



**BioTwin**

# **Bio-materials for Low-Carbon Construction**

April 2026



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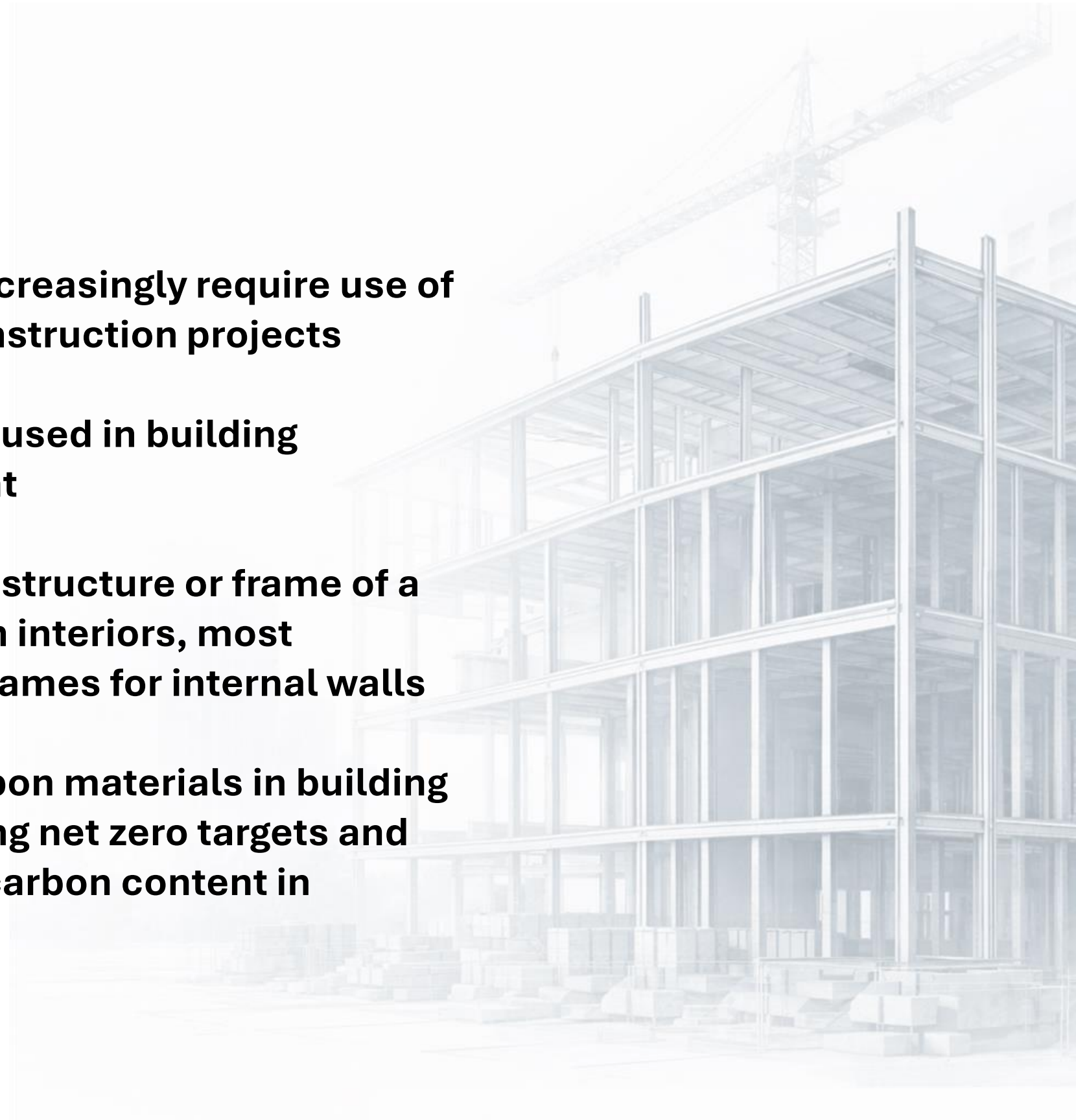
# EXECUTIVE SUMMARY



**BioTwin**

# THE PROBLEM

- **Building codes and market preference increasingly require use of lower carbon materials in tenders for construction projects**
- **Steel is one of the principal components used in building construction and has high carbon content**
- **Steel is not easy to replace as part of the structure or frame of a building, but it is also a key component in interiors, most importantly in the use of steel studs as frames for internal walls**
- **If steel could be replaced with lower carbon materials in building interiors, it would go a long way to meeting net zero targets and other regulations requiring reduction of carbon content in construction**



# THE SOLUTION

- **BioTwin has developed a lower-carbon direct replacement for steel studs**
- **BioTwin has developed a patent-pending hemp-based wall stud for internal partitions with a 70% lower carbon content than steel**
- **BioTwin studs can be installed using existing systems and workflows**
- **At a relatively modest scale, BioTwin hemp-based studs are cheaper than competitive steel products**



# READY FOR MARKET

- **BioTwin's products have been used successfully in four initial projects, three in the UK and one in New York**
- **BioTwin products have been evaluated by market-leading testing firms and have passed fire, structural lateral load, acoustic and thermal tests**
- **Independent Life Cycle Assessment studies by Imperial Consultants and BRE demonstrate that at current levels of production, the BioTwin stud is 71.5% lower in carbon than steel studs**
- **BioTwin has applied for patents on its materials and manufacturing process in the UK, with a PCT application (international application) also filed**



# COST COMPETITIVE

- **BioTwin's steel studs will reach cost parity at only 30,000 units of production (for context, 20,000 steel studs are required for one 18-story building)**
- **At production of 10 million units, cost per stud is projected to be less than half the cost of steel studs; at production of 20 million units, cost is projected to be less than one-third of the cost of steel studs**



# **INVESTMENT TO REACH THE NEXT PHASE OF DEVELOPMENT**

**BioTwin is seeking €2.5 to €3.5 million (£2.2 to £3.0 million) of new investment to implement the next phase of its development**

**Use of investment proceeds will be as follows:**

- **Building initial production line and fabrication of required machinery**
- **Critical hires – COO, Production Manager, Sales Manager**
- **Certifications and patents – certifications for new markets and application for patents in the US and potentially other locations**
- **Premises and overheads – establishment of production facility and creation of full operational readiness and production support**

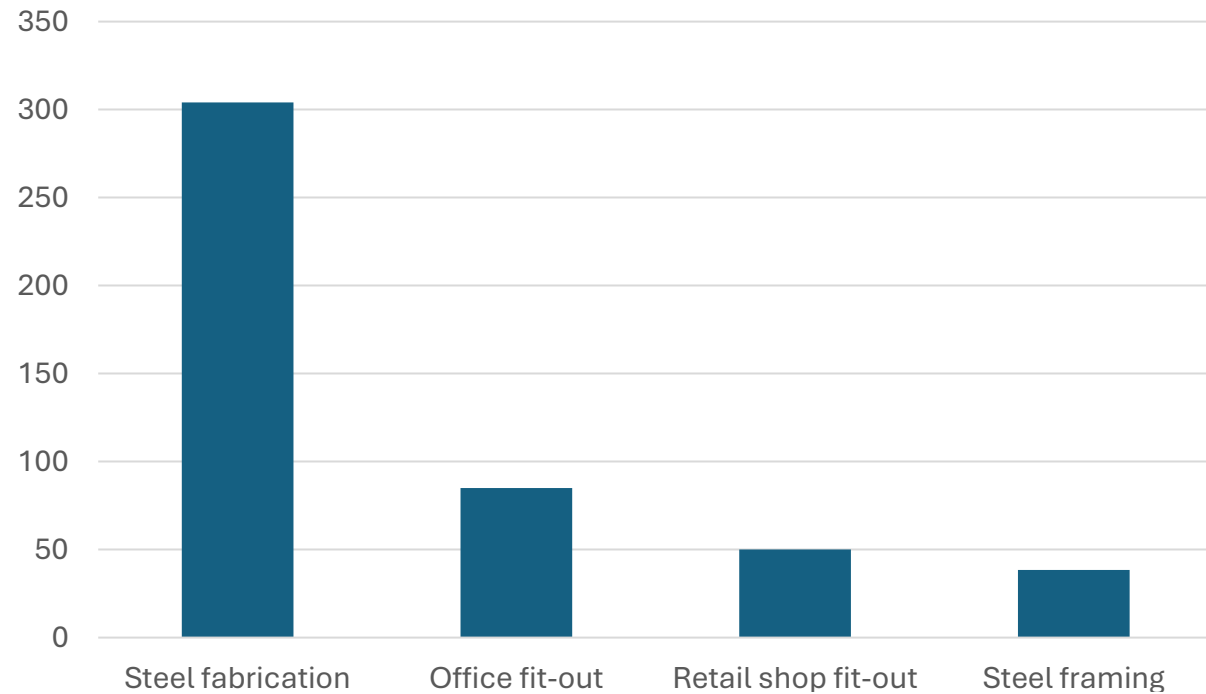
# THE MARKET



**BioTwin**

## THE MARKET

- **One 18-story commercial building requires ~ 20,000 steel studs**
- **Commercial and office buildings are replaced or retrofitted approximately every ten years, making interior fit-outs a repeat-buy market**
- **Demand for building materials will continue to grow with ongoing new construction and exiting building retrofits**



