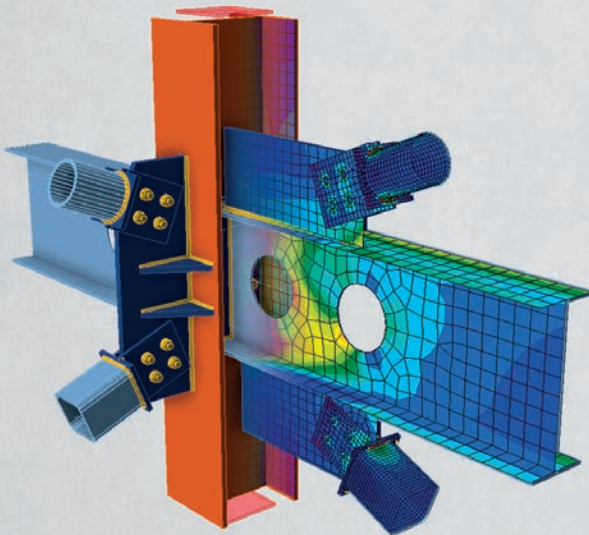
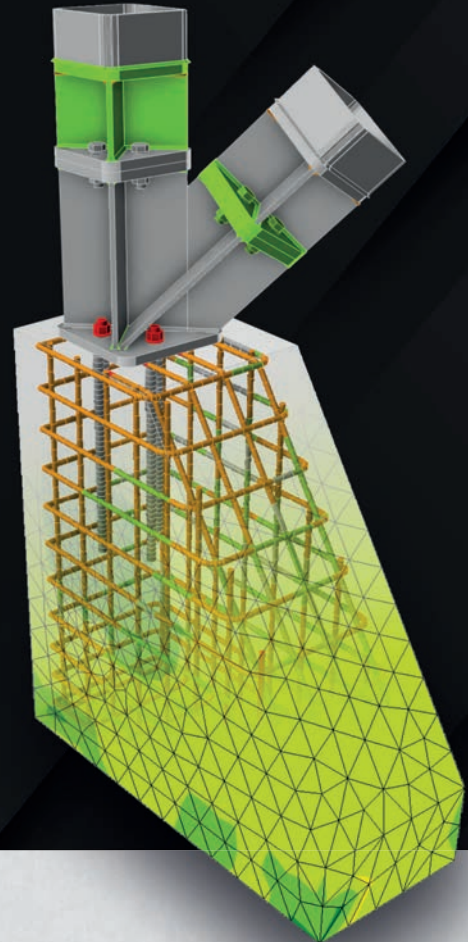
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Location London, UK

Fern the Diplodocus

Awarded for structural ingenuity showcasing the creativity of the profession.

PROJECT TEAM

- **Structural designer:**
Structure Workshop
- **Client:** The Natural History Museum
- **Principal contractor:**
Factum Arte
- **Architect:** Feilden Fowles
- **Key contractors:**
Fademesa
J&L Gibbons
Macalloy
Mtec Fine Art
Walter Lilly

IN BRIEF...

- | Fern the Diplodocus is the world's first post-tensioned bronze dinosaur. At 25m long, the life-size sculpture is completely freestanding, with no supports beneath its cantilevered neck or tail, a first for a dinosaur display.
- | The sculpture is a replica of Dippy, the museum's famous diplodocus cast. Each bone is a separate hollow casting in aluminium bronze, with no internal armature.
- | The exceptional biological form



OAK TAYLOR-SMITH | FACTUM ARTE



OAK TAYLOR-SMITH | FACTUM ARTE

Palaeontologists reviewed the positioning of the bones

→ The tendons are solid bars of high-strength stainless steel, coated in PTFE to prevent bimetallic corrosion

initially defied a structural solution. The solution eventually found was challenging and novel: to use tensioned steel bars to prestress the bronze bones. Key to this approach was the position of the bars. By moving the tendons away from the neutral axis, and outside the bones themselves, mechanical advantage was increased, and negative bending could be induced.

