

Engineering Boola Katitjin

Murdoch University

aurecon
Bringing ideas to life





OUTLINE

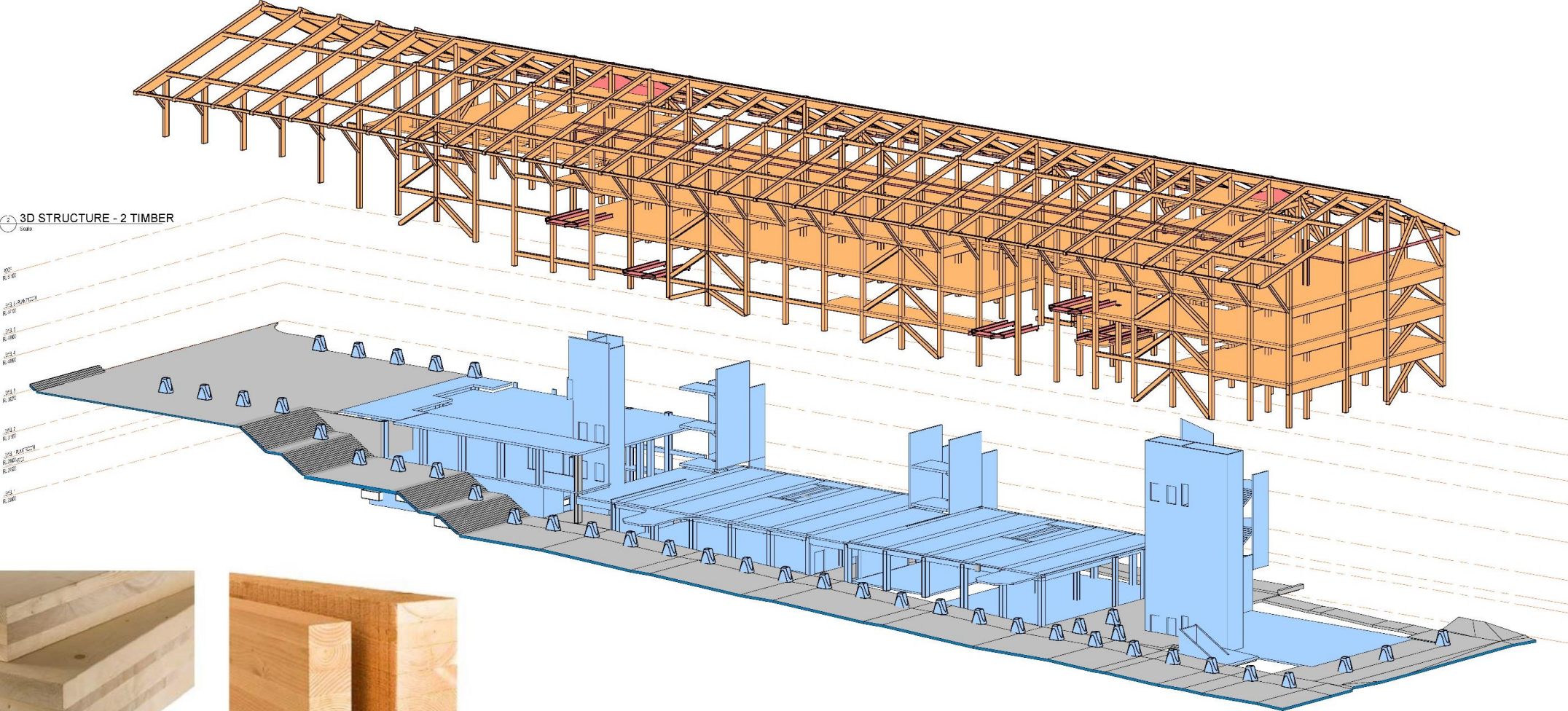
BOOLA KATITJIN

1. OVERVIEW
2. GRAVITY SYSTEM
3. LATERAL SYSTEM
4. NORTHERN EVENTS SPACE
5. QUENDA BOT

AURECON AND MET

1. OUR TEAM
2. PAST PROJECTS
3. CURRENT/FUTURE PROJECTS
4. OTHER INITIATIVES

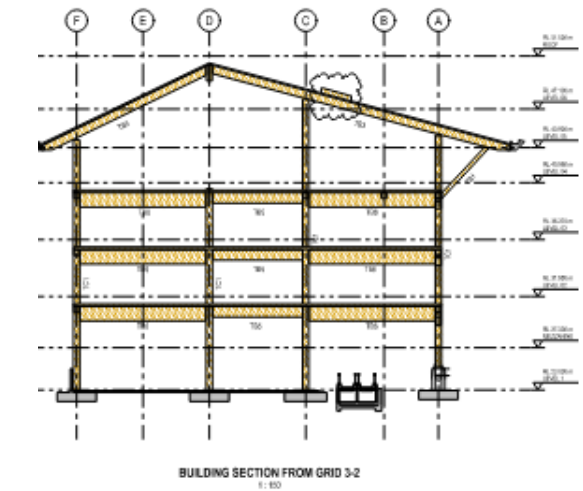
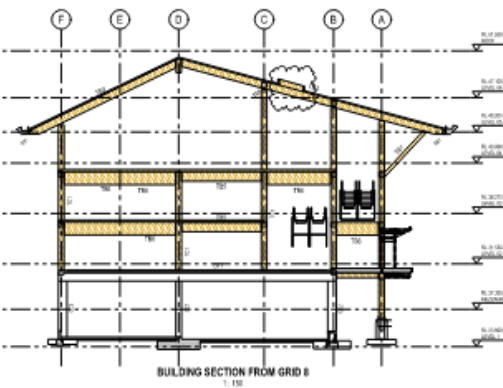
