

Design, Delivery and Waste: What a Hybrid Mass Timber Project Taught Us

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WILLIS
BOND

 WARREN AND MAHONEY®

 Dunning
Thornton

 BECA


M^cGuinness
BUILDING CONTRACTORS


Tauranga City



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Driving impact through **collaboration**

 wasteMINZ  ALGA

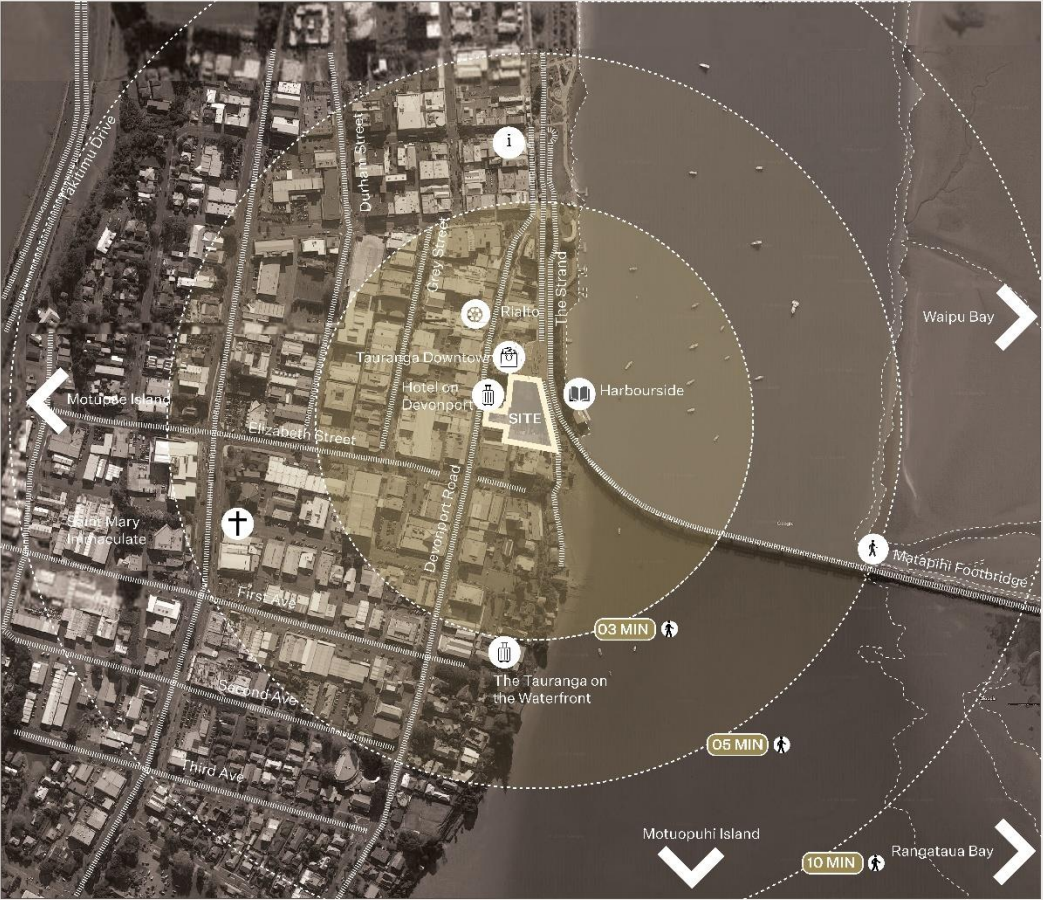
The Vision.



Emily Newmarch
Sustainability Lead
Warren and Mahoney



Site Context.



Sustainability Framework



Public & Political Expectations



Leading through Innovation



A Post-Covid Workplace

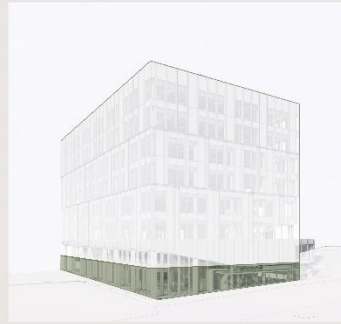


Right for the Region

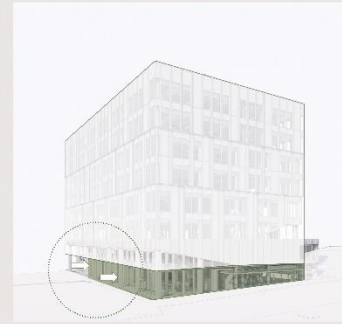


One Chance to Act

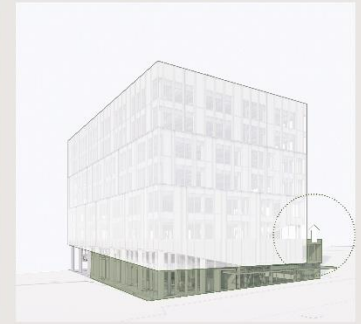
Design Strategies



1.0
STREET FRONTAGE



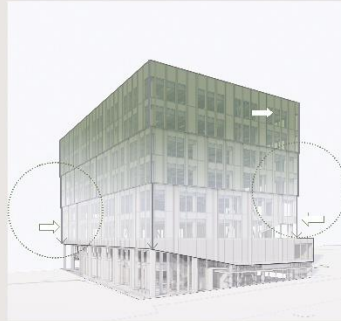
2.0
LANEWAY SETBACK



3.0
ANNEX



4.0
ACTIVATED CORNER



5.0
STEPPED MASSING



6.0
SOLIDITY VS. OPEN



7.0
ANNEX ARTICULATION

Final Design.