- | The tendons are solid bars of high-strength stainless steel, with threaded ends, coated in PTFE to prevent

bimetallic corrosion. Each tendon was bespoke, manufactured with a unique curve to follow the form of the spine.

- | To move from concept to detailed design, a team of scientists digitally scanned each bone in 3D. The fabricator then assembled these bones virtually, with input from the engineers and palaeontologists, to create a dynamic and lifelike pose. Unusually sophisticated analysis was required, as every bone is a unique and complex biological form. Each scanned bone was modified, applying a geometric logic that could be defined and designed.

JUDGES' COMMENTS

A technically challenging and beautifully executed project that demonstrates the versatility of structural engineering. The team resolved complex post-tensioning and geometric challenges with care and intelligence, creating a form that engages the public and reinforces the profession's role in shaping imaginative, visible work.

“
EACH BONE IS A SEPARATE HOLLOW CASTING IN ALUMINIUM BRONZE, WITH NO INTERNAL ARMATURE”

THE TRUSTEES OF THE NATIONAL HISTORY MUSEUM, LONDON



→ Fern has no supports beneath its cantilevered neck or tail, which is a first for a dinosaur display

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Location Quebec, Canada



La Pêche Town Hall

Awarded for elegant detailing, and an intelligent and striking use of mass timber.

→ The local area's rich history of covered bridges inspired the structural design



PROJECT TEAM

- **Structural designer:** Latéral
- **Client:** Municipality of La Pêche
- **Principal contractor:** Ed Brunet & Associates Canada
- **Architect:** BGLA architecture + design urbain
- **Key contractors:** Gravitaire
Pageau Morel et associés

IN BRIEF...

- The new La Pêche Town Hall is a two-storey, all-wood building. The town hall is a Passivhaus-standard design, ensuring exceptional energy performance – a first for an institutional building in eastern Canada.
- The roof is a long-span 18m saw-toothed structure composed entirely of cross-laminated timber (CLT) panels without intermediate supports. The angled geometry maximised CLT's bidirectional strength, resulting in a high strength-to-weight ratio. The roof design allowed for large, column-free spans.
- The building's bracing system includes glulam diagonals on both



A CONFIDENT EXAMPLE OF HOW STRUCTURAL CLARITY CAN DEFINE CIVIC ARCHITECTURE

floors, with the south facade, mostly made up of a wooden curtain wall, additionally braced by 12.7mm stainless steel rods. All elements are visible, with connections discreetly hidden in the wood.

JUDGES' COMMENTS

An elegant and efficient mass timber structure that demonstrates how structural engineering can shape both performance and architectural identity. The folded-plate CLT roof is a standout feature: technically refined, visually expressive, and central to the building's low-carbon, high-comfort ambitions. This is a confident example of how structural clarity can define civic architecture.



→ The new Town Hall was designed to foster community engagement. It includes welcoming spaces where residents can gather, connect and participate in civic life



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technical recruitment

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IMAGES SHOW PROJECTS BY WALKER DENDLE TECHNICAL RECRUITMENT CLIENTS SHORTLISTED FOR THE STRUCTURAL AWARDS 2013-2025