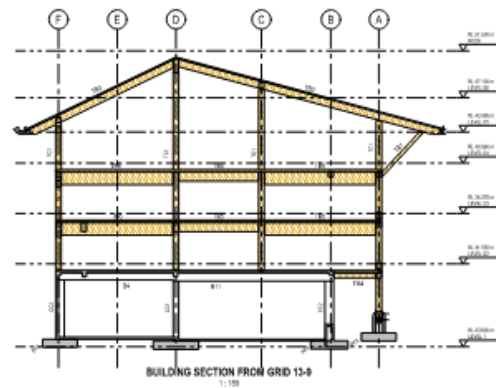
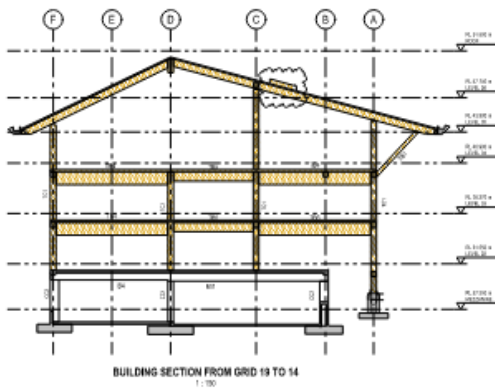
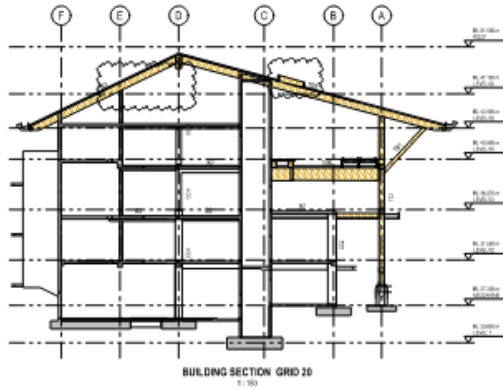
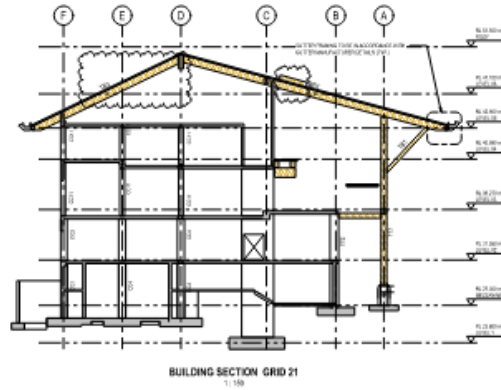
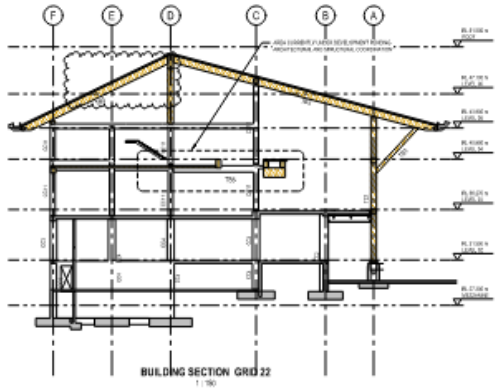
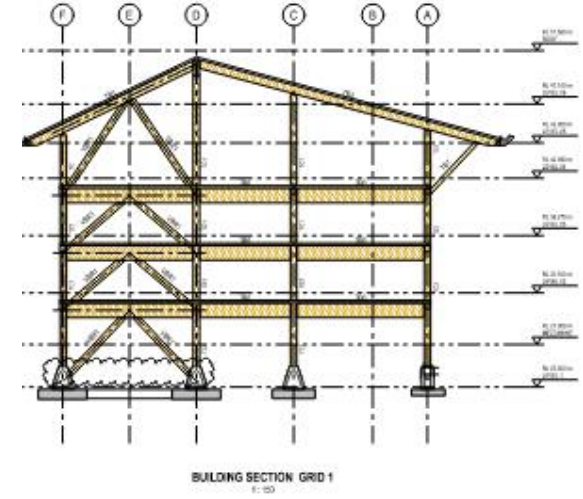
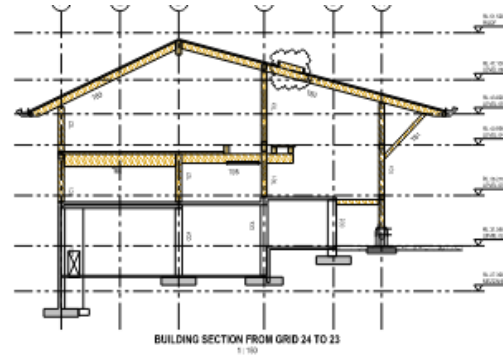
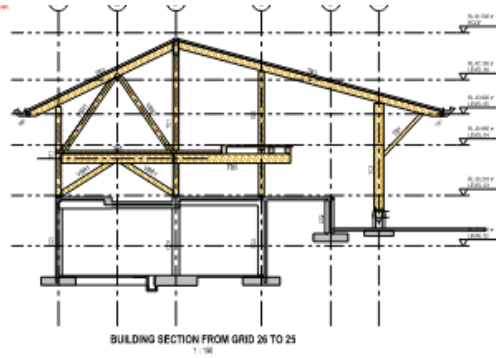
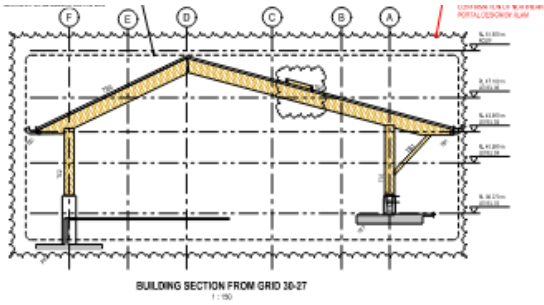
OVERVIEW