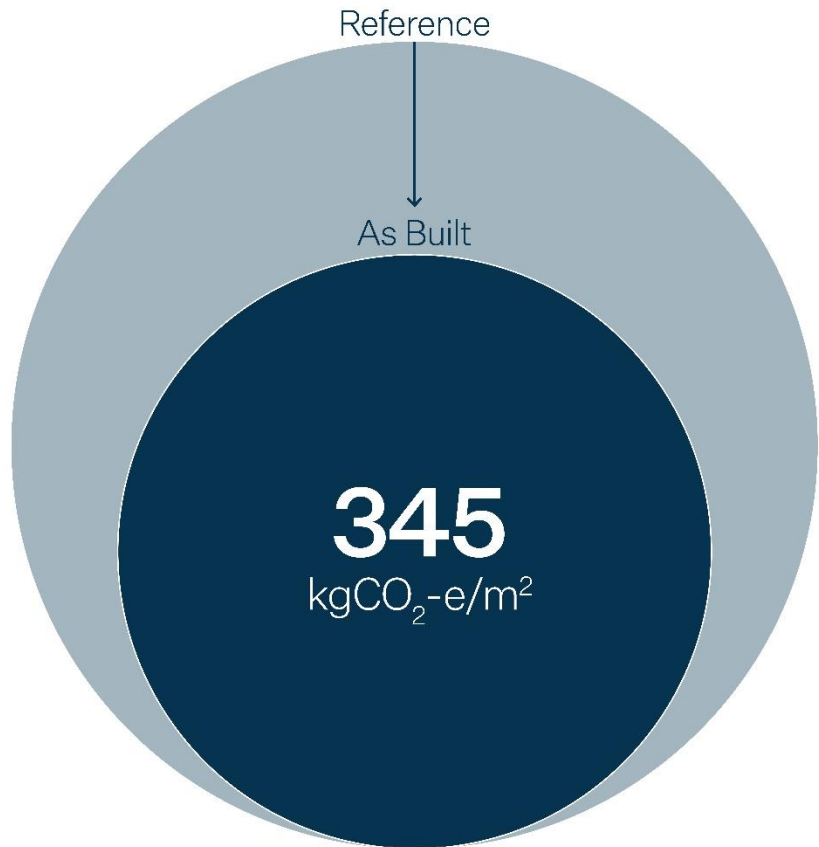


The Emissions.

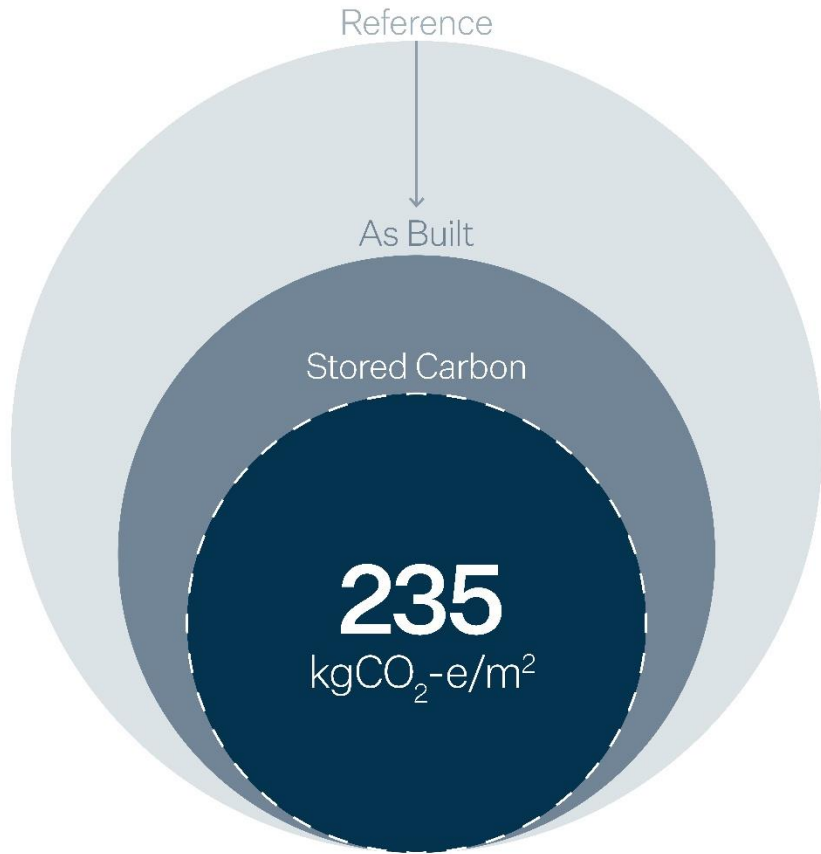


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44%
Reduction
A1-A5 Embodied Carbon



2740 tCO₂-e
Stored

In the Timber Elements

Green Star Measures of Success.



Hannah McGregor
Sustainability Coordinator
Warren and Mahoney



The Green Star certification reward projects that...

Divert more than,

70%
of construction
waste by weight from
landfill.

Generate less than,

15 kg
of landfill waste per
m² (GFA).



New name, same targets.

	Old	New
Tool	Design and As Built v 1.1	Buildings
Credit	Construction and Demolition Waste	Responsible Construction

Eight different bins for onsite waste separation...

Yet we still were unable to meet the **70%** waste diversion target



Project Waste Realities.