# NEED FOR DE-CARBONISATION OF BUILDING MATERIALS



**BioTwin**

## NEED FOR DE-CARBONISATION OF BUILDING MATERIALS

- **Builders are under increasing pressure to meet net-zero targets**
- **Net-zero demand is outpacing supply, and tenants increasingly expect carbon reduction to be part of building strategy**
- **Low-carbon premiums are narrowing — but high-carbon assets are increasingly penalised**
- **Investors and insurers increasingly penalise carbon risk**

### Low-carbon buildings outperform

Green premiums vs. share of green office stock



Green-certified buildings achieve pricing premiums.

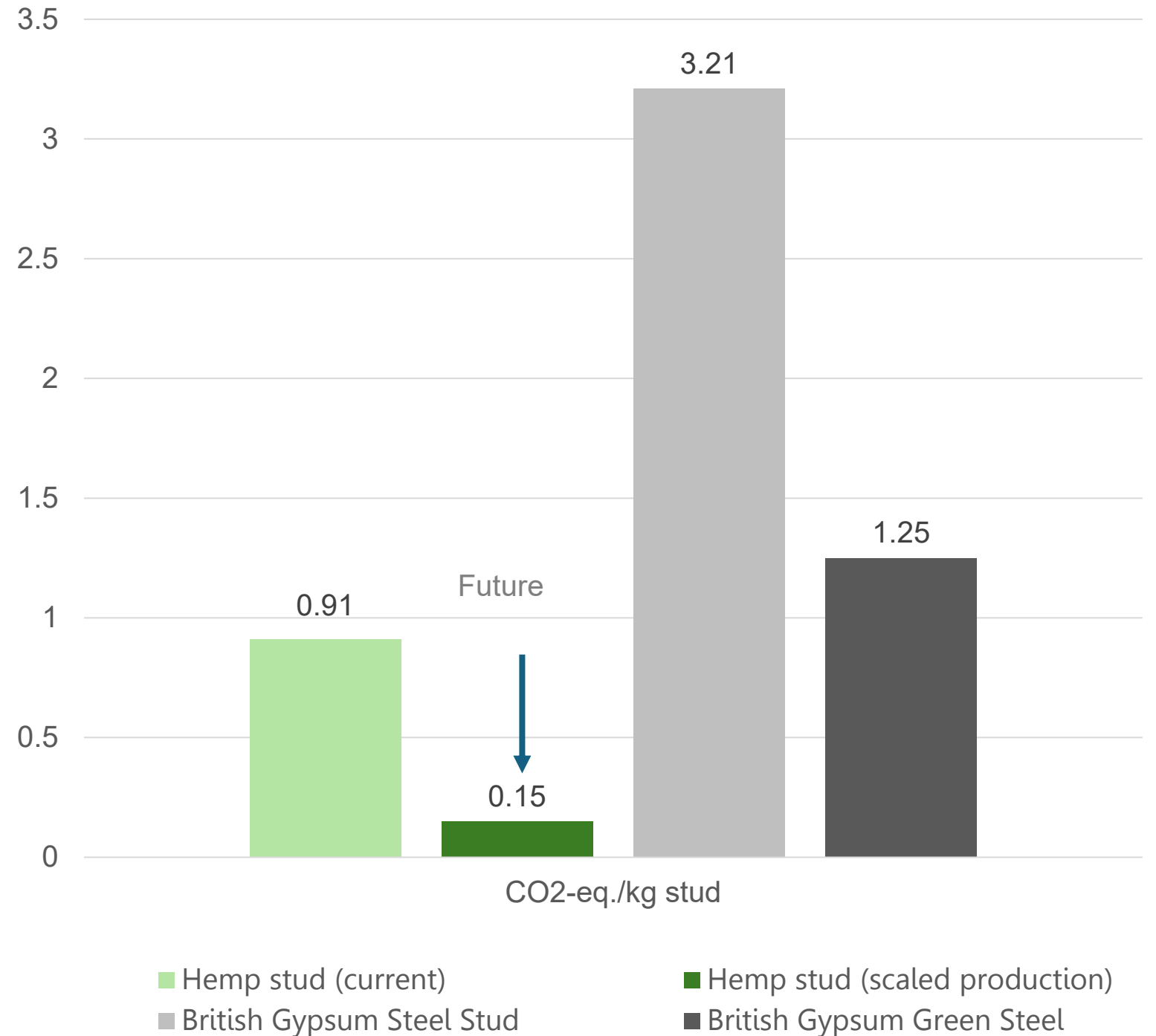
Source: JLL Research – CBD Class A > 100,000 s.f. only.

[Link to research](#)

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[Link to research](#)

## NEED FOR DE-CARBONISATION OF BUILDING MATERIALS

- **BioTwin studs are 71.5% lower in Co2 now than the comparable figure for the most commonly used steel stud**
- **With scale, BioTwin will continue to reduce carbon content, ultimately to 95% lower (and 88% lower than for studs made with recycled steel)**



*Figures from Lifecycle Analysis Reports  
conducted by Imperial Consultants and BRE*

# THE PRODUCT



**BioTwin**

# THE PRODUCT

## Product Data

**BioStud 70: hemp-based wall stud**

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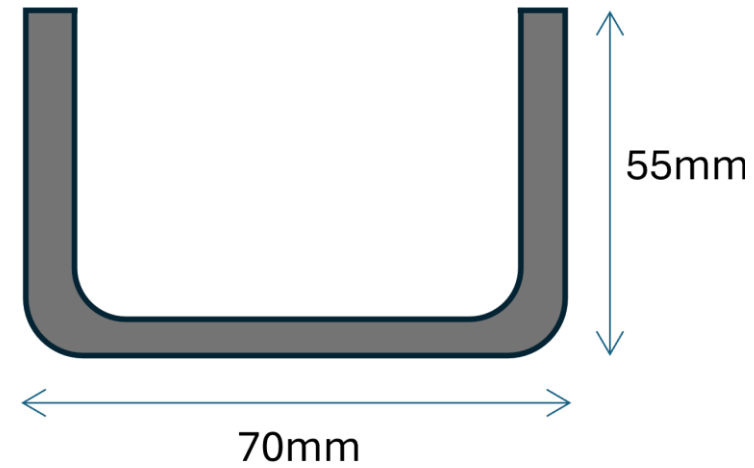
## Material

**Hemp Fiber and Shiv 30%  
Binder and FR powder**

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## Key Benefits

- ✓ 71.5% lower in carbon than conventional steel studs
- ✓ Acoustic and thermal enhancement
- ✓ Excellent tensile strength



<b>Length: 2500mm (4mtr lengths in development)</b>	<b>Weight: 0.62kg/lm</b>
<b>Width: 70mm</b>	<b>Colour: Light brown finish</b>
<b>Thickness: 4-5mm</b>	<b>Storage: Indoors and kept in dry conditions</b>

## **BioTwin's hemp and resin-based studs are a direct replacement for steel studs**

- Hemp-based wall stud for internal partitions
- ~70% lower CO<sub>2</sub> than steel at current production levels (will reduce as production increases)
- Installs using existing systems and workflows



## THE PRODUCT

**Biostuds** are a direct replacement for steel studs and do not require material changes in workflows or specifications

- Same dimensions
- Same workflow
- No redesign required



70mm C stud British Gypsum



## STEEL



## BIOSTUaD

- ✓ High Carbon
- ✓ Standard Install

- ✓ ~70% lower CO<sub>2</sub>
- ✓ Same install

### Commercial Walls are systems

- Performance comes from the full assembly
- Enables direct substitution
- Direct replacement requires no redesign or changes in specifications

## BUILDINGS ARE SYSTEMS OF REPEATABLE PARTS

Standardised components.  
Installed at massive volume.  
Replace one, impact scales instantly.