Cross Laminated Timber

Glue Laminated Timber

GRAVITY SYSTEM



RIDGE BEAM METHODOLOGY

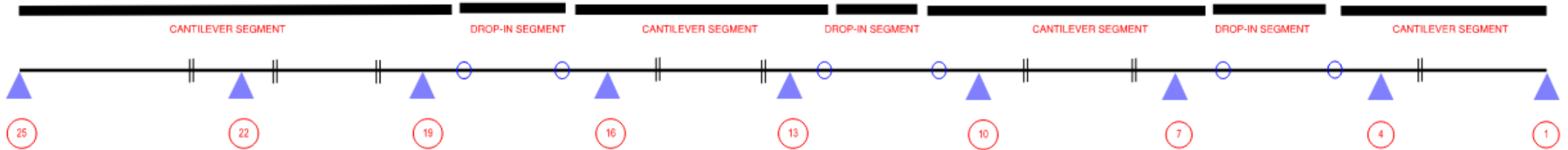


RIDGE BEAM METHODOLOGY

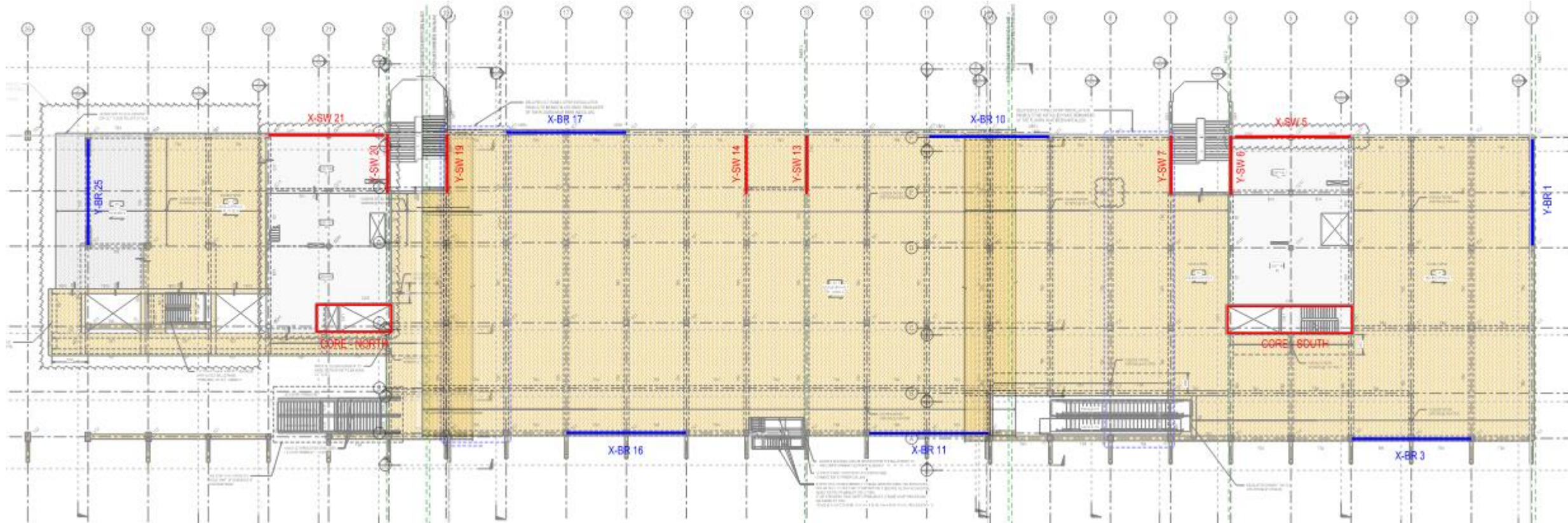
RIDGE BEAM SPLICE METHODOLOGY

LEGEND

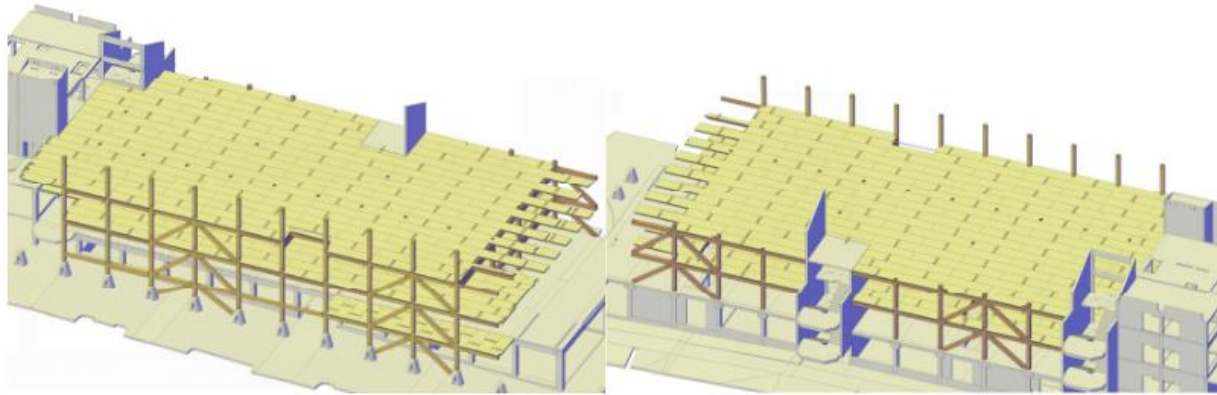
- pinned connection
- || moment connection