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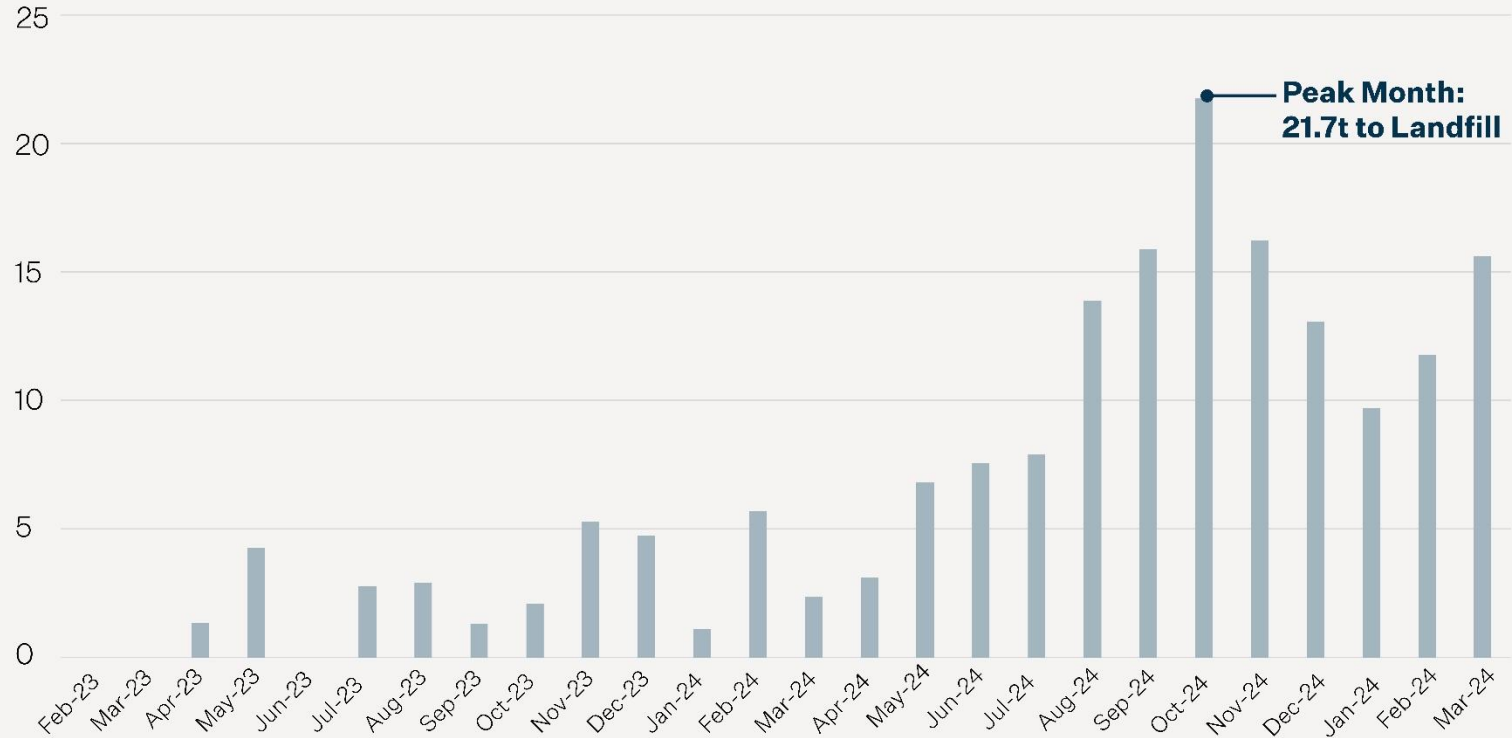
Key Insights.

- Common percentage diversion metrics didn't reflect performance.
- Waste generation was low from the outset



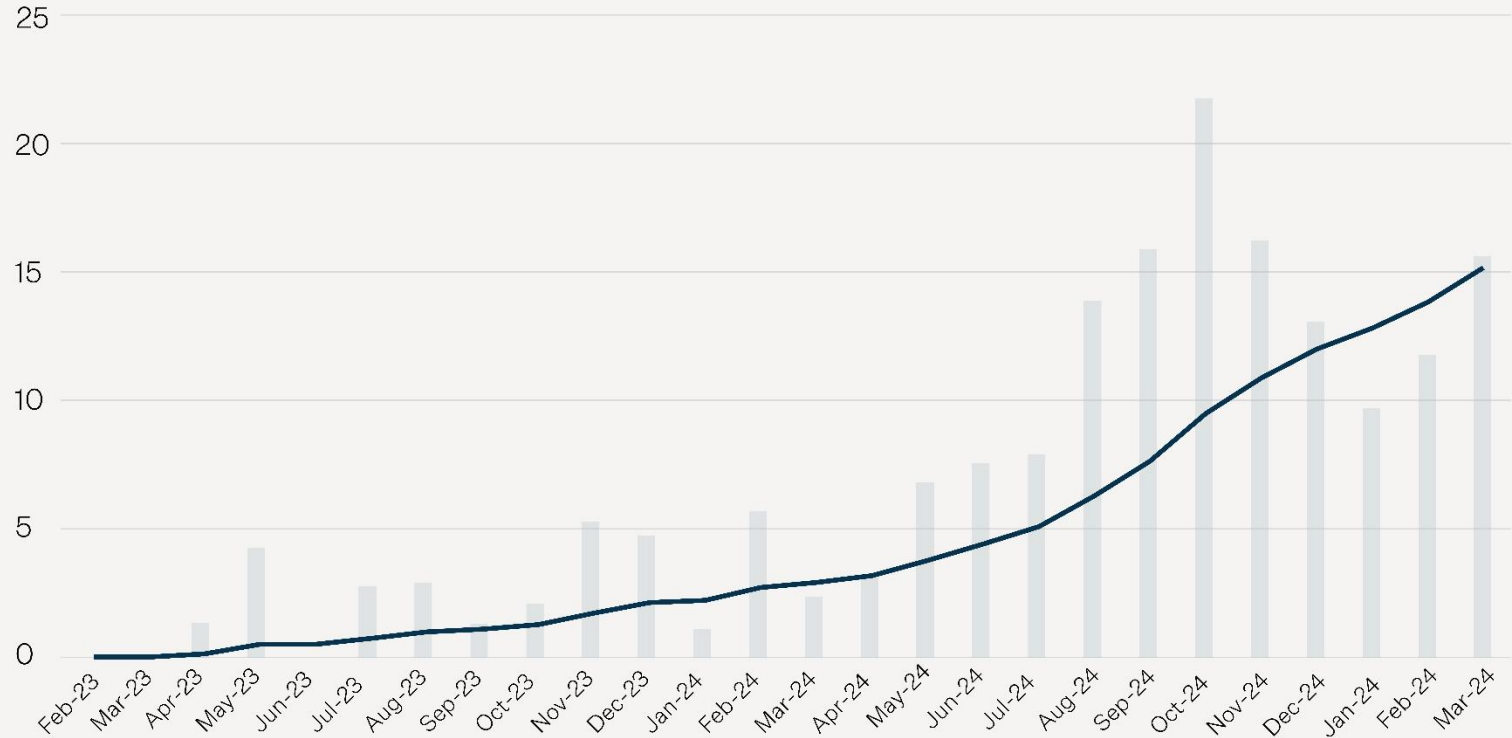
90 Devonport Road Landfill Waste Quantities

■ = Landfill (t)