### FLOORS

Structural slabs spanning the building.



### WALLS

Define spaces and separate environments.

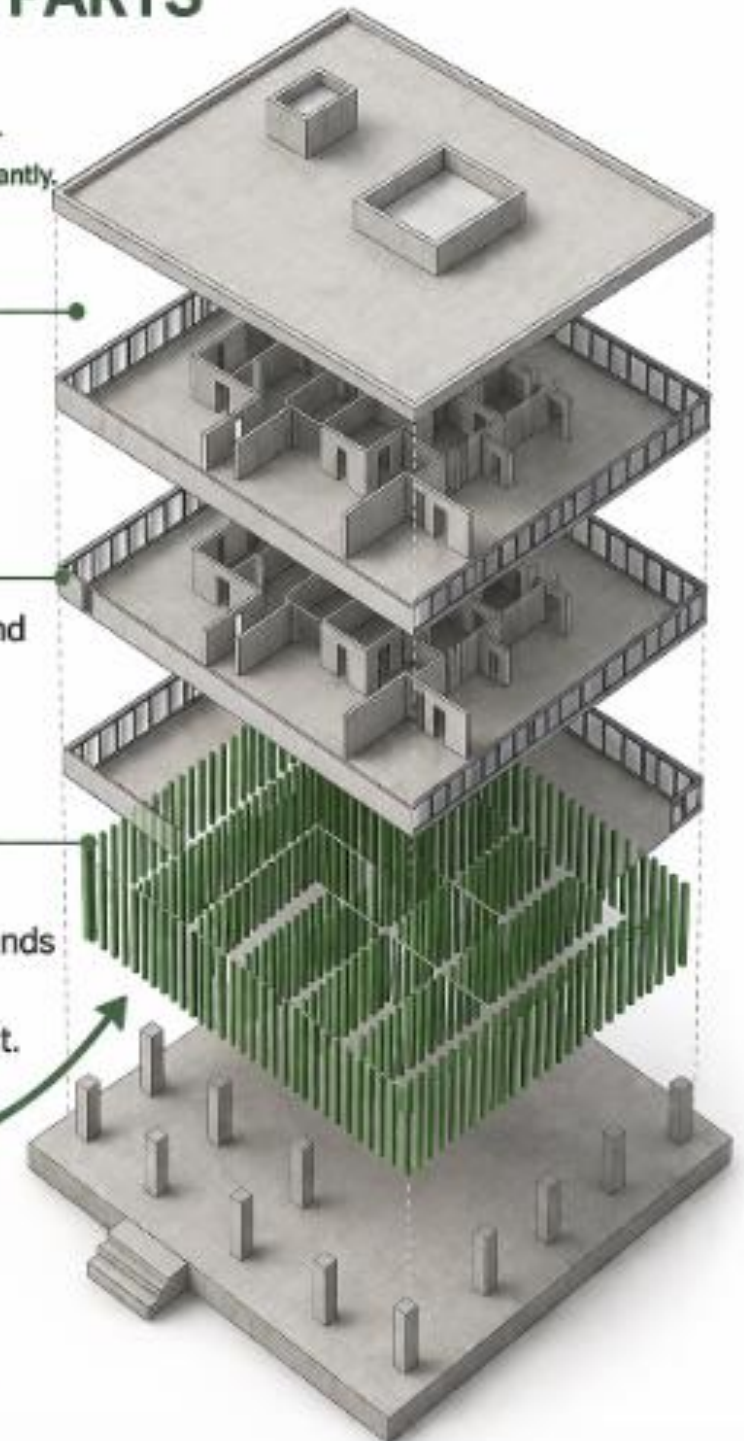


### STUDS

The repeating element. Thousands per building.  
Maximum impact.

 **ONE CHANGE, MASSIVE IMPACT.**  
Replace the stud, transform the outcome.

■ OTHER COMPONENTS  
■ OUR FOCUS: THE STUD



## THE PRODUCT

# The BioTwin process and manufacturing capability can be applied to the manufacture of other building products

- Acoustic isolator bars
- Horizontal channels
- And many more



# COMPETITIVE ADVANTAGE




**BioTwin**

## Can replace steel at scale

- Offers customers immediate carbon reduction
- Cheaper than steel at modest scale
- Can be applied to markets throughout the world



COMPETITIVE ADVANTAGE

Stud type	Low carbon	Acoustic Performance	Light Weight	Fire Resistance 60 & 120 mins (with plasterboard)	Cost	Screw grip & flex
	✓	✓ 37db	✓ 1.5kg	✓	Cost parity (30,000 units)	Good screw grip due to fibres. Little flex.
Steel C Stud British Gypsum, Siniat, and Knauf	✗	✗ 35db	✓ 1.46kg	✓	£3 – 4 (wholesale)	Thin steel, less grip. Can bend and buckle.
Timber CLS 47mm x 74mm Soft fast grown pine	✓	✗ 33db	✗ 3.47kg	✓	£3 – 4 (wholesale)	Good screw grip. Can warp/bow.

## COMPETITIVE ADVANTAGE

- **71.5% lower in carbon**, 95% as production scales
- Up to **5 decibels** sound improvement
- Patent-pending in the UK, with a PCT application (international application) filed
- 3 years of systems testing and validation
- Custom machine designed and operational
- Supply chain in place
- Cheaper when production scales



## Difficult to replicate process and IP

- Patent-pending in the UK, with a PCT application (international application) filed
  - We plan to enter the national patent application phase in the US, Europe, US and potentially other countries, covering material **and** manufacturing method
- BRE fire, acoustic and structural tests lock in spec advantage
- Independent Life Cycle Assessment A1-A3
- Custom machinery line, smart integration to existing machinery, layered material composition and supply chain know-how create real barriers





## **Cost & Scale**

Price gap reflects low production  
not inefficiency.  
Costs fall significantly with scale.



## **Carbon Creates Value**

Supports ESG, compliance and  
tender competitiveness.  
Increasing importance in  
decision-making.

# PROGRESS TO DATE



**BioTwin**

## Company operational at pilot stage

- Custom machine built and operational
- Completed three initial projects in London and one in New York
- Product tested successfully for fire, structural lateral load, acoustic and thermal
- Patent-pending in the UK, with a PCT application (international application) filed
- Product readiness level TRL 7–8

