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NEWS HIGHLIGHTS

WCTE 2025 WRAPS UP IN BRISBANE: A GLOBAL CELEBRATION OF SUSTAINABLE TIMBER INNOVATION

We were proud to host and organise the **14th World Conference on Timber Engineering (WCTE 2025)** in Brisbane from 22–26 June 2025 — the first time this global event was held in Australia!

WCTE 2025 attracted more than 950 delegates (inclusive of 280 students) from 44 countries, with more that 730 presentations, including 700 papers accepted for Proceedings.

Participants had the opportunity to share ideas on nearly any subject related to timber engineering and architecture, from codes of practice, regulations, and legislations, to innovations, new practices, and future trends of bio-based sustainable and circular building materials used in construction.

📸 **Click on link below to view full event wrap-up, videos & photos:**
https://www.advance-timber-hub.org/hub-news/wcte-2025-wraps-up-in-brisbane-a-global-celebration-of-sustainable-timber-innovation/

HELP US SHAPE TIMBER CONNECTION RESEARCH AT THE ARC ADVANCE TIMBER HUB!

ARC Advance Timber Hub Project "Connection Systems for Extended Building Life" developed an industry survey to help establish the current understanding of connection design and common joint details in Australia.

See: https://www.advance-timber-hub.org/hub-news/help-us-shape-timber-connection-research-at-the-arc-advance-timber-hub/.

HELP SHAPE THE FUTURE OF TIMBER CONSTRUCTION

ARC Advance Timber Hub Project "Status, Perceptions and Priorities of EWP Industry in Australia" developed an industry survey that explores the barriers, enablers, and motivators influencing the adoption of Engineered Wood Products (EWPs).

See: https://www.advance-timber-hub.org/hub-news/help-shape-the-future-of-timber-construction/

ADVANCING TIMBER ENGINEERING: INSIGHTS FROM SEISMIC DESIGN SEMINAR WITH PROFESSOR MASSIMO FRAGIACOMO

In a collaborative initiative between the ARC Advance Timber Hub, Aurecon & The Engineers Australia Structural College Board, Brisbane hosted an exclusive technical seminar on the seismic design of timber structures, delivered by internationally acclaimed expert Professor Massimo Fragiacomo from the University of L'Aquila, Italy.
see: https://www.advance-timber-hub.org/hub-news/advancing-timber-engineering-insights-from-seismic-design-seminar-with-professor-massimo-fragiacomo/

DRAFT QUEENSLAND FUTURE TIMBER PLAN

The ARC Advance Timber Hub, represented by Director, Professor Keith Crews, is a standing member of the Queensland State Government's Timber Supply Chain Ministerial Stakeholder Roundtable, established in May 2025, which includes representatives from Timber Queensland, AgForce, Queensland Farmers' Federation, the Housing Industry Association, Forestry Australia, HQPlantations, Australian Forest Contractors Association and leading timber companies (such as Hub Partners, AKD & Hyne).

The Queensland State Government has committed to delivering a landmark timber action plan, the Queensland Future Timber Plan (QFTP), to ensure the State has access to the timber required to build one million homes over the next 20 years. The Timber Supply Chain Ministerial Stakeholder Roundtable aims to assist in the design of the action plan.

See: https://www.advance-timber-hub.org/hub-news/draft-queensland-future-timber-plan/

FUELLING THE FUTURE 2025: A STUDENT & ECR FIRE FORUM

UQ Fire, with the assistance of ARC Advance Timber Hub PhD Candidate, Josh Madden, led/organised the **Fuelling the Future: A Student & ECR Fire Forum 🔥 2025 Theme: Fire & Timber** 🔥 which was held on the 27th June 2025, after the World Conference on Timber Engineering (WCTE 2025).

Fuelling the Future 2025, was a student and early career researcher (ECR)-led forum dedicated to fire science and engineering. This event, was inspired by WCTE 2025, and based off the Fired Up event series from the UK, which successfully provides a platform for students to present and receive feedback on their research.