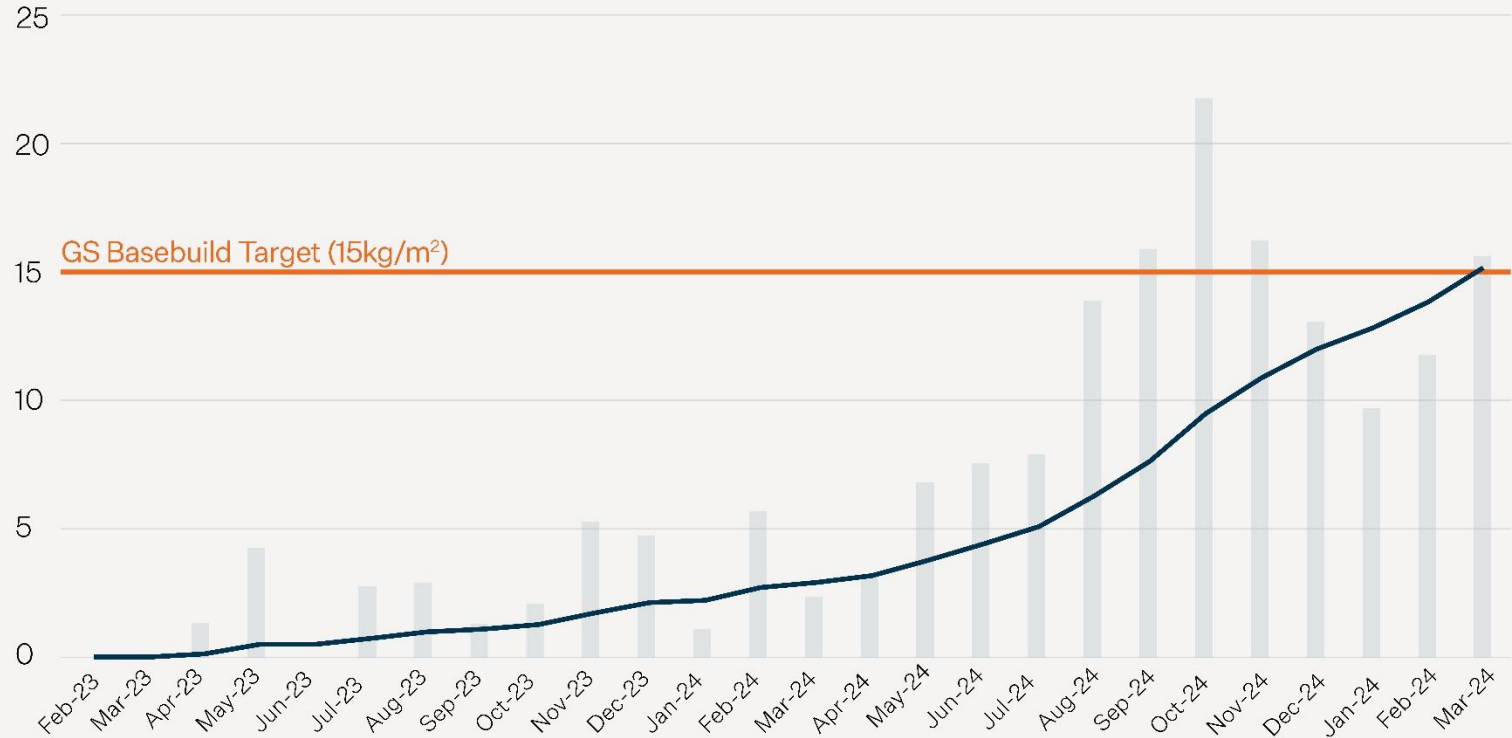
90 Devonport Road Landfill Waste Quantities

- = Landfill (t)
- = Cumulative Waste Intensity (kg/m²)