LATERAL SYSTEM



DIAPHRAGM DESIGN



CLT Floor/Roof connection legend

TCN13.a	n° 1 Full threaded rod M12 (Roof)	---
TCN14.a	n° 1 Rothoblaas HBS 8x240 @ 300 CTRS (Roof)	—
TCN15.a	n° 1 Rothoblaas VGZ 9x220 @ 100 CTRS (Floor)	—
TCN16.a	n° 1 Rothoblaas HBS 8x340 @ 300 CTRS (Floor)	---
TCN16.b	n° 1 Rothoblaas VGZ 9x340 @ 300 CTRS (Roof)	---
TCN16.d	n° 1 Rothoblaas HBS 8x240 @ 300 CTRS (Roof)	---
TCN17.a	VGZ 9x220 Couple @ 240 CTRS (Floor)	—
	VGZ 9x220 Couple @ 225 CTRS (Floor)	—
	VGZ 9x220 Couple @ 180 CTRS (Floor)	—
	VGZ 9x220 Alternating @ 300 CTRS (Floor)	—
	VGZ 9x220 Alternating @ 200 CTRS (Floor)	—
TCN17.b	VGZ 7x120 Couple @ 100 CTRS (Roof)	—
	VGZ 7x120 Couple @ 150 CTRS (Roof)	—
	VGZ 7x120 Couple @ 200 CTRS (Roof)	—
	VGZ 7x120 Alternating @ 150 CTRS (Roof)	—
TCN18.a	n° 1 Rothoblaas HBS 8x100 @500 mm. (Floor)	---