The goal was to continue that momentum by creating a similar space for students and ECRs in the fire & timber research field. The forum offered participants the opportunity to present their work, receive constructive feedback, network, and discuss new developments in fire safety and timber design.

REIMAGINING TIMBER: ADAPTIVE STRUCTURES FROM OUT-OF-GRADE WOOD

The project REIMAGINING TIMBER was launched during Melbourne Design Week from the 15th to the 25th of May, at the RMIT Design Hub. The exhibition featured a small-scale prototype that served as a testbed for a broader agenda under the ARC Advance Timber Hub, Manufacturing Innovation Research Node exploring the future of timber architecture and structures. This prototype was also displayed at WCTE 2025.

Project Leaders: Dr. Ding Wen 'Nic' Bao (RMIT), Dan Luo & Joe Gattas (UQ)

See: https://www.advance-timber-hub.org/hub-news/reimagining-timber-adaptive-structures-from-out-of-grade-wood/

SEEING THE WOOD AND THE TREES: THE ROLE OF TIMBER IN FUTURE WALES

The ARC Advance Timber Hub shared a Blog from Calvin Jones in relation to ARC Advance Timber Hub Research Node: Socio-Economic Opportunity.
See: https://www.advance-timber-hub.org/hub-news/seeing-the-wood-and-the-trees-the-role-of-timber-in-future-wales/
Calvin is a Professor at Cardiff Business School, Managing Director at Jones the Numbers and a partner investigator of the ARC Advance Timber Hub.

GRIFFITH UNIVERSITY HOSTS WORKSHOP ON TIMBER INNOVATION FOR VIBRATIONAL AND ACOUSTIC PERFORMANCE

The ARC Advance Timber Hub convened a highly engaging and collaborative workshop at Griffith University to showcase progress on the Node 1.1 project: Innovative Long-Span Timber and Wood-Based Hybrid Floors for Vibration Performance and Acoustic Compliance.

See: https://www.advance-timber-hub.org/hub-news/griffith-university-hosts-workshop-on-timber-innovation-for-vibrational-and-acoustic-performance/

FEATURED ARTICLES

Professor Keith Crews was featured in the following articles leading up to the World Conference on Timber Engineering 2025, see:
- We Must Bridge the Gap in Design and Service Life – Timber Can Help
- Brisbane Olympics Can Lead World with Timber Use — But It Needs Smarter Design

REIMAGINING TIMBER at Melbourne Design Week, with Dr Nic Bao and Associate Professer Joe Gattas featured in these articles:

- Future 'Out-of-Grade' Timbers Can Be Used in Long-Span Structures
- https://www.rmit.edu.au/news/all-news/2025/apr/return-to-melbourne-design-week

HDR OPPORTUNITIES

The ARC Advance Timber Hub advertised 5 x HDR Opportunities in:

1. Circular (re)design to enable disassembly and reuse of mid-rise timber buildings in Australia
2. Investigating timber connection performance for extended building life
3. Detrimental role of moisture in the long-term performance of building elements
4. Hygric principles for mid-rise timber-framed façade systems
5. Adaptive product design fabrication and optimisation variable fibre feedstocks timber manufacture

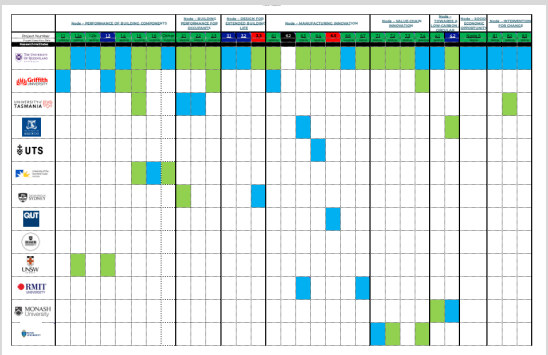
PROJECT / RESEARCH UPDATES

PROJECT OVERVIEW

To easily see what projects our partners are supporting, we have developed an overview diagram. To view EXCEL version – click here.
To view PDF version – click here.