### Customers

FRASERS  
GROUP



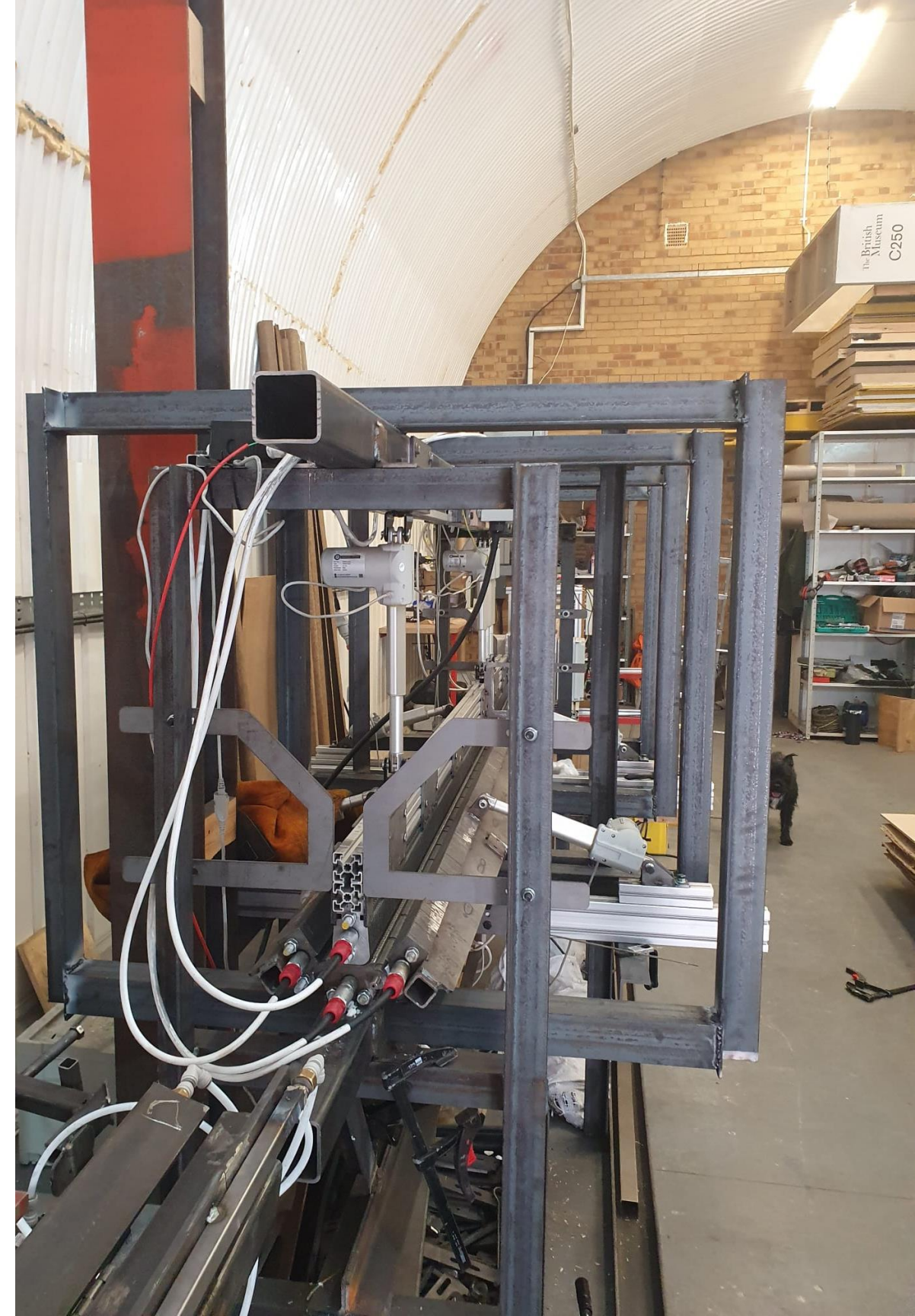
IMPERIAL

NYC / EDC

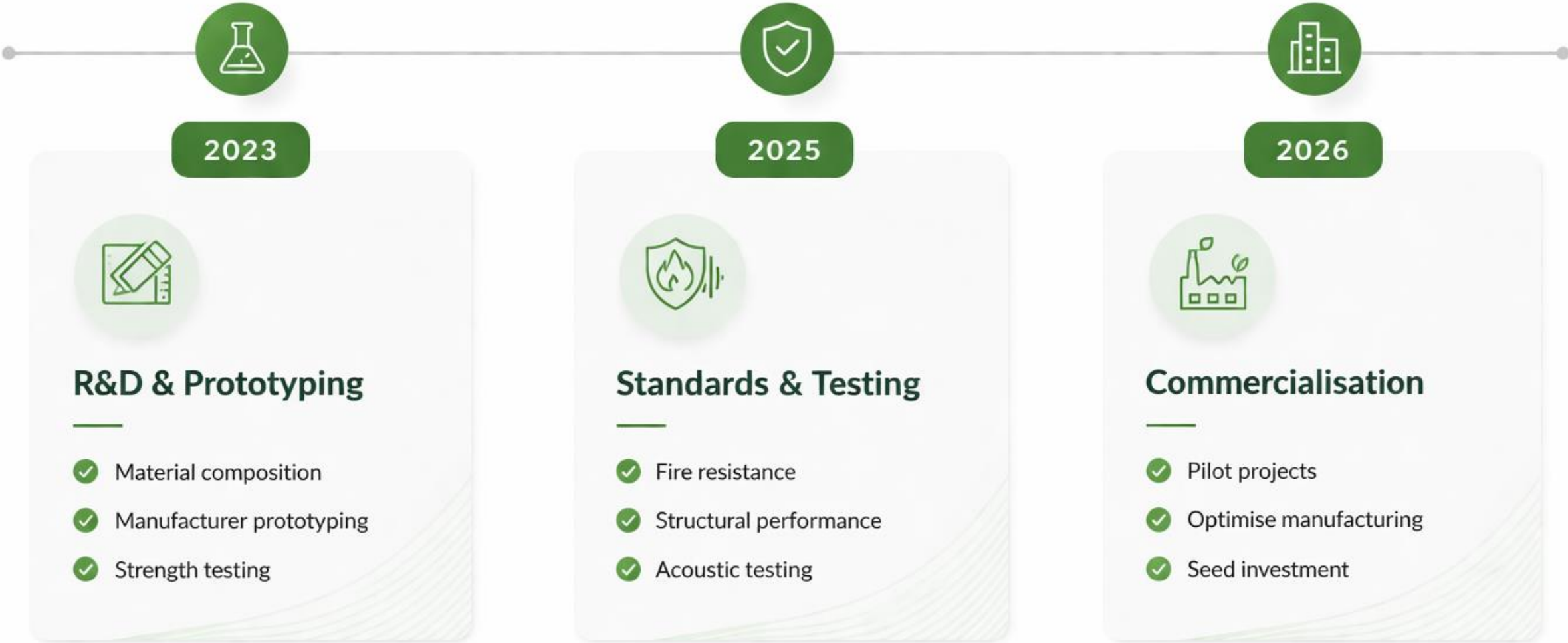



## Proprietary manufacturing process operating successfully

- Custom machine developed to produce BioStud at scale
- Tested and aligned with production workflows
- Used successfully in four initial projects
- Foundation for high-volume, cost-efficient manufacturing



# Building, validating, and preparing to scale



 Raising **£2.6 million** | To accelerate pilot projects, scale manufacturing, and drive market entry.