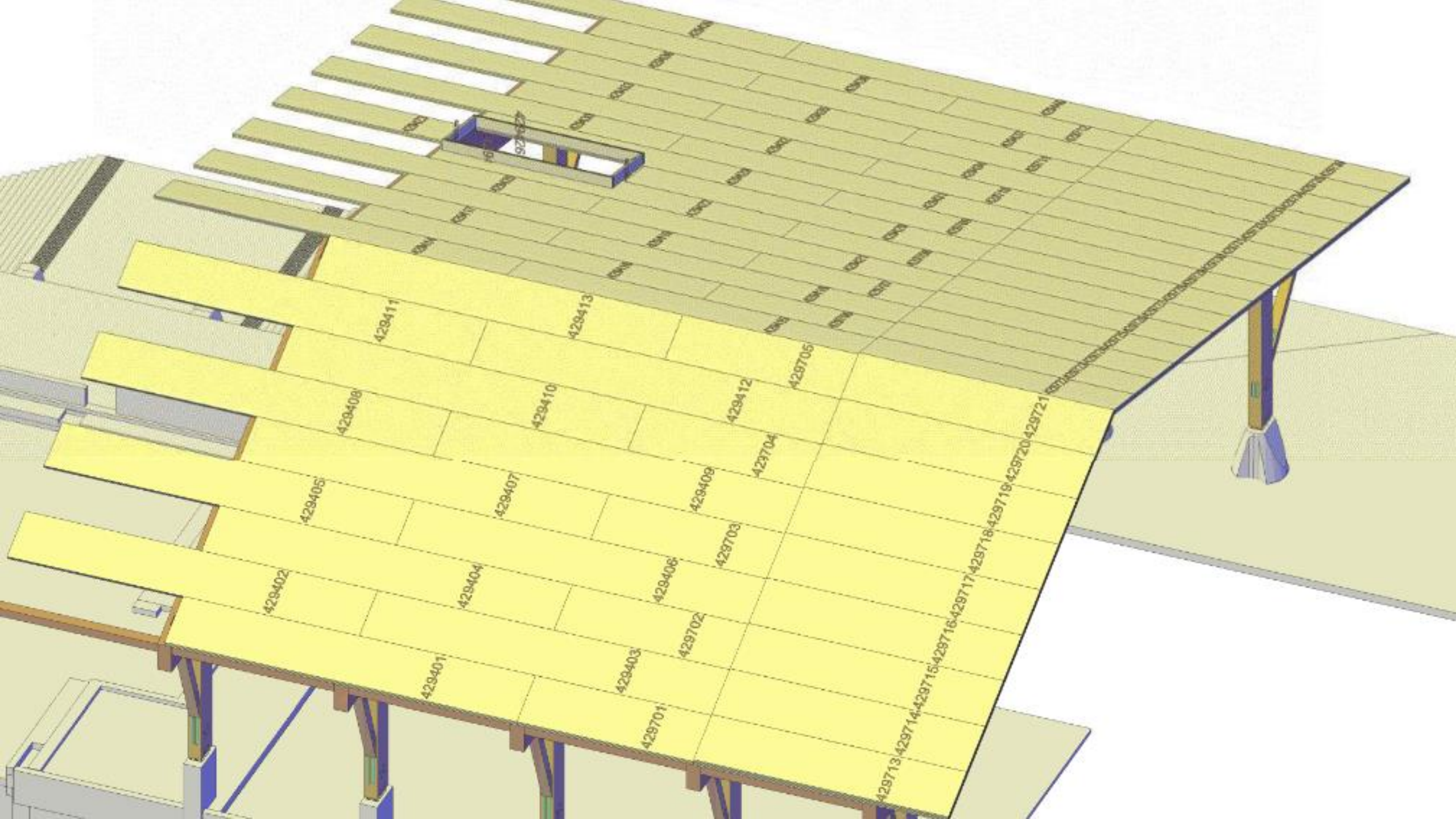
BRACED FRAME

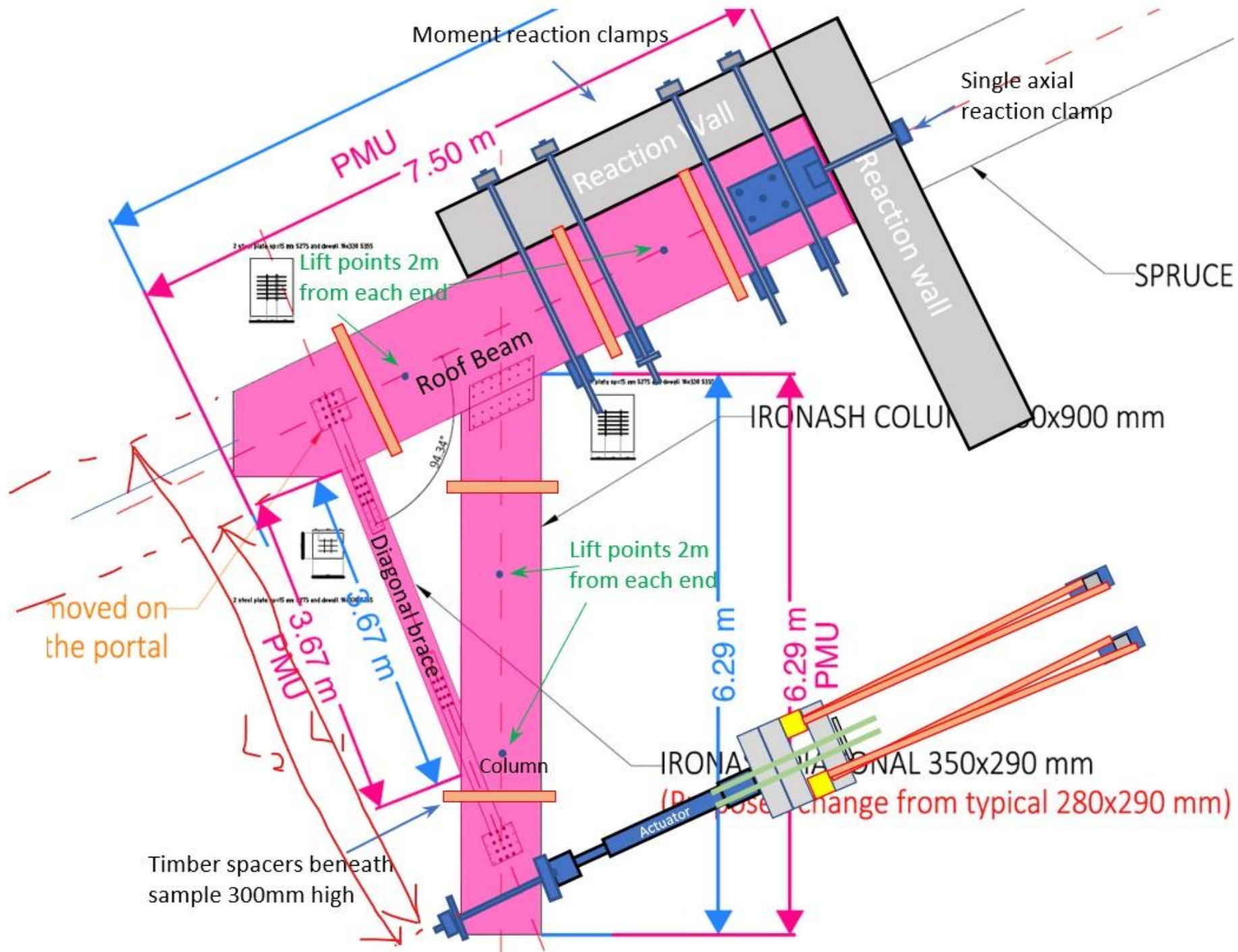


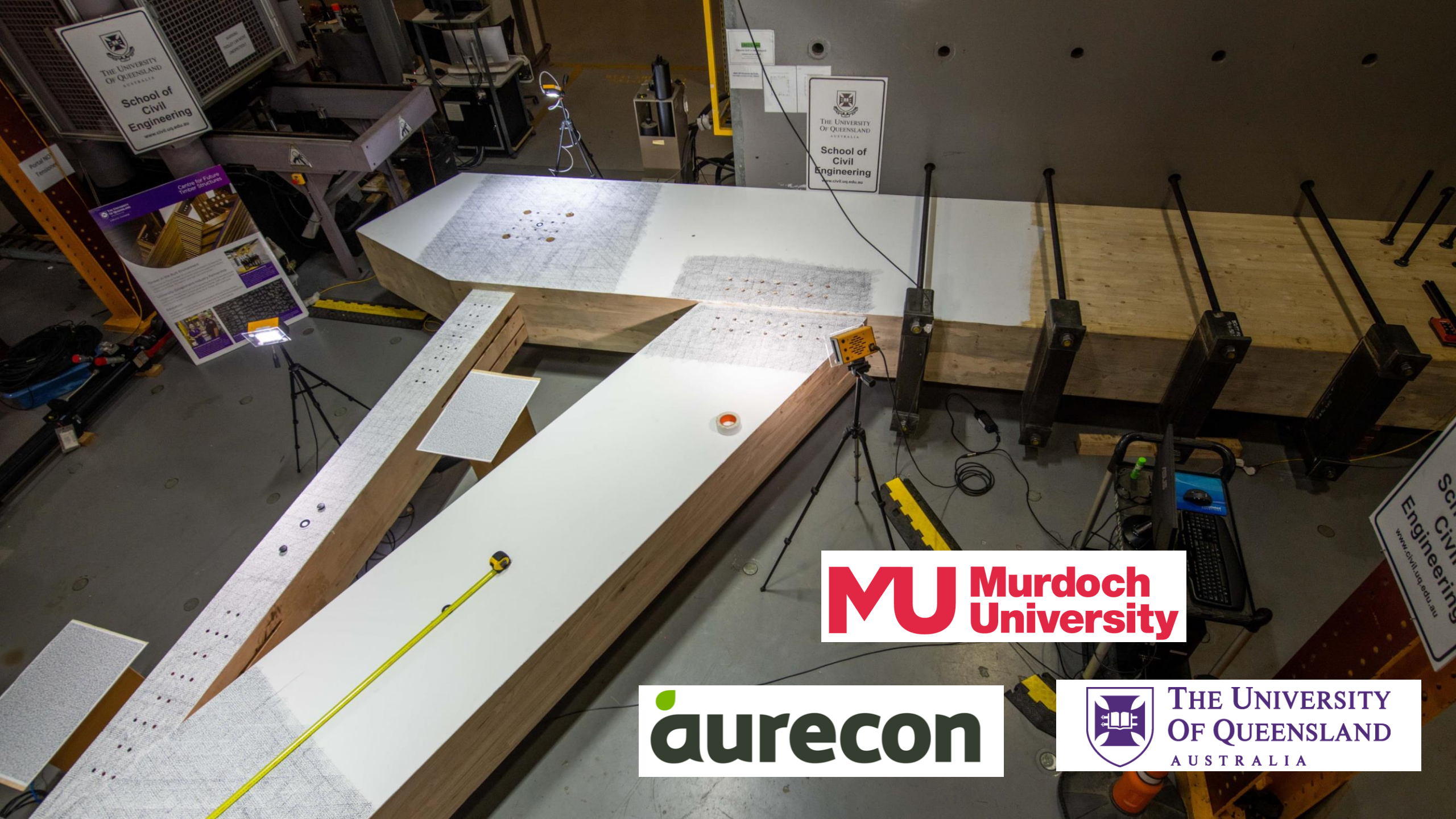
The Northern Events Space



MU Murdoch University
Open Day
to thinking differently
to finding your place
to exploring your future
Sun - Wed
21 March 2022







MU Murdoch University

aurecon



THE UNIVERSITY OF QUEENSLAND AUSTRALIA