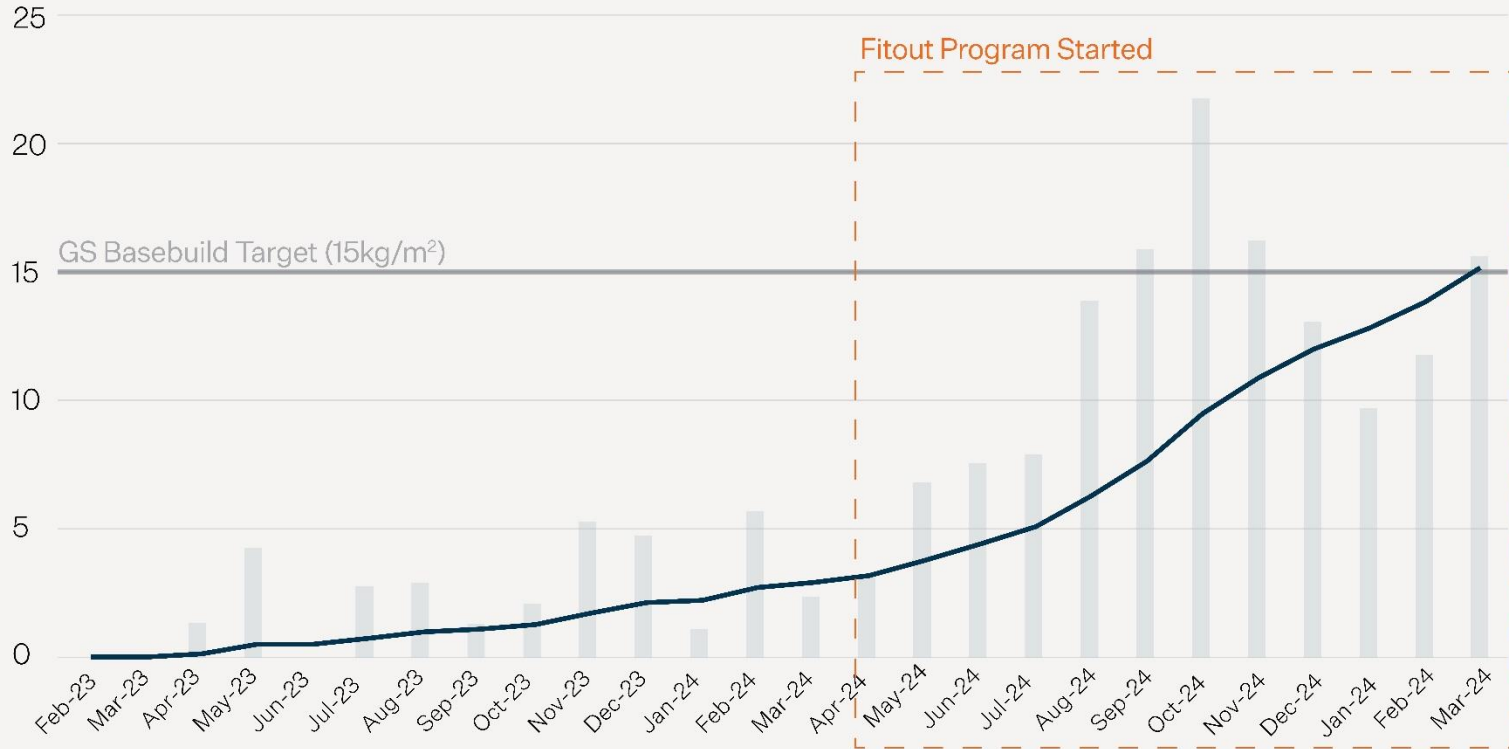
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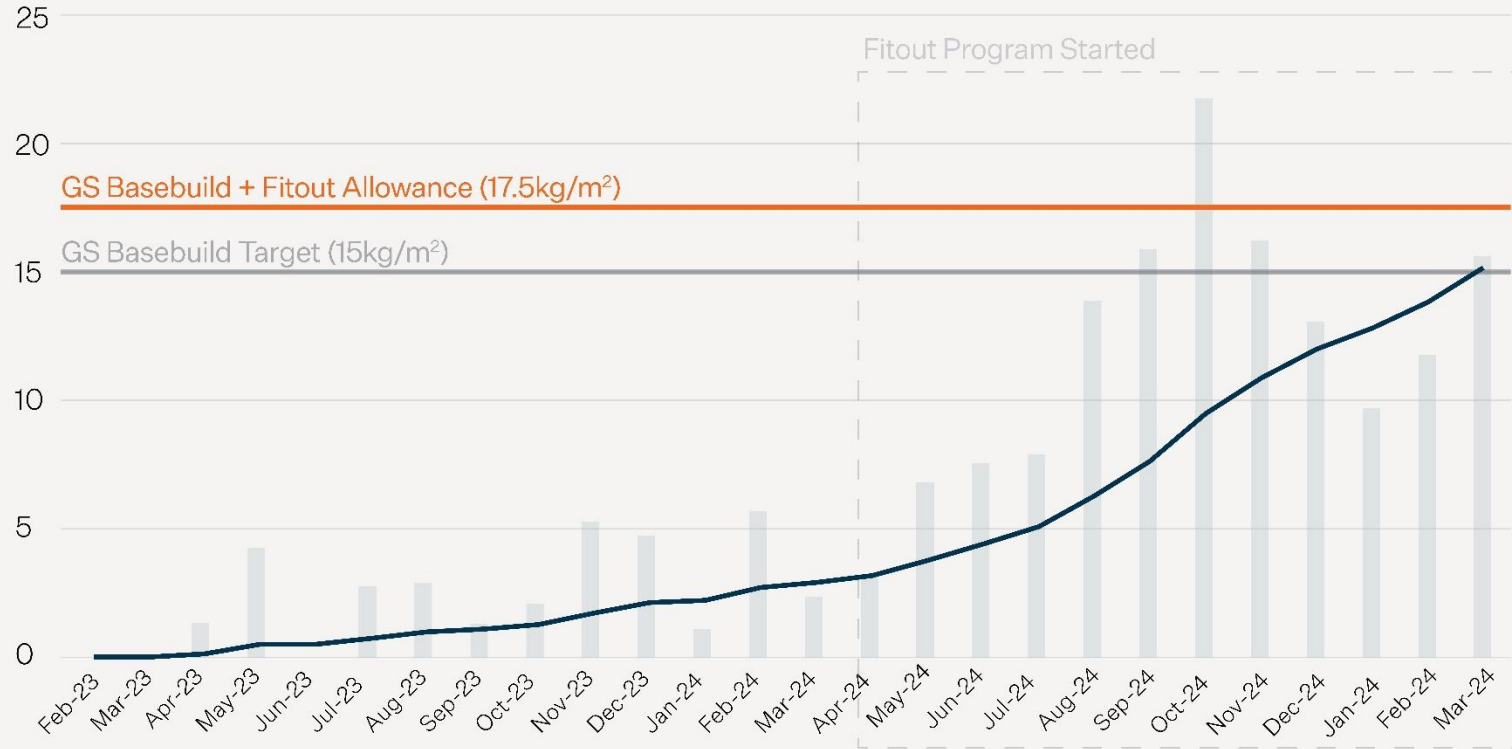
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What Worked.

Waste diversion was most effective during the base-build phase, when fewer contractors were on site



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Labelled bins in smoko areas improved both waste separation and onsite behaviours



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Labelled bins in smoko areas improved both waste separation and onsite behaviours

Active oversight by a dedicated team significantly improved bin usage and outcomes



Project Examples.