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Location Ontario, Canada



Limberlost Place

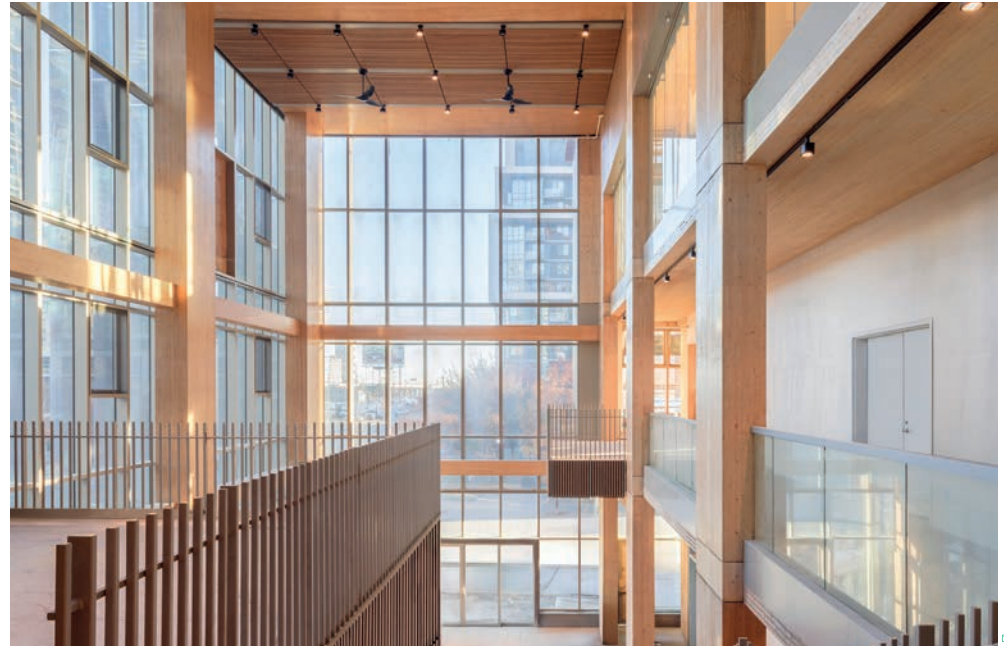
Awarded for cross-academia-industry innovation, elevating composite mass timber to inspire future building designers.

PROJECT TEAM

- **Structural designer:**
Fast + Epp Structural Engineers
- **Client:** George Brown College
- **Principal contractor:**
PCL Construction
- **Architects:**
Moriyama Teshima Architects
Acton Ostry Architects
- **Key contractors:**
Introba
Morrison Hershfield
Nordic Structures
Transsolar KlimaEngineering
Walters Group

IN BRIEF...

- | Limberlost Place is Ontario's first tall timber institutional building. Designed for George Brown College, the 10-storey structure uses an innovative, beamless hybrid system of mass timber and concrete.
- | The hybrid structure features a long-span, beamless gravity frame, with timber-concrete composite cross-laminated timber (CLT) 'slab bands' – a first in North America. The frame is coupled with a steel-braced core for stability and mechanical flexibility.



SALINA KASSAM

↑ Limberlost Place is Ontario's first tall timber net-zero-carbon institutional building

- | An extensive testing programme was conducted to support the concept of the slab bands, the results of which have been shared with the engineering community and have informed new provisions in timber material standards on composite behaviour.
- | The steel kerf plate composite connectors developed on the project are now being utilised on other mass timber projects across Canada, as they have been proven as an economical method of connecting these materials.

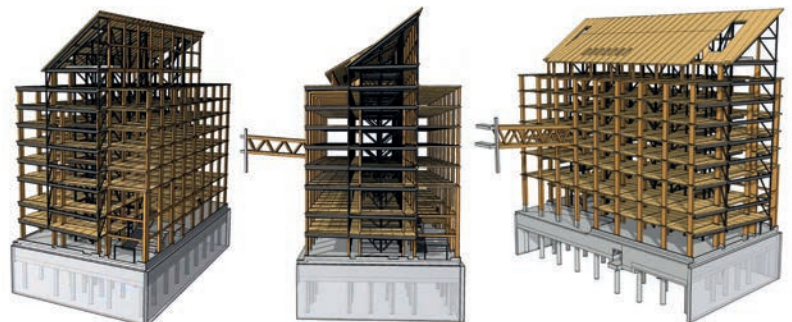
JUDGES' COMMENTS

A thoughtfully designed and beautifully executed hybrid structure that brings together mass timber and concrete with technical clarity and environmental intent. The engineers developed and rigorously tested a bespoke shear connection system, enabling an elegant and efficient structural solution. As an educational building, it showcases the best of structural engineering while creating an inspiring space for future generations.



SALINA KASSAM

← The project has garnered significant interest from the design community, with over 250 site tours conducted



➤ The building uses the first timber-concrete composite CLT 'slab band' gravity system of its kind

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High Roller, Las Vegas, United States
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Location Küstrin-Kietz, Germany

Oder Railroad Bridge

Awarded for the elegant and unique combination of materials in a landmark network arch bridge.



