Container Modular – Does it stack up?

HAMPTON by HILTON, BRISTOL AIRPORT
Client: CIMC-MBS
STRIDE TREGLOWN & DfMA
Not Just a one-trick pony

Pop-Up Hotel - Snoozbox

Medical Pods - Lamboo

Container Modular

STRIDE TREGLOWN

CLT – The Boiler House

Hotel – CLMC volumetric

Stride Treglown Cardiff Office – Glulam/ SIPS

LGSF Volumetric - YMCA

Student Living LGSF

FutureBuild 2019
Container Modular - Bristol

Project: Help Bristol’s Homeless
Converted Containers

Project: Wapping Wharf CARGO
Client: Umberslade
CARGO (WORK) – Cumberland Road 90 Containers TBC

Project: Boxworks - Engineshed Bristol.
Coworking/ Business Incubators

Project: Hall & Woodhouse Restaurant, Portishead

Container Modular

STRIDE TREGLOWN

FutureBuild 2019
<table>
<thead>
<tr>
<th>Storeys</th>
<th>Ground + 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedrooms</td>
<td>201 Volumetric</td>
</tr>
<tr>
<td>Modules/ Types</td>
<td>113 total / 9 Types</td>
</tr>
<tr>
<td>Programme</td>
<td>12 months</td>
</tr>
<tr>
<td>BREEAM</td>
<td>Very Good</td>
</tr>
<tr>
<td>Cladding</td>
<td>Composite Aluminium panel + partial rainscreen</td>
</tr>
<tr>
<td>Acoustics</td>
<td>Runway &lt;500m: Secondary Glazing China install</td>
</tr>
<tr>
<td>Module Design</td>
<td>Ground floor bedrooms, Eccentric Modules, Stair Modules</td>
</tr>
</tbody>
</table>

- Typically 28-30 weeks From Design Freeze
- Includes 7 weeks for shipping
- Site installation in 2/3 weeks
CONTAINERISED MODULAR - Sharing perceptions

1.0 Shipping Container Volumetric (DfMA): Does it stack up?

2.0 Quality processes: ‘Made in China’ –Cheap ‘tat’ versus the Qing Dynasty?

3.0 From Earthships to Containerships: Sustainability?

4.0 Where can the system go from here?
CONTAINERISED MODULAR - Sharing perceptions

What are your perceptions?

What are our perceptions after 2 projects….?
1.1 Container Modular – what exactly is it?

NOT A RECYCLED SHIPPING CONTAINER
NOT FROM A CATALOGUE
NOT A MAKE-OVER
1.2 Container Modular – what exactly is it?

**Bespoke pre-finished volumetric bedroom**

**Appropriate Projects:**
- High degree of cellular repetition
- Suits Simple orthogonal plan form
- Punched windows not fully glazed walls
- Module size suits port, road or rail links
1.3 SUSTAINABLE STACKABILITY

Container Solution & C0₂ Emissions:
* Use of steel
** Fabricated processes
*** Sea miles from China to UK/EU/Africa

BUT THAT’S NOT THE WHOLE STORY...
1.4 STACKING up Financially:

*Lower Whole Building Cost: It's not cheaper but because it completes earlier there are savings to be made: The site programme can be up to 20-30% shorter.*

Based on:

- *Lower Contractor Site Overheads*
- *Earlier revenue generation / shorter period of borrowing (lower) costs*
- *Reduced snagging costs on site because of higher quality factory finish*

CIMC are also able to offer finance on their projects
2.0 QUALITY PERCEPTIONS SPECTRUM

‘Made in China’ toy ........................................................................ CIMC-MBS .............................................................................. ‘Qing’ Vase
2.1 QUALITY - ENDORSEMENTS

CIMC use UK Engineers and UK coordinating architect

CIMC supported by hotel chains such as Hilton, IHG

Marine compliant module

Transport and container logistics is their business
2.2 QUALITY
Design Coordination

United Kingdom
UK Head Office
Manchurian & Mancunian Dialects!
Local Design team meetings

China
- Quality Controls
- Fabrication Procedures- Drawings issued in English and Chinese
- Sample prototype produced
1.5 FAÇADE
DESIGN QUALITY

GUESS THE MODULAR BUILD
Q. What do you think volumetric buildings should look like?

Container Modular  STRIDE TREGLOWN  FutureBuild 2019
4.0 PRODUCT SUSTAINABILITY
From Earthships (top) to Containerships (below)

C0₂ Emissions!

Addressing criticisms of the high carbon footprint of container modular what are the options?

A: REDUCE
B: REUSE
C: RECYCLE
D: REFRAME?
4.1 REDUCE……

Growth market expected to be 3rd world areas where Hotel brands struggle to achieve quality standards.
Extent of Steel required for stiffening?

4.2 REUSE

Repurposing hotels/ student accommodation/ care homes. Example: Change-of-Use of Bristol Hampton Hotel to Apartments:

- Early Investment in a more flexible modular room envelope with pass doors now (in red)
- Fire Escape design to suit other use classes
4.3 RECYCLING

- Modules transported to new sites for repurposing at the end of useful Life

- Early Considering of Demounting/ Recycling Design

- Subdivide larger buildings into smaller houses or low-rise apartments.
4.4 REFRAKE the way we look at Container Modular

‘A Room as a product not as shelter’….

“Of Course the shipping container bedrooms are sustainable, Geppetto!”

Are products sustainable only if they are used ‘correctly’?

Shipping containers used for land accommodation are ‘unsustainable’ but ok if they are used on a ship?
5.0 CRYSTAL BALL GAZING:
Where can the systems go from here?

Design Possibilities

Dramatic Cantilevers
Self-contained waterproof box
Façade integration
Partially thermally insulated
Designed for transportation – road/rail/shipping
5.1 Container buildings are not new -

**Limitations on** late decisions making mean it's not suited to all repetitive building types.

Technology & Take-up is **still evolving**

Volumetric Solutions are becoming **more mainstream** particularly for hotel/ care/ student sector accommodation

**Cultural Drivers are likely to limit Offsite take-up**: Some House buyers will always want to make their mark, to extend, a fixer upper'. Our human needs to connect with nature and natural materials
CONCLUSIONS – CIMC Containerised Modular Bedrooms

RISK – Only 3 of 13 Main Contractors were willing to tender – perceived Modular risk of ‘all the eggs in one basket’ - lower prelims / profit perceived as a negative.

EARLY ENGAGEMENT – CIMC reviewed the pre-submission design to refine it

SUSTAINABILITY – Container modular isn’t highly sustainable unless you factor in creative reuse

FUTURE – the Developers/ Hotel Chains and attractive financial incentives are driving growth to a larger market share

QUALITY – Factory Conditions does mean better quality: Our perception aligns with the Hotel Chains