MU
Building a Brighter Future
Spooka Kaitiaki

Building
360
Spooka Kaitiaki

235

**Robots are
coming...**

aurecon
Bringing ideas to life

Successful deployment of robotics on Boola Katitjin brings about the largest timber building in Western Australia

Aurecon, Murdoch University (MU) and the University of Technology Sydney (UTS) collaborated to conduct a robotics trial to determine if automation of some on-site construction activity will help to increase productivity and drive efficiency in the construction programme, thereby reducing cost.

Findings from the trial showed that using robots for construction installation:



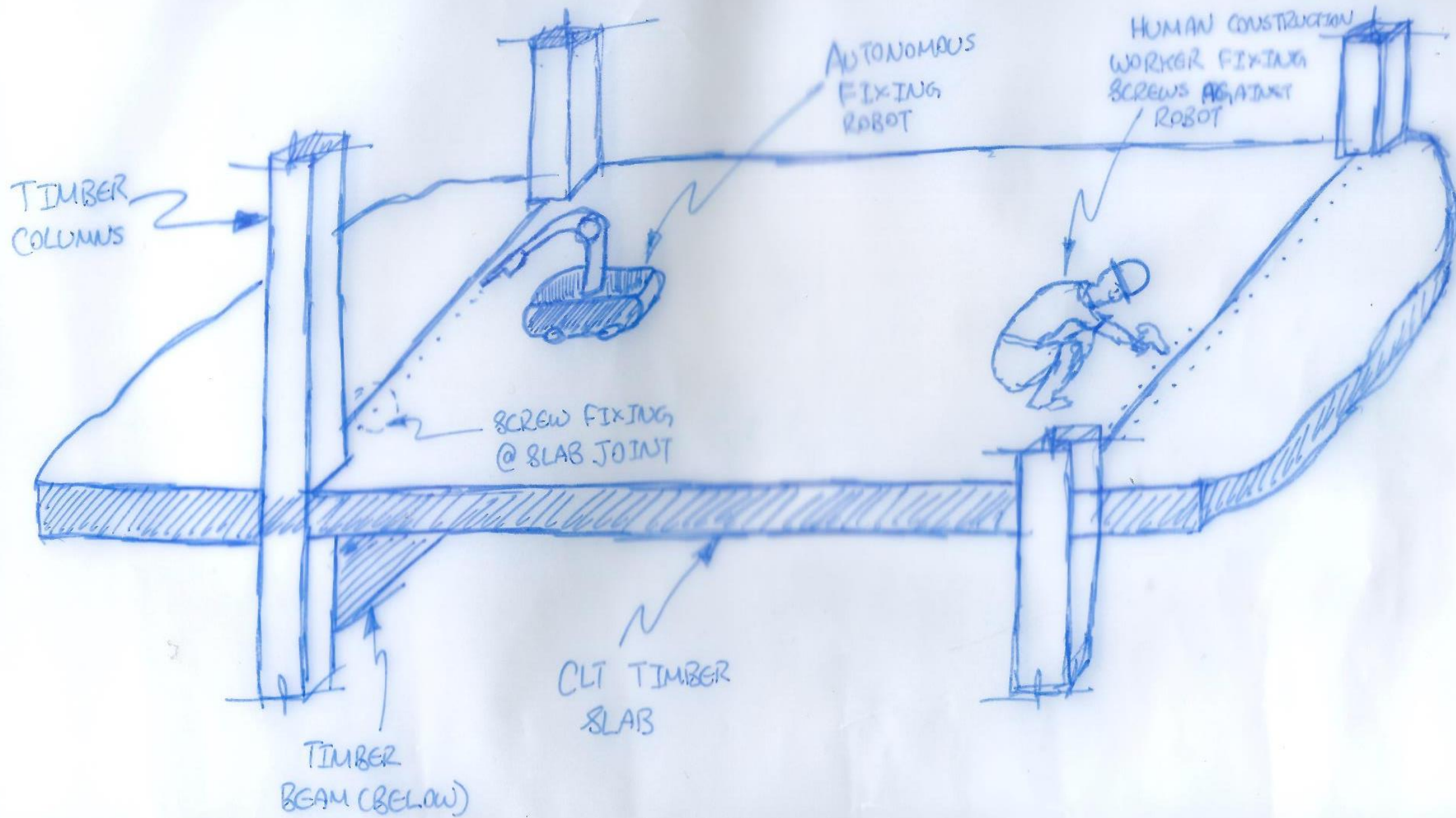
Reduces timber construction schedules by 15-20 per cent