↳ The design concept for the new bridge emerged from a two-stage international design competition

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PROJECT TEAM

- **Structural designer:**
schlaich bergemann partner
- **Client:** DB InfraGO AG, Infrastrukturprojekte Ost
- **Principal contractor:**
Sächsische Bau
- **Architect:** Knight Architects
- **Key contractors:**
Aero Dynamik Consult
Carbo-Link
Dr.-Ing. Lutz Vogt
Empa (Dübendorf)
GuD Geotechnik
Schüßler-Plan
Prof. Dr.-Ing. Karsten Geißler

IN BRIEF...

- A distinctive 130m network arch bridge replaces an old crossing from 1926. With its crown positioned above the demarcation line of the border, the steel structure acts as a landmark and welcomes travellers between Germany and Poland.
- The use of carbon tension members instead of traditional steel bars as the primary loadbearing elements significantly reduced the material footprint. The carbon tension members, made up of around 200 000 individual, ultra-thin carbon-fibre threads, provide superior strength with a much smaller cross-section than steel, resulting in a

reduction of 80t of steel.

- The bridge's installation required an alternative approach due to fluctuating water levels in the Oder River. Engineers developed a method that used an auxiliary support in the river, leveraging the unique properties of the carbon tension members, which could withstand recurring relief of pretension without damage. This allowed the bridge to be launched on stationary supports without the need for temporary stiffening structures, marking a world-first for this type of construction.

JUDGES' COMMENTS

An elegant and efficiently delivered network arch bridge that reflects a thoughtful and disciplined design process. Reusing existing piers and introducing carbon-fibre tension members, the structure achieves lightness, clarity and beautifully resolved proportions. It's a seamless integration of architecture and engineering, made possible through careful detailing and confident material choices.



THIS STRUCTURE ACHIEVES LIGHTNESS, CLARITY AND BEAUTIFULLY RESOLVED PROPORTIONS



↳ The bridge will significantly enhance the capacity and shorten travel times between Küstrin-Kietz and Kostzyn

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- A combination of cable-stressing devices with load cells and a frequency-based force measurement method allowed engineers to accurately assess the force distribution in the hanger network



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Location Shanghai, China

Shanghai Greenhouse project

Awarded for imaginative structural intervention combining new and old to dramatic effect.

PROJECT TEAM

- **Structural designer:**
Arcplus Institute of Shanghai Architectural Design & Research Co., Ltd
- **Client:** Shanghai Expo Culture Park Construction Management Co., Ltd
- **Principal contractors:**
China Construction Eighth Engineering Division Corp., Ltd
Shanghai Tongzheng Aluminum Structure Construction Technology Co., Ltd
- **Architects:** Delugan Meissl Associated Architects
Yiju Ding Landscape Architects
- **Key contractors:**
Bollinger+Grohmann
Shanghai Tongzheng Aluminum Structure Construction Technology Co., Ltd
Tongji University
Transsolar Energietechnik



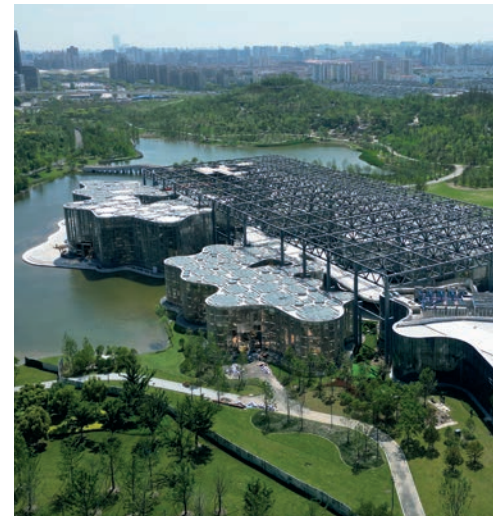
➤ The project has transformed a former industrial site into a multifunctional ecological complex

IN BRIEF...