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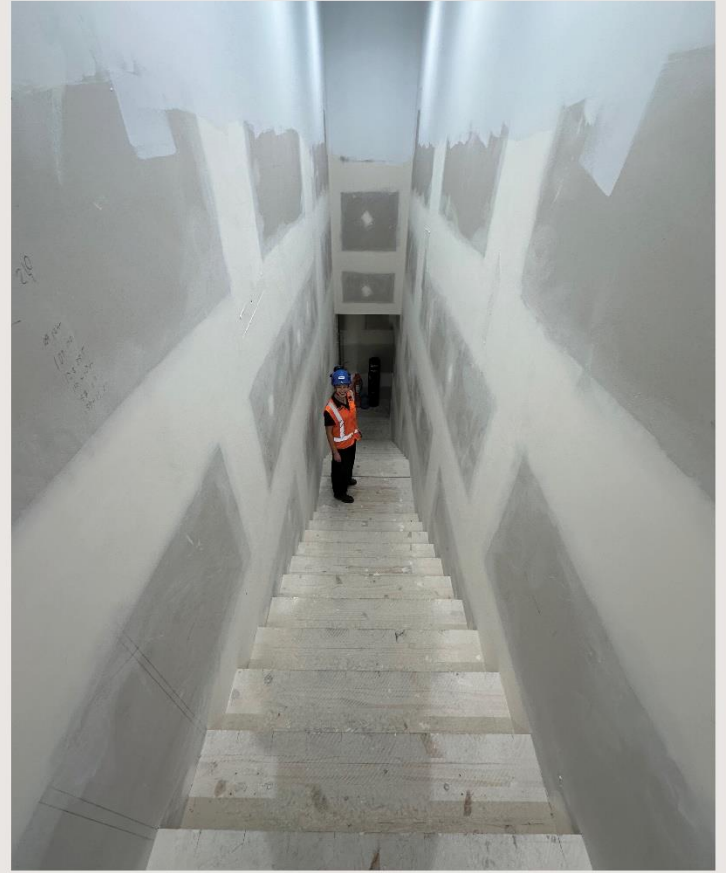
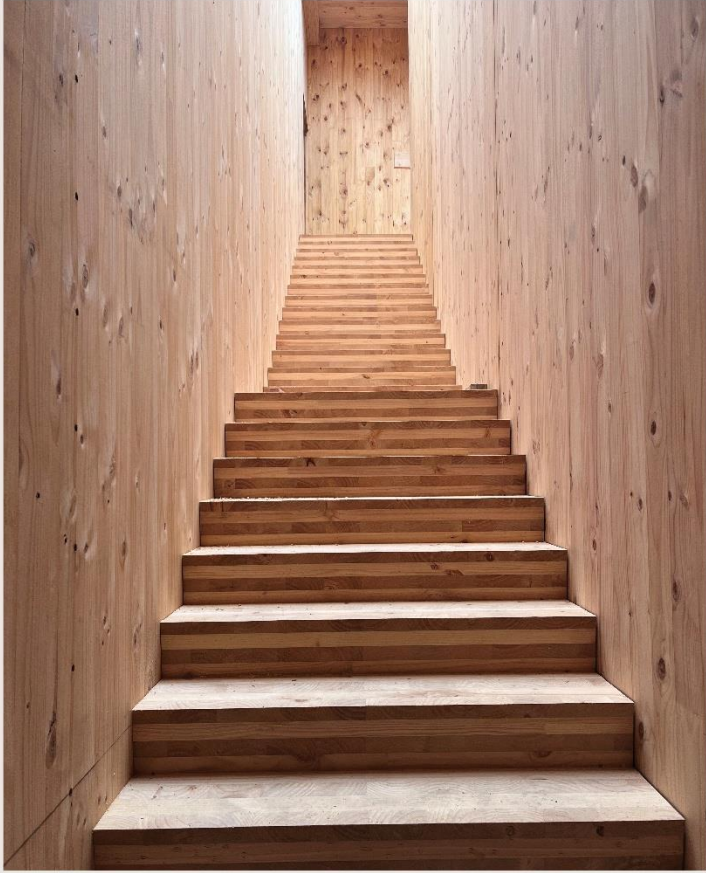


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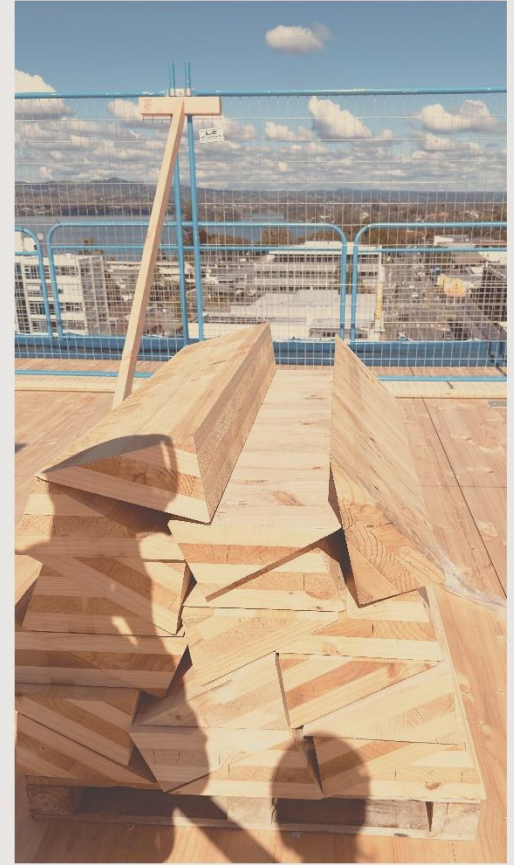
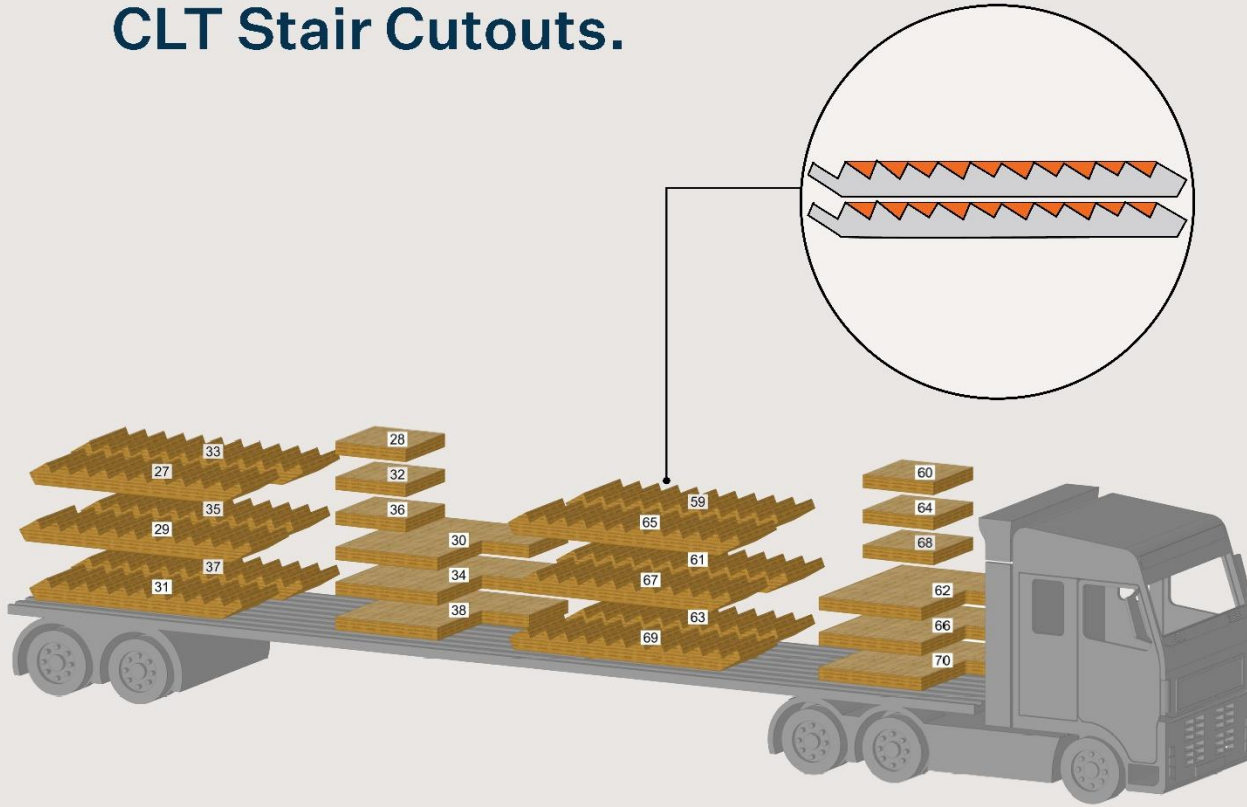