Currently, we have:

- ✅ **22 Projects** officially underway
- 📄 **4 Projects** pending project agreement
- 🔄 **2 Projects** currently in the development phase



ARC ADVANCE TIMBER HUB WEBSITE / PROJECTS

The ARC Advance Timber Hub website has been updated with the details from all projects currently in progress. Details include project partners / investigators, project description, industry focused outcomes, obectives and deliverables. These pages will continue to be regularly refreshed to keep you informed of the latest findings. Click on project links below to be directed to the website page.

Node 1: Performance of Building Components

Project 1.1
Innovative Long-Span Timber and Wood-Based Hybrid Floors for Vibration Performance and Acoustic Compliance
– Professor Hassan Karampour

Project 1.2
Connection Systems for Extended Building Life
– Dr Lisa Ottenhaus

Project 1.3
New Hybrid Load Bearing System as an Incremental Step Towards the Adoption of Timber in Buildings
– Associate Professor Benoit Gilbert

Project 1.4
Fire Safety Design of Open Plan Timber Compartments
– Associate Professor David Lange

Project 1.5
Development of Moisture Monitoring, Assessment and Management Systems for the Australian Mass Timber Construction Industry
– Dr Maryam Shirmohammadi

Project 1.6
Role of Moisture in the Long-Term Performance of Mass Timber Building Elements
– Professor Tripti Singh

Node 2: Building Performance for Occupants

Project 2.1
The Bio-Hygrothermal Performance of Mid-Rise Non-Residential Timber Framed Façade Systems – Dr Mark Dewsbury

Project 2.2
Design for Positive Occupant Outcomes in Timber-Rich Environments
– Dr Georgia Lindsay

Project 2.3
Influence of CLT Manufacturing Variables on Vibration and Acoustic Performance
– Dr Chandan Kumar / Adam Faircloth

Node 3: Design for Extended Building Life

Project 3.1
Circular [Re]Design to Enable Disassembly and Reuse of Mid-Rise Timber Buildings
– Associate Professor Paola Leardini

Project 3.2
Connection Systems for Extended Building Life – Design Principles
– Dr Lisa Ottenhaus

Node 4: Towards a Low-Carbon & Circular Economy

Project 4.1
New 'Green' Methods to Support Forest and Wood Products Advocacy in the Built Environment
– Prof Paul Dargusch / Assoc Prof Joe Gattas

Project 4.2
The Development of Strategies to have the Carbon Savings and Broader Environmental Benefits of Growing Forests and Using Timber in the Built Environment Appropriately Recognised
– Professor Paul Dargusch / Professor Robert Crawford

Node 5: Socio-Economic Opportunity

Node 5 Projects
Economic Modelling of Timber Industry and Synergy and Interaction with Systems Dynamic Model & EWP Industry Audit and Economic Scenario Modelling (Alignment with Supply Chain Modelling Tool) – Dr Cristyn Meath / Emeritus Professor John Mangan

Node 6: Manufacturing Innovation

Project 6.1
Improving Resource Availability and Utilisation for Residential Timber Manufacturing and Construction
– Associate Professor Benoit Gilbert

Project 6.2 – did not go ahead

Project 6.3
Digital and Physical Systems Design for Optimised Design-to-Delivery of Prefabricated Timber Housing
– Dr Tharaka Gunawardena / Dr Nic Bao

Project 6.4
Autonomous Screw-Fixing Robots for CLT Panel Building Assembly
– Dr Dikai Liu

Project 6.5 – under development
Project 6.6
Automatic Timber Property Assessment for Variable Fibre Feedstocks
– Dr Dan Luo

Project 6.7
Performance-Based Architectural Design and Optimization Using Biomaterial and AR-Assisted Discrete Assemblies
– Dr Nic Bao

Node 7: Value Chain Innovation

Project 7.1
Adaptive Building Forms for Inventory-Constrained Utilisation of Low Value Fibre
– Kim Baber

Project 7.2
Establishing Viable Product and Market Solutions for Hardwood Plantation Thinnings and Small Diameter Logs
– Dr Chandan Kumar

Project 7.3
EWPs to Maximise Australian Wood Fibre Recovery and Utilisation
–Dr Rob McGavin