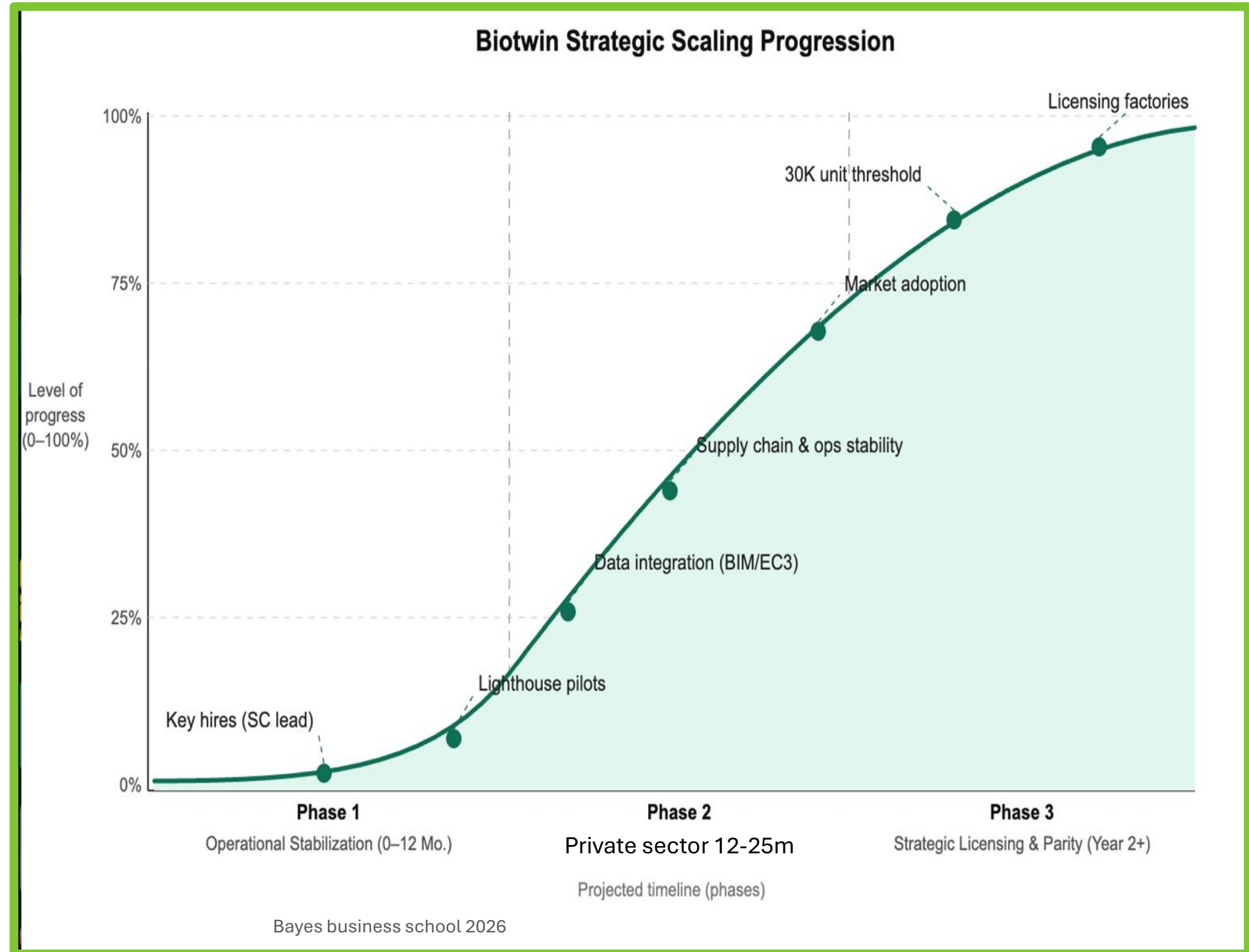
CLEAR PATH TO CREATING SCALE



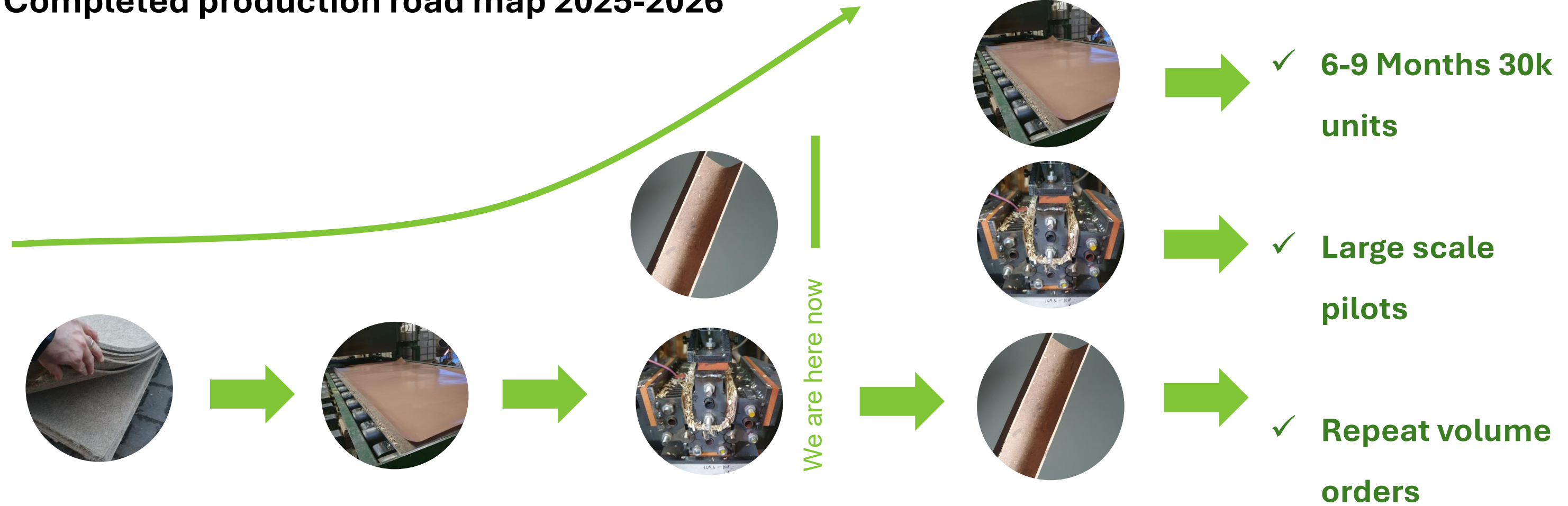
**BioTwin**

# CLEAR PATH TO CREATING SCALE

- **Clear route to market and path to scale**
  - Pilots → specification
  - Contractors → supply
  - Global rollout



## Completed production road map 2025-2026



### RAW MATERIALS

- ✓ Hemp + Resin
- ✓ Established partners to produce both parts of the material

### MANUFACTURE PARTNER

- ✓ Established EU partner
- ✓ To press sheets at scale
- ✓ Only at 2.6mtr
- ✓ Grow partners for 4mtr

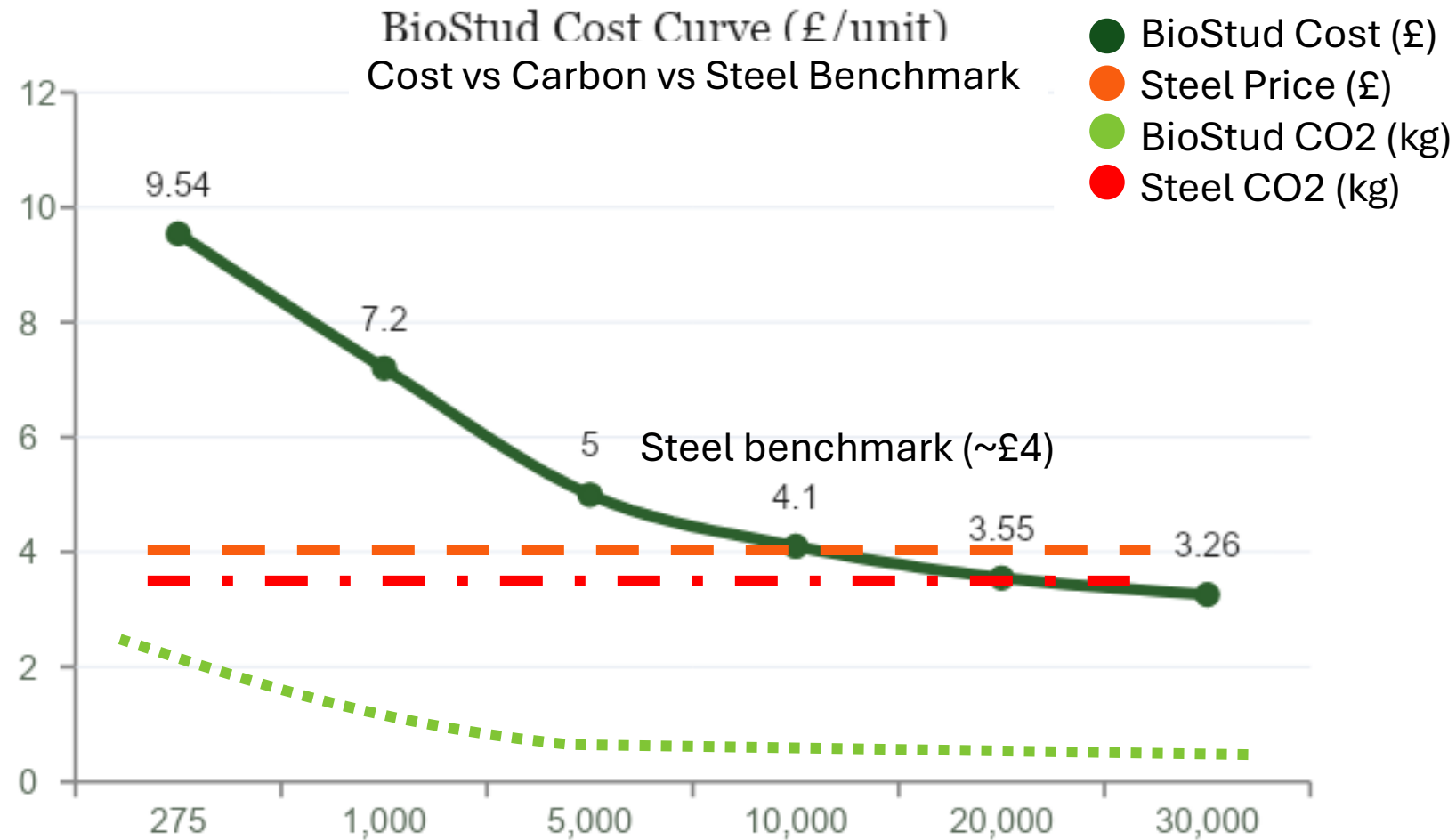
### PRODUCTION

- ✓ BioTwin presently takes raw material
- ✓ forms Stud
- ✓ Volume sub 1K
- ✓ Pilots low volume