- Shanghai Greenhouse is located in Shanghai Expo Culture Park, on a former steel factory site established in 1946. The architecture integrates industrial heritage with natural elements, demonstrating the city's commitment to a sustainable urban future.
- The project involved the adaptive reuse of existing industrial steel trusses, which were incorporated with the modern greenhouse structures to create what is currently the world's largest aluminium alloy exhibition by area.
- The structural system comprises an irregular polygonal aluminium alloy grid supported by a cable-net, which the structural designers developed through mechanical form-finding and the installation of strut connections.
- This innovation addressed the issue of insufficient in-plane stiffness, thereby meeting the greenhouse's requirements of a 74% window-to-roof ratio and maximising transparent facades for natural lighting.



➤ The greenhouse hosts botanical displays, recreational activities and biodiversity conservation research, housing approx. 4000 rare plant species



➤ The complex comprises several components including a tourist centre, existing industrial trusses and elevated indoor and outdoor walkways

JUDGES' COMMENTS

An imaginative and technically intricate reuse project that brings new life to an old industrial steel frame. By inserting a lightweight cable-net greenhouse within the existing structure, the team

created a bold juxtaposition of old and new. The result is both visually striking and structurally inventive, a confident blend of adaptive reuse, expressive engineering, and thoughtful design.

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Location Maine, USA



Tekakapimək Contact Station

Awarded for regenerative design using indigenous knowledge, materials and construction techniques for maximum social impact.

PROJECT TEAM

- **Structural designer:**
Atelier One
- **Clients:**
Friends of Katahdin
Woods & Waters
Elliotsville Foundation
- **Principal contractor:**
Wright-Ryan Construction
- **Architect:** Saunders Architecture
- **Key contractors:**
Alisberg Parker Architects
Erin Hutton Projects
Haley Ward
Reed Hilderbrand LLC Landscape
Architecture
Transsolar KlimaEngineering

IN BRIEF...

- | Tekakapimək Contact Station is a 735m² off-grid visitor centre set on a 23-acre site atop Lookout Mountain, within Katahdin Woods and Waters National Monument in the northeastern USA.
- | Timber was selected as the primary building material for its renewability, structural integrity and carbon-sequestering potential. All wood was sourced from local forests and processed at nearby sawmills.
- | The structural design made use of simple, standard, repetitive components – 4x2in. Douglas fir planks – laminated into custom architectural columns that serve simultaneously as structure, interior finish and furniture.
- | The final laminated column system was designed for simplicity, strength and ease of assembly using local skills. Precision slots cut into the columns allowed roof trusses to self-locate, which enabled the portal frames to be erected efficiently using only basic tools.

JUDGES' COMMENTS

A bold and principled project that places indigenous knowledge, local materials and community leadership at the heart of structural design. The team stayed true to a clear regenerative



JAMES FLORIO

← The site is located within the present and traditional homeland of the Penobscot Nation

↓ No site-wide lighting was installed in order to preserve the monument's International Dark Sky Sanctuary status



JAMES FLORIO

➤ Its construction alone generated an estimated \$28M in local economic impact and directly supported contractors, artisans and tribal members across the region

vision, resulting in a structure shaped by social purpose and environmental care. It's a compelling example of how engineering can respond to local context with humility, integrity and lasting impact.



JAMES FLORIO

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Location London, UK



The Acre

Awarded for showcasing excellence in large-scale city-centre retrofits.

PROJECT TEAM

- **Structural designer:** Arup
- **Client:** Northwood Investors
- **Principal contractor:** Lendlease
- **Architect:** Gensler
- **Key contractors:**
 - Arup
 - Core Five
 - McGee
 - Platform Associates

IN BRIEF...

→ The Acre is a retrofit of a 1980s brutalist building in Covent Garden, London. By retaining 80% of the existing structure and adding 65 000sq.ft of premium space, the design balanced carbon, cost and architectural value.



← An innovative vertical separation joint connects the existing structure with new infills

- The building has 10 storeys above ground and two basement levels, with a reinforced concrete structure. It comprises 20 blocks that extend vertically by varying amounts.
- Guided by preserving the existing structure, rather than rebuilding, the team identified key interventions to

maximise impact while minimising demolition. The existing fabric was integrated with new, reasonably larger-span floor infills, enabling the flexible floorplates preferred by modern office occupiers and providing future adaptability.

