

Timber Modular Build (TMB)



TMB Key Features

Exceedingly low embodied carbon
- can exceed Net Zero for some configurations

Assured Life Expectancy

Surpasses Fire Resistance Standards

BE-ST Gamechanger Award Winner 2024

Security rated to SR2 and SR3

Scan the QR code to view the detailing of the RSE-TMB



Timber Modular Builds (TMBs) are modular enclosures built from sustainable timber grown & sourced in the UK to replace traditional materials such as steel and GRP. This innovative approach using alternative and sustainable materials maximises the reduction in embodied carbon whilst maintaining high-quality standards.

1.0

Design

TMB have a hybrid cross-laminated timber and glue-laminated timber core structure; with an embodied carbon of only 0.45kgCO₂e/kg for the core. The TMB combines innovative engineering solutions with fabrication, with an emphasis on modular and offsite build methods. The TMB sizes available are:

- from 3m (w) x 3m (l) x 3m (h)
- to 4.3m (w) x 14.4m (l) x 4.3m (h)

1.1

Designing Out Carbon

To develop and design the TMB, carbon footprints have been assessed using Life Cycle Analyses in accordance with ISO 14040:2006.

The TMB enables even more reductions in embodied carbon in the associated civil & groundworks because it only requires a reinforced concrete plinth in exceptional circumstances.

2.0

Key Features & Benefits

- **Modular Build Solution**
 - Supports off-site modular build and modern methods of construction.
 - Precision cutting and assembly reducing material use and minimising waste.
 - Modular construction minimises on-site activity.
- **Short Lead Times**



- **Large CO₂ reduction compared to traditional build methods.**
 - Substitutes traditional build materials such as plastic with engineered timber.
 - Reduction in embodied CO₂ exceeds 80% compared to traditional kiosks – TMB exceeds net zero in some configurations if sequestered carbon is offset.
 - TMB provides excellent insulation with a U-value (W/m²K) always less than 1.1.
- **Fire Resistant**
 - Complies with fire safety legislation and guidance.
 - Surpasses fire performance standards for similar steel framed and GRP structures.
 - TMB panels exceed fire building regulations for 60-minute fire integrity tests and certified fire resistance performance of 78 minutes to BS 476-20.
- **Structural Longevity**
 - TMB longevity meets and exceeds industry standards.
 - Exceeds 25-year design life of traditional enclosures, with assurance built in.
- **Secure Enclosure**
 - Listed in the LPCB Red Book Live for security ratings SR2 (certificate no 1747d) and SR3 (certificate no 1747e) to LPS 1775: Issue 8.

Compare embodied carbon for security rated kiosk, including structural floor (Length X Width X Height)	GRP	TMB		TMB (incl. carbon sequestered offset)	
	kgCO ₂ _{equiv}	kgCO ₂ _{equiv}	Reduction	kgCO ₂ _{equiv}	% reduction
TMB 3.0m x 3.0m x 3.0m	25,723	3,192	88%	-1,556	106.05%
TMB 11.0m x 3.8m x 4.0m	95,611	14,347	85%	13	99.99%
TMB 14.4m x 4.2m x 4.2m	152,427	19,994	87%	-742	100.49%