Project 7.4
An Open-Data Framework for Forest-to-Building Value Chain Mapping
– A/Prof Joe Gattas

Node 8: Interventions for Change

Project 8.1
EWP Industry Supply Chain Modelling Tool (alignment with Economic Scenario Modelling)
– Dr Cristyn Meath

Project 8.2
Status, Perceptions and Priorities of EWP Industry in Australia
– Dr Cristyn Meath

Project 8.3
Evaluation of the ARC Advance Timber Hub
– Dr Cristyn Meath

RESOURCES

The ARC Advance Timber Hub lists all published material from project outcomes on its RESOURCES page. Below are links to the latest resources that have been added:

Node 1: Performance of Building Components

Conference Papers:

1. DESIGN UNCERTAINTY IN LONG SPAN MASS TIMBER FLOORS: PROPOSED BAND-BEAM SOLUTION
2. IMPACT OF TIMBER ORIGIN ON SCREW WITHDRAWAL CAPACITY
3. IGNITION OF A TIMBER CEILING: ANALYSING CONVECTIVE AND RADIATIVE HEATING EFFECTS
4. MOISTURE INGRESS AND MOVEMENT PATTERN IN AUSTRALIAN CLTPANELS A PILOT STUDY
5. MOISTURE MONITORING OF MASS TIMBER BUILDING – STUDY OF CONDITION VARIATION AND BUILDING ENVIRONMENT DESIGN

Node 3: Design for Extended Building Life

Journal Article:

1. EVALUATING THE DISASSEMBLY POTENTIAL OF TIMBER BUILDINGS: DEVELOPMENT OF CALCULATION TOOL AND PROOF OF CONCEPT

Node 5: Socio-Economic Opportunity

Blog:

1. Seeing the wood and the trees: the role of timber in future Wales – Calvin Jones

Node 6: Manufacturing Innovation

Journal Articles:

1. CHALLENGES IN INTERGRATING AUSTRALIAN SAWMILLING WITH PREFABRICATION MANUFACTURING INDUSTRY
2. ADAPTATION OF CONNECTION SYSTEMS FOR INTERGRATION WITH ENGINEERED WOOD PRODUCTS IN BUILDINGS: A SYSTEMATIC REVIEW
3. COMPOSITE PANELS FROM WOOD WASTE: A DETAILED REVIEW OF PROCESSES, STANDARDS, AND APPLICATIONS
4. TRANSFORMING ARCHITECTURE: THE ROLE OF INTERDISIPLINARY COLLABORATION IN DESIGN AND FABRICATION.

Conference Papers:

1. TOWARDS SUSTAINABLE TIMBER CONSTRUCTION: A CASE STUDY OF WASTE GENERATION, MANAGEMENT, AND CIRCULAR STRATEGIES IN AUSTRALIAN SAWMILLING AND PREFABRICATION MANUFACTURING.

2. REIMAGINING TIMBER: AN INTEGRATED APPROACH OF RESOURCE EFFICIENT FABRICATION PROCESS FOR TOPOLOGICALLY OPTIMISED CROSS-LAMINATED TIMBER SLABS
3. ARCHITECTURAL TOPOLOGICAL FORM-FINDING INTEGRATING SOLID STRUCTURAL PERFORMANCES

Node 7: Value Chain Innovation

Conference Papers:

1. LAMINATED NODES FOR A ROUND TIMBER STRUCTURE
2. INVENTORY-CONSTRAINED DESIGN METHOD FOR WHOLE TREE USE IN BRANCHING CANOPY STRUCTURES
3. TIMBERTRACKER: AN OPEN-SOURCE WEB FRAMEWORK FOR VISUALISING SUPPLY AND DEMAND IN FUTURE CONSTRUCTION TIMBER VALUE CHAINS

PARTNER ORGANISATION UPDATE

We are pleased to advise the following partner organisations have joined the ARC Advance Timber Hub. To view all our partners please go to: https://www.advance-timber-hub.org/partners/

HALLIWELL

Within Halliwell Global, Halliwell Fire Research is a specialist fire safety consultancy with four primary business/technical streams (1) expert witness, (2) fire safety research, (3) technical advice and (4) specialist design consultancy. One of their primary goals is to fulfil a role supporting the assimilation of academic output/research data into industry usage in a meaningful way.
Halliwell will be supporting Hub Projects under Research Node – Performance of Building Components, in particular Project 1.4 "Fire Safety of Mass Timber Buildings".