- Layers of buried structures from previous developments posed a major barrier to new or upgraded foundations. This risk was mitigated by identifying an innovative piling technology that eliminated the need to remove these obstructions prior to piling and, critically, enabled piling works to take place before demolition.

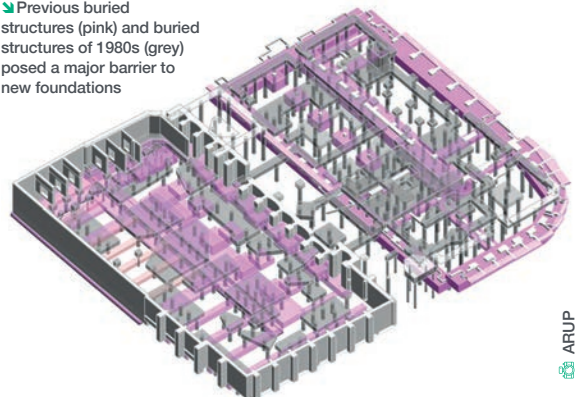
JUDGES' COMMENTS

A clear and accomplished example of large-scale retrofit that demonstrates the value of structural engineering in city-centre transformation. Combining elegant structural interventions with well-planned temporary works, the team kept the buildings safe and serviceable while significantly improving their urban presence. The project sets a strong precedent for retrofit-led renewal, balancing technical care with sustainable ambition.



THE PROJECT SETS A STRONG PRECEDENT FOR RETROFIT-LED RENEWAL

→ Previous buried structures (pink) and buried structures of 1980s (grey) posed a major barrier to new foundations



→ The project transformed the dated, fortress-like 1980s construction into a state-of-the-art building



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Design Museum and Holland Green, London UK
Photo credit: © Paul Carstairs

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Location London, UK



The Heathland School welfare centre

Awarded for a commitment to natural, renewable materials and community engagement.

PROJECT TEAM

- **Structural designer:**
Webb Yates Engineers
- **Client:**
London Borough of Hounslow
- **Principal contractor:**
Borras Construction
- **Architect:**
Wellspring Architecture
- **Key contractors:**
Anderson Acoustics
Arbtech Consulting
Edgingtons Architects
Goodger Design Associates
Stonehouse Consultants

IN BRIEF...

- | This new facility provides dedicated space for students with special educational needs at a school in Hounslow, west London.
- | The brief was guided by sustainability, resulting in a low-carbon scheme built with recycled and natural materials, including recycled tyres and reusable steel screw piles in the foundations, UK-grown timber, and loadbearing straw bale walls – with the straw sourced from a nearby farm.
- | The concrete-free building made extensive use of timber, including a raised timber deck for the floor, a roof framed from engineered I-joists and OSB, and windows and doors of FSC-certified softwood.
- | The external walls are fully built from loadbearing straw bales, providing insulation, structure and breathability. To enable the bales to support the large tied timber roof that spans across the spaces, creating vaulted ceilings, the team had to test and adjust the lime render mix to give the bales enough strength to carry the load.

JUDGES' COMMENTS

A thoughtful and quietly bold project that explores the structural potential of natural materials in an

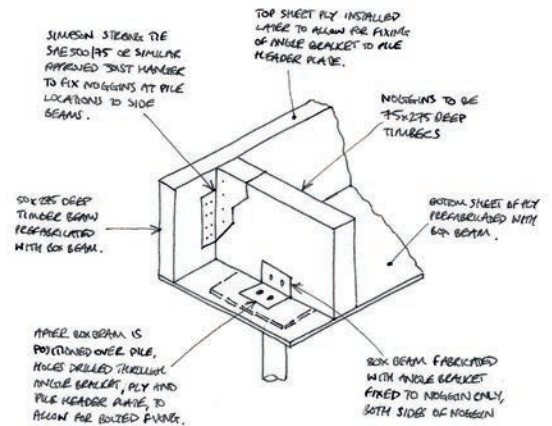


➤ Natural, low-carbon materials were used to create a healthy, calming environment for children with special educational needs

educational setting. Using straw bales construction with care and clarity, the team delivered a space shaped by environmental intent and community engagement. A small but ambitious project that reflects a strong commitment to low-carbon design and inclusive practice.