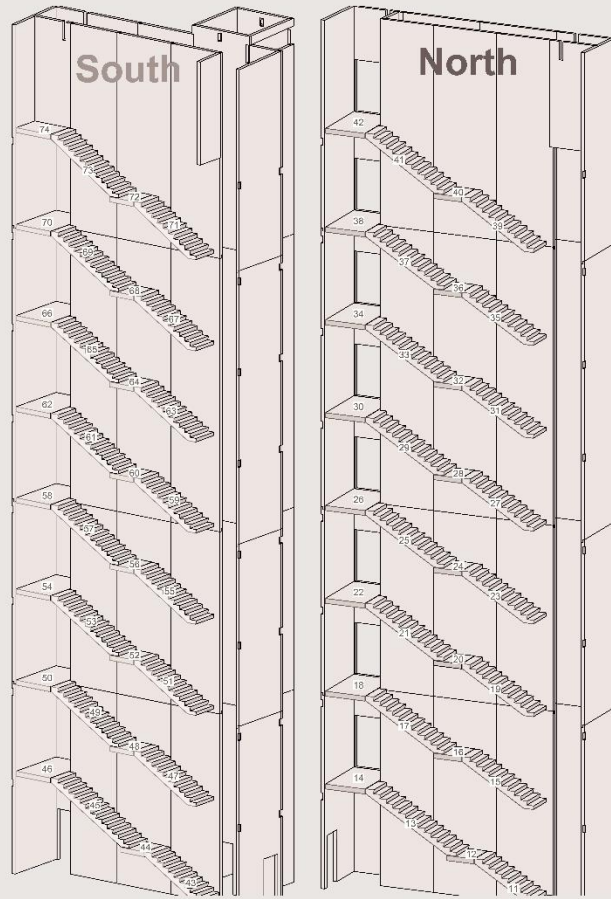
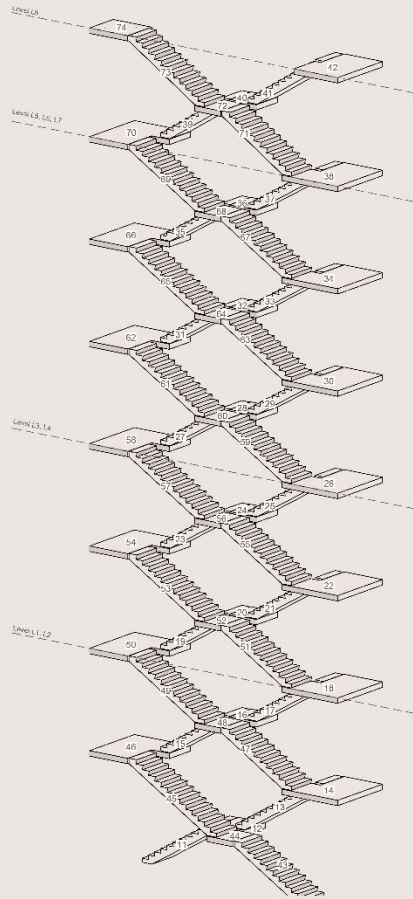
Magnesium Fibreboard.





CLT Stair Cutouts.





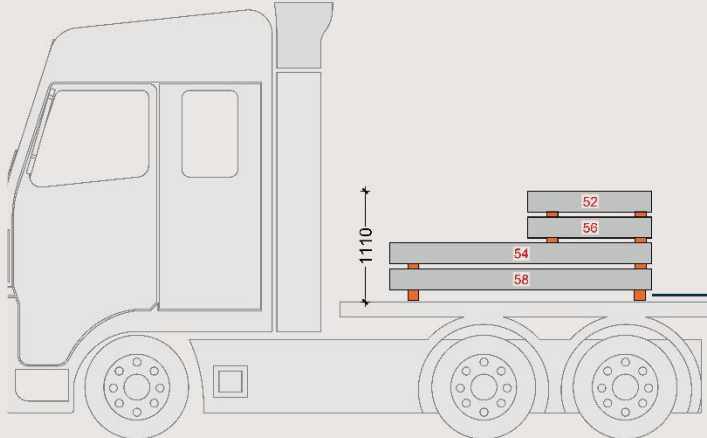
2
Stairwells

8
Stories

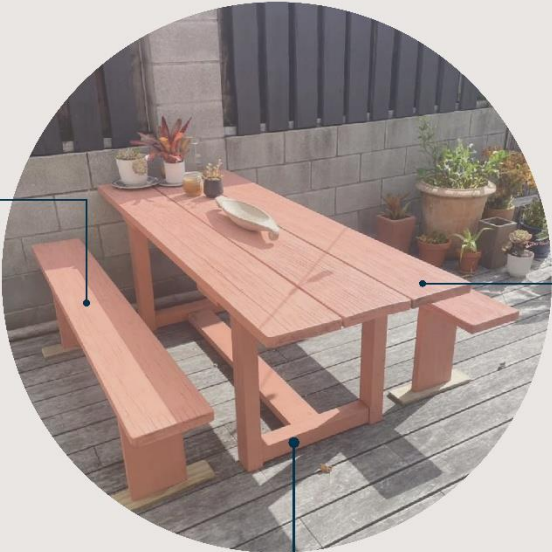
336
Timber off cuts
(Approx)



Handy Work of the Site Engineer.