Provides greater accuracy and a faster rate to install screw fixings (on average) than a human



Aurecon deployed a purpose-built robot on a live construction site, in partnership with Murdoch University (MU) and University of Technology Sydney (UTS) – a world first feat. In 2023, Murdoch University in Perth, Western Australia officially opened Boola Katitjin, its new teaching facility.



Introducing.... QUENDA BOT



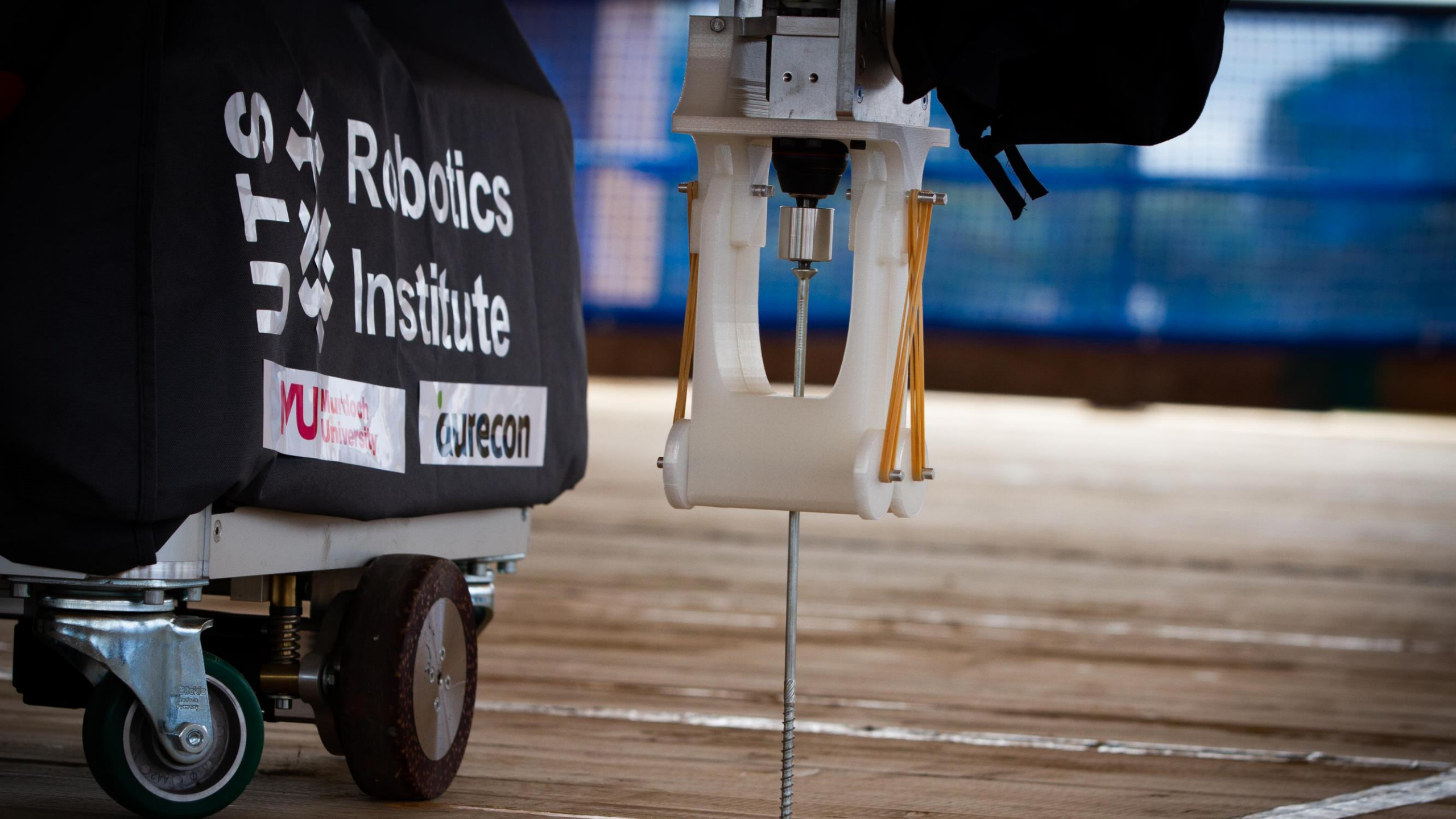
MU Murdoch
University



UTS

UNIVERSITY
OF TECHNOLOGY
SYDNEY

aurecon

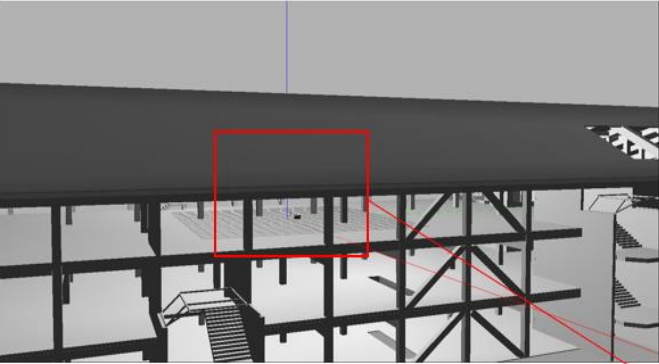


ST Robotics Institute

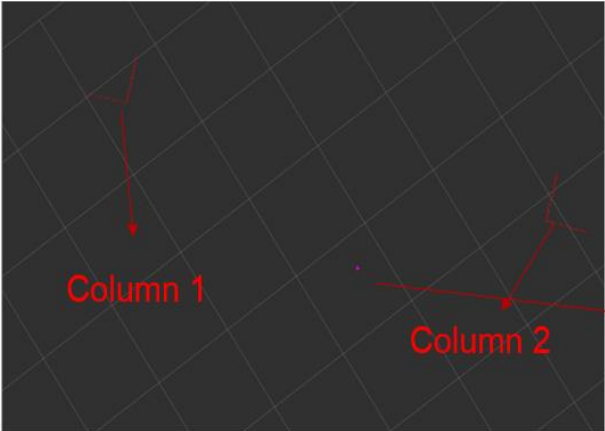
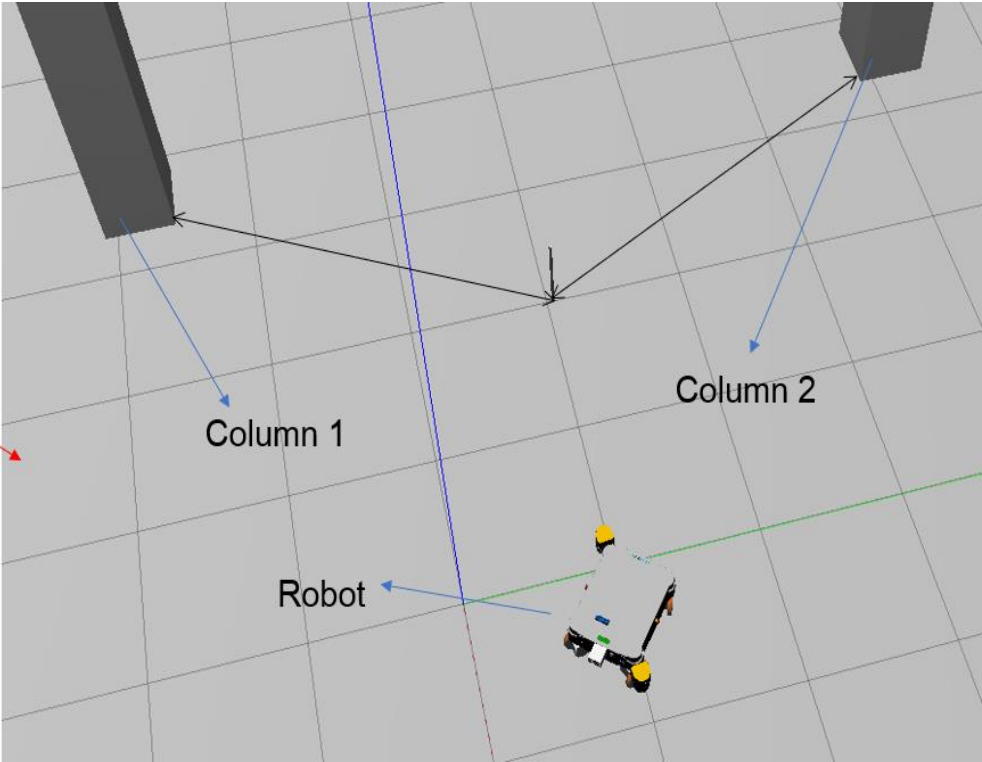
MU Murdoch University

aurecon

Digital Twin



3rd floor of the timber building



Estimation of any point in local frame based on its relationship to the columns

















MU Murdoch University

Building a Brighter Future,
Together
Ngala Kwop Biddi

Level 3
Toilet
Lift



















Our People

Timber Building Design

Our experienced teams of engineers, designers and modelers contribute to Aurecon's excellence in Timber Building Design

	Ralph Belperio Timber Capability Leader, SA
	Pratik Shrestha Principal, Building Structures, WA
	Callum Lillywhite Associate, Building Structures, QLD
	Bill Mason Lead Engineer, NSW
	Nikeesh Prasad Structural Engineer, VIC
	Shannon Kieran Structural Engineer, NT

	Jodie Bricout Circular Economy Leader, SA
	Pablo Sepulveda Integrated Design Leader, VIC
	Isaac Black Senior Structural Engineer, NZ
	Michael Blyth Associate, Building Structures, NSW
	Jess Tan Senior Structural Engineer, Asia
	Sally Gee Senior Structural Engineer, SA