➤ To protect the straw bales from the weather, the roof was constructed first on temporary supports



“
A THOUGHTFUL AND QUIETLY BOLD PROJECT THAT EXPLORES THE STRUCTURAL POTENTIAL OF NATURAL MATERIALS



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Location Toronto, Canada

Toronto Western Hospital Noventa Energy transfer station

Awarded for outstanding collaboration and delivery on a complex infrastructure project in the pursuit of sustainable energy.

PROJECT TEAM

- **Structural designer:**
R.V. Anderson Associates
- **Client:** Noventa Energy Partners
- **Principal contractor:**
Bird Construction
- **Architect:** Hanson + Jung Architects
- **Key contractors:**
Grounded Engineering
MCW Consultants
Trane

IN BRIEF...

→ The new wastewater energy transfer (WET) station at Toronto Western Hospital is believed to be the largest such system in the world. It is designed to temporarily divert wastewater from the city's sewer system and leverage the energy stored within to supply heating and cooling to the hospital, reducing CO₂ emissions by 250 000t over the next 30 years.

- The WET system consists of three structures: a wetwell – a 9.5m diameter reinforced concrete shaft structure that extends 39m below grade; an energy transfer station (ETS) – a new multi-storey steel-framed structure constructed inside the shell of an existing masonry building; and an energy transfer loop tunnel – a 2.1m diameter steel-lined tunnel that contains four force mains, an HDPE gravity return pipe, and numerous electrical conduits.
- Instead of demolishing the existing masonry building and constructing a brand new ETS building, the project team chose a retrofit approach, repurposing the existing structure and reusing the entirety of its open-web

- steel-joint roof, concrete foundations and external shell.
- The primary structural challenge was providing continuous support to the perimeter concrete foundation walls which were laterally supported (propped) by the internal basement and ground-floor elements. To achieve this, the team developed a complex construction staging plan, which heavily influenced the structural design of the foundations and framing.

JUDGES' COMMENTS

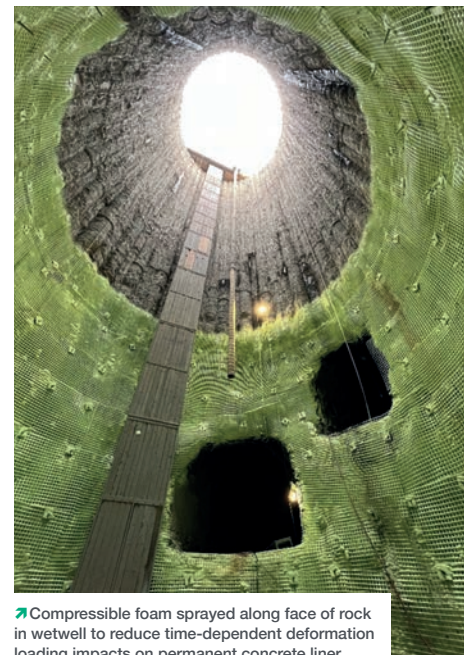
A technically complex and quietly impactful project that stands out for its thoughtful collaboration and effective knowledge sharing across disciplines. The team successfully delivered a challenging energy system in a constrained hospital environment, demonstrating the vital role of structural engineering in the transition to clean energy. A replicable and meaningful achievement.