### SCALE PRODUCTION 9-12 Months

- ✓ **Low-capex** forming line make 4m BioStud high density ready for larger commercial pilots.
- ✓ Secure volume orders
- ✓ Build Pilot plant

## BioStud cost today <£10 → ~ £3.26 at modest scale



Steel benchmark: £3–4/unit set at 10 million units +

Cost per unit today is:

**£9.54**

Pilot production (~275 units)

Cost per unit at 30k units is:

**£3.26**

Matches steel stud production cost

Cost per unit at 10m units is:

**£1.50**

Less than half the production cost of steel studs

Cost per unit at 22m units is:

**£1.00**

Less than one-third the production cost of steel studs

TEAM



**BioTwin**

# TEAM



## Matthew Elton - CEO

### Co-founder, manufacturing & product leader

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- ✓ 20+ years in design,
- ✓ manufacturing, construction
- ✓ Built and exited multiple businesses
- ✓ Specialist in materials and production at scale



## Jane Goddard - CTO

### Testing, certification & product strategy

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- ✓ Deputy CEO, Building Research Establishment (BRE)
- ✓ Leads certification, compliance, and system performance
- ✓ Deep expertise in construction standards



## Henry Schmeltzer - NED<sup>1</sup>

### Finance, structuring & global expansion

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- ✓ 40+ years in finance, banking, and trade
- ✓ Expert in international structuring (Malta, US, EU)
- ✓ Supports scale, capital strategy, and governance



## Burcu Karaca - Advisor

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- ✓ CEO, BPREG Composites
- ✓ Hemp and materials specialist



## Matteo Turi - Advisor

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- ✓ Experienced CFO
- ✓ Capital strategy specialist

<sup>1)</sup> To be appointed

# USE OF FUNDS AND SUMMARY FINANCIAL PROJECTIONS



**BioTwin**

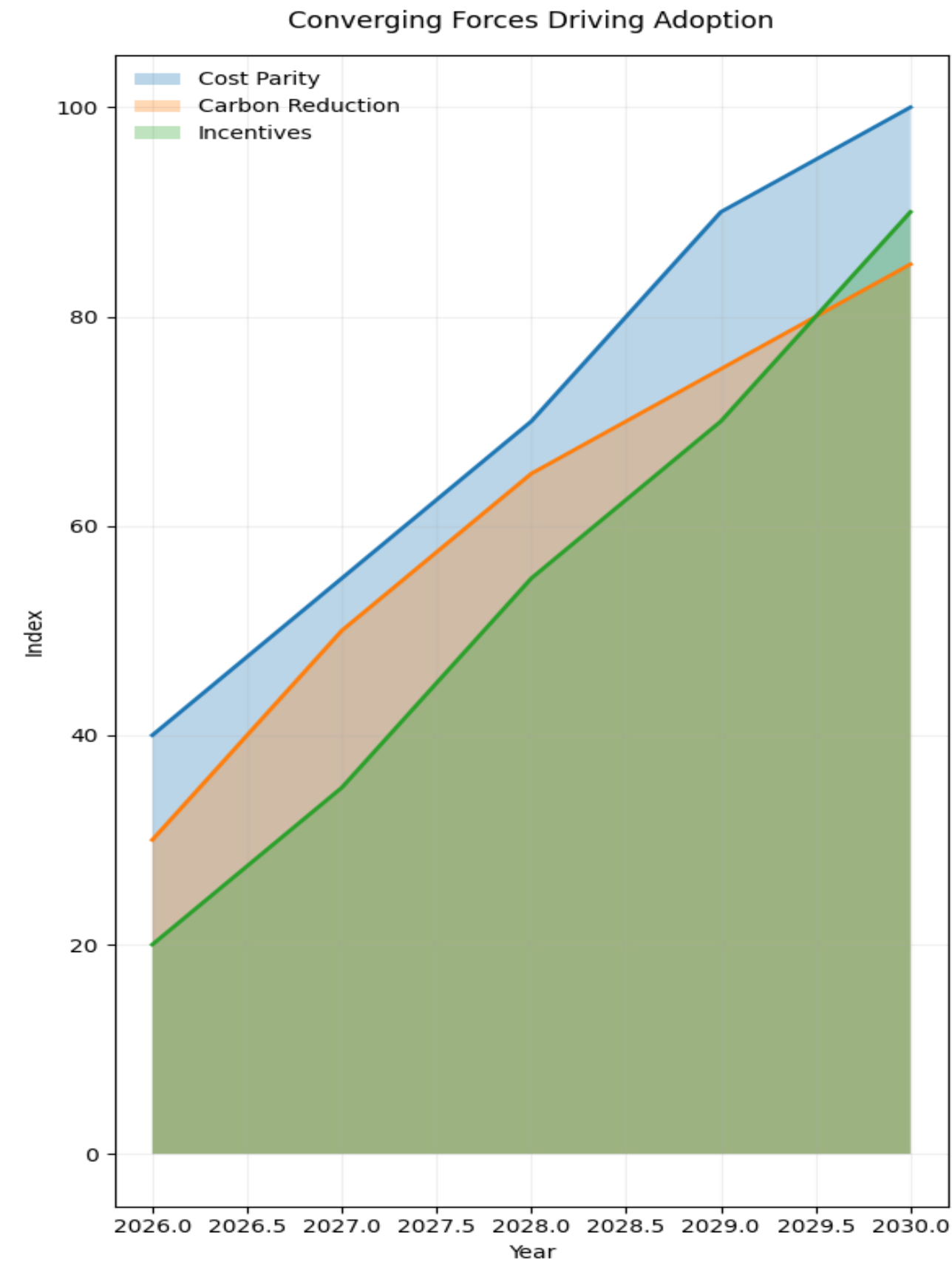
# Use of proceeds

Funding	Allocation	Activities
Manufacturing	40%	<ul style="list-style-type: none"> <li>• Setup new pilot production line by Oct 2026</li> <li>• Custom machine line and off the shelf machinery 60/40 split</li> <li>• Gets us to cost parity with steel studs</li> <li>• Produce up to 40,000 stud units per month</li> <li>• Custom machinery: 43% Off-the-shelf equipment: 25% Install &amp; contingency: 32%</li> </ul>
Team	25%	<ul style="list-style-type: none"> <li>• Critical hires to unlock sales growth and optimising production</li> <li>• Go from 5 employees to 10</li> <li>• COO (operations &amp; scale) Production Manager (output &amp; quality) Sales (commercial traction) Technical support (product delivery)</li> </ul>
R&D/certifications	15%	<ul style="list-style-type: none"> <li>• Variants of studs and new acoustic profiles</li> <li>• UK regional certifications and EPD</li> <li>• De-risking product for full commercial deployment</li> <li>• Certification (fire, acoustic, structural)</li> <li>• Product refinement for scale</li> <li>• Enabling specification across key markets</li> </ul>
Overheads	20%	<ul style="list-style-type: none"> <li>• Facility costs are relatively modest (~£50–100K/year), with the majority of overhead allocated to operational readiness and production support.</li> </ul>