HALLIWELL

Ryan Hilditch

Halliwell's Partner Investigator for the Hub is Dr **Ryan Hilditch**. Ryan is the Principal of Fire Science at Halliwell Australia. He has a PhD in fire dynamics, has significant experience of consulting on fire safety strategies in complex buildings and is keen to provide practical context and experiment support. Notably, Ryan has also presented guest lectures to, and co-authored research papers with members of the UQ's Fire Research Group.

Halliwell's intent is to work with Project 1.4's PhD Candidate, Josh Madden, to ensure that the experimental outcomes and findings are assimilated into practical, usable methods, where possible, to support the fire safe design of existing and future mass timber building projects. This not only improves general building safety and increases our collective understanding of the performance of novel building materials and methods, but would also support the use of mass timber into the future.

WIDE BAY WATER

Wide Bay Water, is a business unit of Fraser Coast Regional Council (FCRC). As part of managing water and sewerage services, FCRC operates a number of recycled water schemes that minimise the discharge of treated sewerage effluent to the environment, with over 90% of the Average Dry Weather Flow volume being utilised across agricultural and recreational uses. As a key tool in managing the recycled water demand throughout the year, FCRC irrigates 500ha of hardwood plantations.

FCRC seeks to participate in the Hub's research projects in order to uplift management capabilities and commercial outcomes for its forestry operations. FCRC will be supporting Hub Projects under Research Node – Value-Chain Innovation, in particular Project 7.1 "Adaptive building forms for Inventory-Constrained utilisation of low value fibre" and Project 7.2 "Establishing viable product and market solutions for hardwood plantation thinnings and small diameter logs". This will assist FCRC in achieving the strategic objectives for their owned hardwood plantations outlined in the Fraser Coast Recycled Water Strategy to manage forests in a commercial manner.

Ben McClatchie

Ben McClatchie is the Partner Investigator for Wide Bay Water, who is is a registered Environmental Engineer with 20 years proven experience in leadership, technical and project roles. Ben currently manages the commercial and operational programs for the beneficial and sustainable re-use of treated wastewater and biosolids on the Fraser Coast. This includes overseeing the estate level forestry management and silviculture program associated with this reuse.

PEOPLE UPDATE

UNIVERSITY OF QUEENSLAND

The ARC Advance Timber Hub welcome the following UQ investigators to our team:

Anwar Orabi

David Morriset

Xin Yu

Dr Anwar Orabi and Dr David Morriset are joining the ARC Advance Timber Hub as Chief Investigators to support the UQ Fire Safety Team with Hub Projects under Research Node – Performance of Building Components, in particular Project 1.4 "Fire Safety of Mass Timber Buildings".
Dr Orabi and Dr Morriset replace original UQ Fire Safety Team CI's listed in Hub application who had left UQ, Dr Juan Hildago and Dr Felix Wiesner. Dr Wiesner is still an investigator of the Hub representing the University of British Columbia.

Dr. Xin Yu has joined the Hub as a Chief Investigator to support Research Node – Manufacturing Innovation, in particular Project 6.6 "Automatic Timber Property Assessment

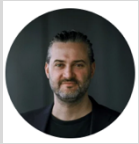
for Variable Fibre Feedstocks" contributing his expertise in computer vision.

TZANNES

We welcome Lily Tandeani (Partner Investigator) and Marc Micuta (Affiliate Investigator) to our team representing Tzannes.

Lily Tandeani

Marc Micuta



They each bring extensive experience in the design and delivery of complex commercial and residential projects as well as specific experience in Mass Timber design and delivery through their work on International House Sydney and Daramu House (Lily) and York St Commercial Building (Marc).
Tzannes original Partner investigator, Tony Lam, has withdrawn from the Hub as he is no longer working at Tzannes.