**A TECHNICALLY
COMPLEX AND QUIETLY
IMPACTFUL PROJECT**



→ Underpinned foundation walls, temporary shoring and preparation for basement slab and column footing concrete work in ETS structure



→ Compressible foam sprayed along face of rock in wetwell to reduce time-dependent deformation loading impacts on permanent concrete liner

Location Sydney, Australia



Central Station Metro

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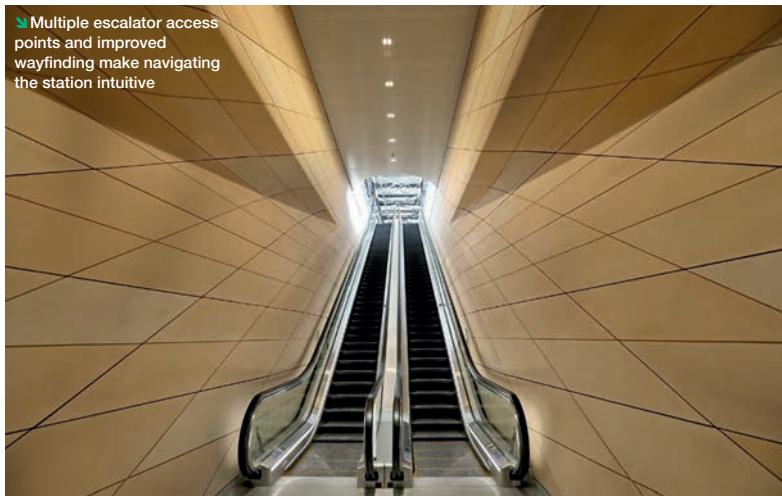


 The North-South Concourse links Central Walk with the Northern Concourse

→ Temporary vertical plunge columns provided initial support, inclined struts anchored into surrounding rock to straddle the load over the excavation, with loads progressively transferred to the raking columns via a sophisticated hydraulic jacking system

PROJECT TEAM

- **Structural designer:** Aurecon and GHD Joint Venture (AGJV)
- **Client:** Laing O'Rourke
- **Principal contractor:** Laing O'Rourke
- **Architects:** Woods Bagot John McAslan + Partners
- **Key contractors:** AGJV Taylor Thomson Whitting Engineers



Multiple escalator access points and improved wayfinding make navigating the station intuitive



IN BRIEF...

- Located within and under the existing Central Station in Sydney's Central Business District, in a heritage-listed, fully operational transport hub, the Central Station Metro project had to maintain the intercity, suburban and light rail operations and pedestrian flow for 270 000 daily commuters.
- Challenges and limitations: a 2024 opening date limited how deep the excavation could go until the tunnel boring machines below were decommissioned; very little natural light penetrated the concourse and low level; there were low ceiling heights and reduced sight lines to the main northern entry.
- The team turned the reference design on its head to create a top-down construction approach. This enabled the metro box construction to progress earlier than the bottom-up method and also reduced the structure's depth, altering concourse ceiling heights from 4.5m to 6m, eliminating the need for platform-level supports, improving passenger

navigation, sight and safety.

→ The innovative solution represents a significant advancement in top-down construction for high-stress rock environments, setting a precedent for urban construction in constrained environments. It showcases a replicable approach for projects facing similar challenges and can be adopted widely in excavations to control interaction between structures and surrounding material, delivering stable, resilient solutions that prioritise safety and structural integrity.

JUDGES' COMMENTS

A truly impressive collection of innovative and brilliantly executed structural engineering solutions, constructed within the constraints of being both in and below Australia's busiest railway station.

Katherine Cashell

Central Station Metro is structural engineering at its boldest and most responsible. It is a masterclass in structural design ingenuity, material efficiency and human-centred

→ The Northern Concourse improves pedestrian connections and includes a new upper concourse level

impact, and redefines what's possible in complex urban infrastructure. This landmark exemplifies how our profession can shape cities, elevate lives, and lead with ingenuity, responsibility and purpose.

John Orr

The Central Station Metro project in Sydney is structural engineering at its best – bold, ingenious and deeply responsible. In an extraordinarily complex live environment, this team reimagined the reference design with a groundbreaking construction sequence that balanced risk, programme and design elegance. Their approach reduced concrete volumes by 40%, improved accessibility and safety for hundreds of thousands of daily passengers, and elevated the architectural experience for station users. This is structural engineering that leads – demonstrating mastery of process, innovation in material efficiency and tangible benefit to people, planet and profession.

Katie Symons