USE OF FUNDS AND SUMMARY FINANCIAL PROJECTIONS

# Five-year projections for revenues, profits and project volumes

Year	Revenue	Profit	No of Projects
2026	£420,000	-£284,572	42
2027	£5,130,000	£669,490	171
2028	£19,125,000	£5,899,282	382
2029	£47,250,000	£20,980,248	945
2030	£110,250,000	£61,740,828	2205



# APPENDICES



**BioTwin**

APPENDIX 1  
COMPLETED  
CERTIFICATIONS



**BioTwin**

## **BioTwin products have received the following certifications from highly qualified testing firms**

- Fire Testing
- Lateral Load Testing
- Sound Insulation Testing
- Thermal Conductivity testing
- Life Cycle Assessment - A1-A3



## Testing with one and two layers of fire-rated plasterboard shows BioStud can meet fire standards in both standard and higher-performance wall systems

- 60min Furnace test - EN13501-1:2023
- 3m x 3m Single layer 15mm FR plasterboard
- 120min Furnace test - EN13501-2:2023
- 3m x 3m Double layer 15mm FR plasterboard

### Tests conducted by BRE

[Fire report 120min](#)

[Fire report 60min](#)



## We test structural load to make sure BioStud can safely replace steel in real building conditions

- 3.6m tall walls 4-point bend test
- 4.6m tall walls 4-point bend test
- Double layer 12,5mm Plasterboard

## Tests conducted by BRE

[Lateral Load report 3.6m](#)

[Lateral Load report 4.6m](#)



## We tested to prove BioStud improves wall performance while keeping costs the same

- Sound Insulation Testing for Drywall Partitions
- ISO-10140-1:2021 BS EN ISO10140-2:2021

### Tests conducted by BRE

[Sound report](#)

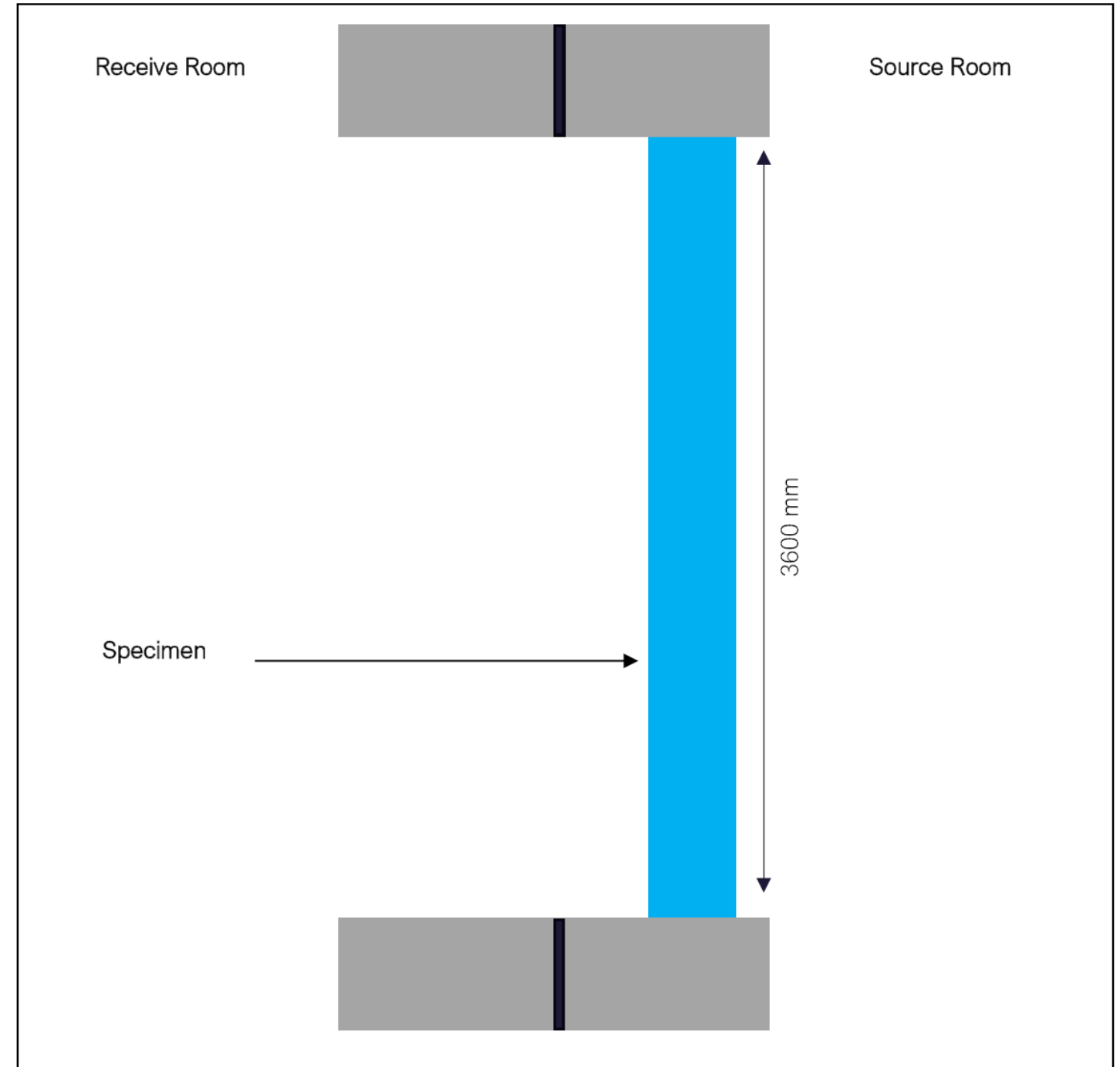


Figure 2: Plan through elevation showing the approximate position of the test samples in the transmission suite aperture.

**W/m·K = is a measure of how easily heat moves through a material**

- **Higher number** = heat passes through easily (like steel)
- **Lower number** = heat is blocked / slowed (like BioStud)