Clay based paint to finish it off



2 metre long LVL off cuts from the floor chords

Left over dunnage used as the table legs

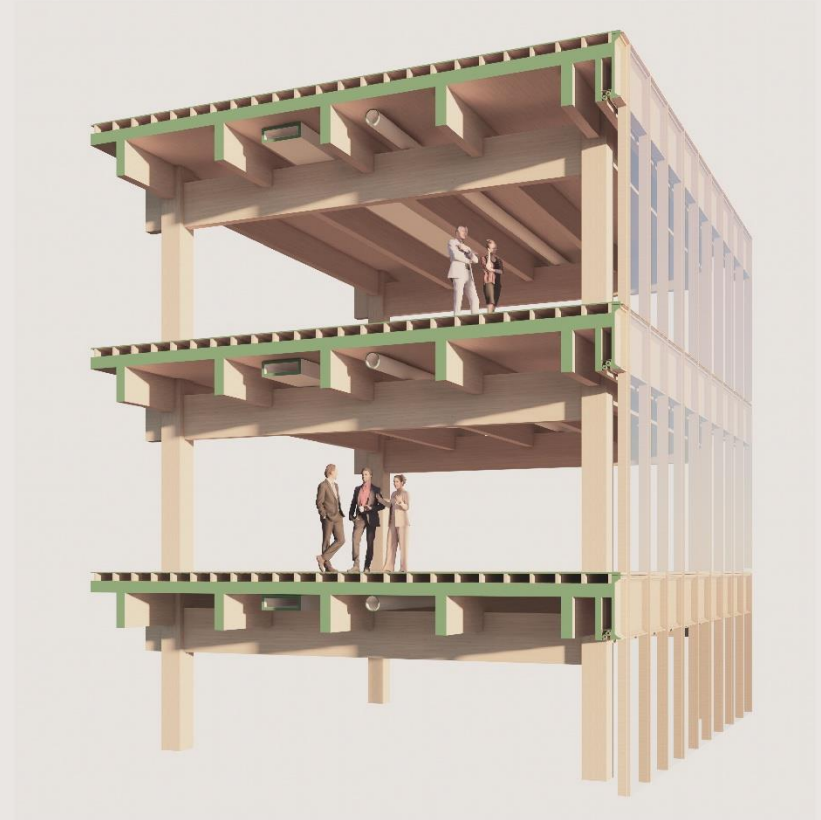


Steel vs Timber.



Ben Cannon
Sustainability Manager
LT McGuinness







CLT

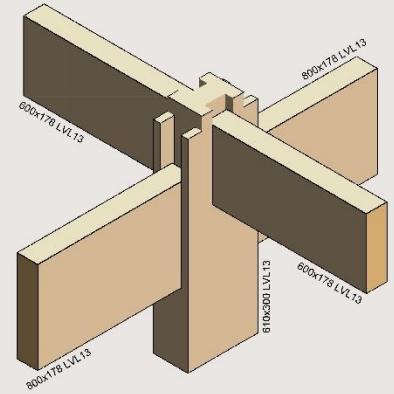
Cross Laminated Timber
(Floor Slabs and Vertical Core Panels)

LVL

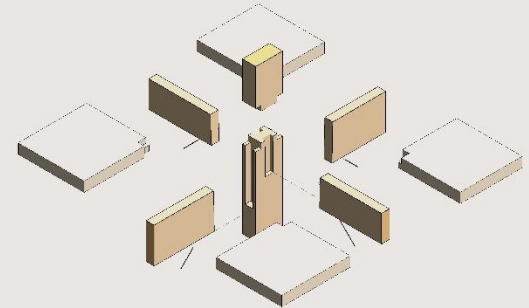
Laminated Veneer Lumber
(Beams and Internal Columns)

Glulam

Glue Laminated
(External Columns)



PRIMARY CONNECTION



PRIMARY CONNECTION EXPLODED



Regional Waste Lessons.



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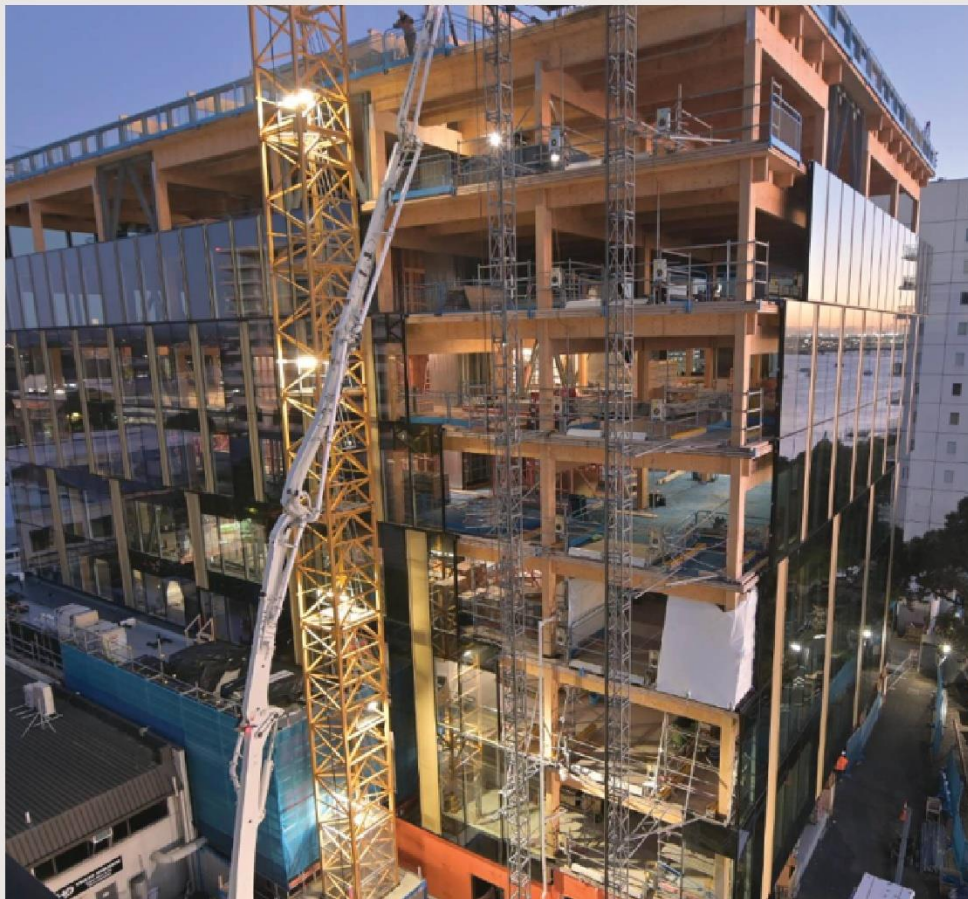


Attitudes.



Cost.





Infrastructure.



Industry Implications.

Measures.





Data Quality.