## Thermal Testing

- Thermal Conductivity Test
- ASTM C518-21

## Tests conducted by BRE

Thermal Report

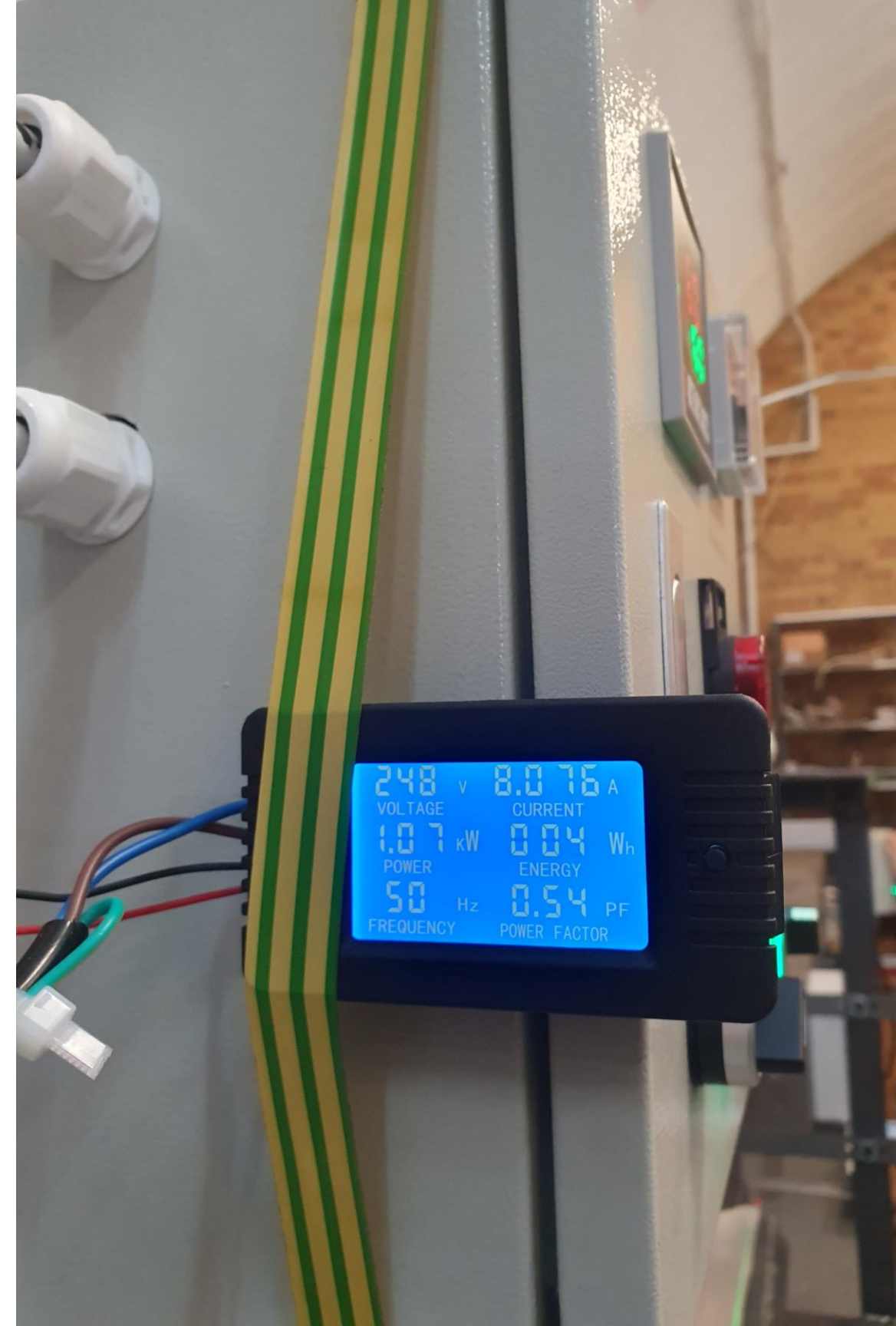
SAMPLE	THICKNESS/M M	MASS/g	TEMP/C	BioStud K/W/mk	Steel K/W/mk
BioTwin-1	4.9	7.957	31.89	0.135	50
BioTwin-1	4.9	7.957	51.74	0.131	50
BioTwin-2	4.9	8.212	32.23	0.139	50
BioTwin-2	4.9	8.212	51.92	0.135	50
BioTwin-3	5	8.298	32.17	0.135	50
BioTwin-3	5	8.928	51.9	0.135	50

## **LCA measures the total environmental impact of a material from production to disposal**

- Independent LCA A1-A3 studies conducted by Imperial Consultants and BRE both prove at present volumes the Bio Stud is 71.5% Lower carbon than steel studs.

[BRE LCA Report](#)

[Imperial LCA Report](#)







# APPENDIX 2

## COMPLETED PROJECTS



**BioTwin**

# Working with major developers like British Land shows how seriously the industry is taking BioStud

Completed pilots and customers	Location	Real estate	Future projects
	London	Owns £269m of property directly	Current tender for 12-storey block <a href="#">Media coverage</a>
	London	Portfolio spans 22mil sq ft space	Central London retrofit + more projects
	London	3,900 offices and branches globally	Discussion on other office retrofits
	New York	NY's largest landlord, 60m sq ft space	1st international pilot, Brooklyn Discussions on BATWorks retrofit <a href="#">Video</a> <a href="#">Press release</a>

## British Land, completed 2026

- Portfolio spans 22mil sq ft space
- 2nd UK installation
- Current tender 20 Triton Street
- Chosen to reduce carbon and acoustics
- Central London retrofit + more projects

[Video](#)



## Imperial/Sciopolis, completed 2026

- Owns £269m of property directly
- 1st UK installation, London
- Current tender for 12-storey block
- Chosen to reduce carbon and acoustics
- Current tender for 12-storey block

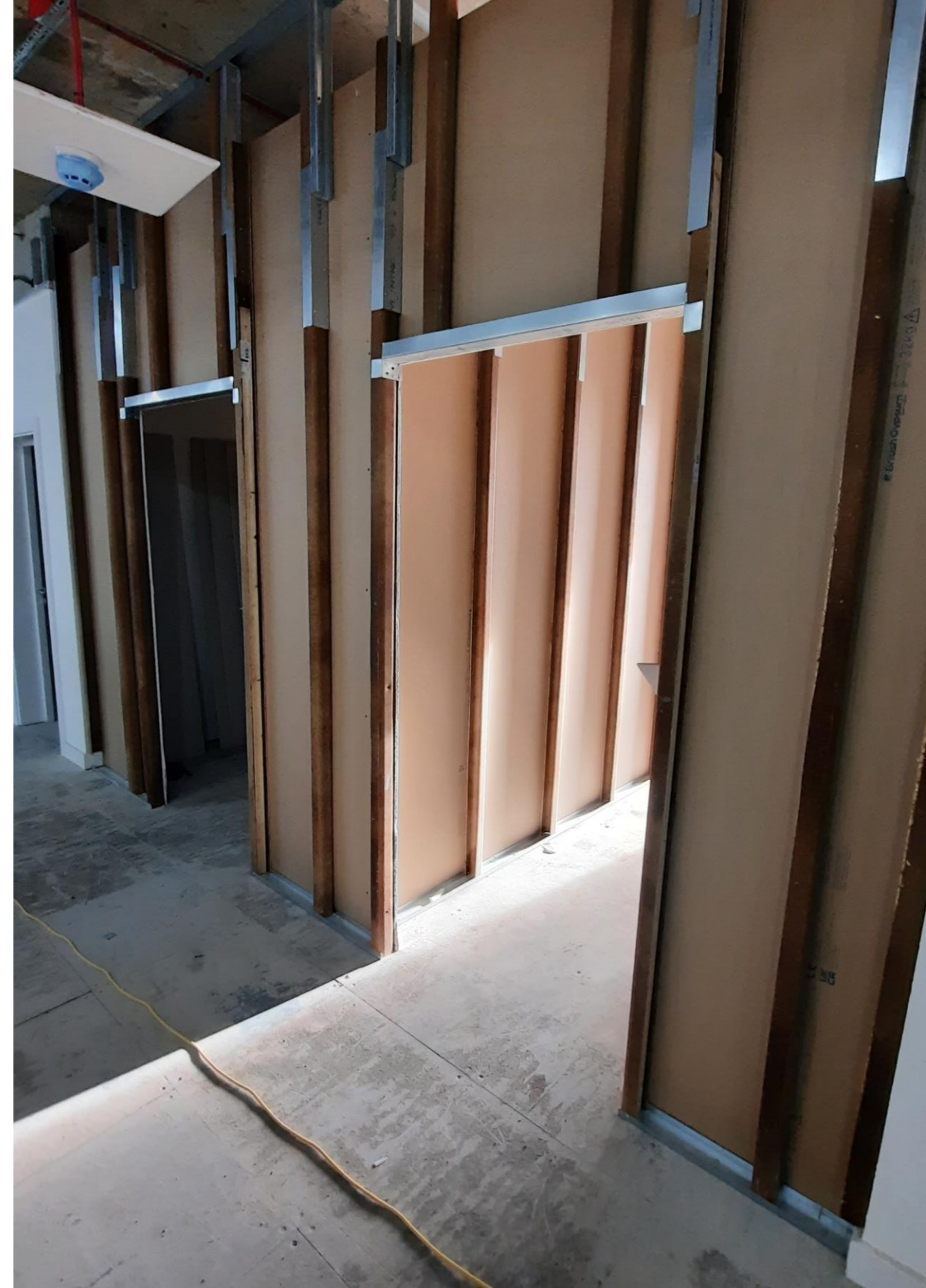
[Video](#)

[Media coverage](#)



## HSBC, completed 2026

- 3,900 offices and branches globally
- Discussion on other office retrofits
- Chosen for its acoustic benefits
- Discussion on other office retrofits



## **NYEDC, completed 2025**

- 60m sq ft space
- 1st international pilot
- Discussions on BATWorks retrofit

[Video](#)

[Press release](#)



# Replacing steel with biomaterials that install the same way

Target market commercial fit-out and retrofits

[matt@biotwin.co.uk](mailto:matt@biotwin.co.uk)  
[www.biotwin.co.uk](http://www.biotwin.co.uk)



**BioTwin**

THANK YOU

