

International Seminar of Industrial Construction

25th October 2018

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Modular & Portable Building Association UK
&
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“Pre-fabrication = Offsite”

- Introduction to MPBA
- Who are bmpr Offsite
- Typologies
- Potential Benefits of Using Pre-fabrication
- Challenges
- Questions & Answers

Agenda



Modular & Portable Building Association

- Founded in 1938 – 140+ Members
- Plays a key role in connecting all sectors of the modular and portable building industry
- Singly recognised voice promoting and marketing all members products and services.
- Members specialise in all types of modular building applications.
- Represented on committees for BSI, LPCB-Expert Group D and also works with BRE, LABC, CLG, NHS, Cskills-CITB, and Carbon Trust to represent the industry.
- Clear aims, objectives and codes of conduct approved by industry regulatory bodies.



Modular & Portable Building Association

- 4 General Meetings a year –Networking and Information Transfer
- Committees – Technical, Health & Safety, Marketing
- 2 Social meetings a year – Golf Day & Christmas Dinner
- Run as a charity
- Full Members = Manufacturers. Fees £840 - £4410
- Associate Membership = Supply Chain. Fees £940 - £2180



Project Feasibility

Product Value Engineering

Manufacturing Audits

Support Project Teams

Offsite Masterclasses

Offsite Training

What do we do? - Qué hacemos



Typologies

Tipologías

Typologies - Tipologías



Timber Frame



North America

Scandinavia

Australia

UK - Scotland



THE MODULAR & PORTABLE
BUILDING ASSOCIATION
The voice of the UK modular industry



Structurally Insulated Panels (SIPS)



Originated in
North America

SIPS Association
in UK

Generally Used in
Small Scale
Residential Projects

Typologies - Tipologías

Unitised (Finished) Walling System

Base system could be
LSF, Timber Frame,
SIPS or Concrete

Used Globally

Could be Used
as a Housing Solution



Typologies - Tipologías

Bathroom & Kitchen Pods



Most Prevalent and Globally Accepted Solution

Natural Evolution to Full Scale Modular

Typologies - Tipologías

What is Offsite?

Pre-engineered Mechanical & Electrical Services

Successfully
Used in Large
Scale Projects

Infrastructure

London Cross
Rail Project

Hospitals



Typologies - Tipologías

Modular Wiring - Impact On Labour Costs

Health care project - lighting & power Installation value \$950,000

Staffing Levels	Traditional Installation	Pre-engineered wiring Installation
Peak	50	30
Skilled	45	7
Mates	5	23
Ratio	9:1	1:3

Actual savings on the project were :-

- 10% saving on estimated cost = \$95,000
- 6-8 week reduction to 1st fix program.

Cost Saving Example
Ejemplo de ahorro de costos

Cross Laminated Timber (CLT)

Developed in
Germany & Austria

University of British Columbia – Vancouver Campus



Many Experimental
Projects Globally
Testing System
Capabilities

Even a Project
in the Antarctic!

Typologies - Tipologías

Pre-cast Concrete

Historically the
“Go To” Construction
Solution

Fallen Out of Favour
For Sustainability
Reasons



Often combined in
Hybrid Solutions



Typologies - Tipologías

Light Steel Frame (LSF)



Developed in Australia...
.....Because Termites
Don't Eat Steel

Globally Accepted

Now Used in Everything
From Single Residential
Projects to High Rise
3D Modular Projects

Typologies - Tipologías



Adelaide Wharf

Hybrid Solutions

Concrete

Unitised Cladding

Bathroom Pods

Balconies

Et al.

Typologies - Tipologías



3D Volumetric Modular Construction

It Could be This.....

Or It Could be.....



Typologies - Tipologías

This.....

**Atlantic Yards – Pacific Park
461 Dean Street**

32 Story Building

Affordable Apartments

Manufactured in Field Factory

**3D Volumetric Modular
Construction**



Typologies - Tipologías



Success is not looking for a Panacea

Offsite / Pre-fabrication is about being
PROJECT specific rather than PRODUCT
(or system) specific.

What works well for one project will not be
the best solution for all projects.



A Consideration
Una consideración



<https://youtu.be/xktwDfasPGQ>

<https://youtu.be/MVWayhNpHr0>

What Next? - Qué sigue



Potential Benefits Beneficios Potenciales

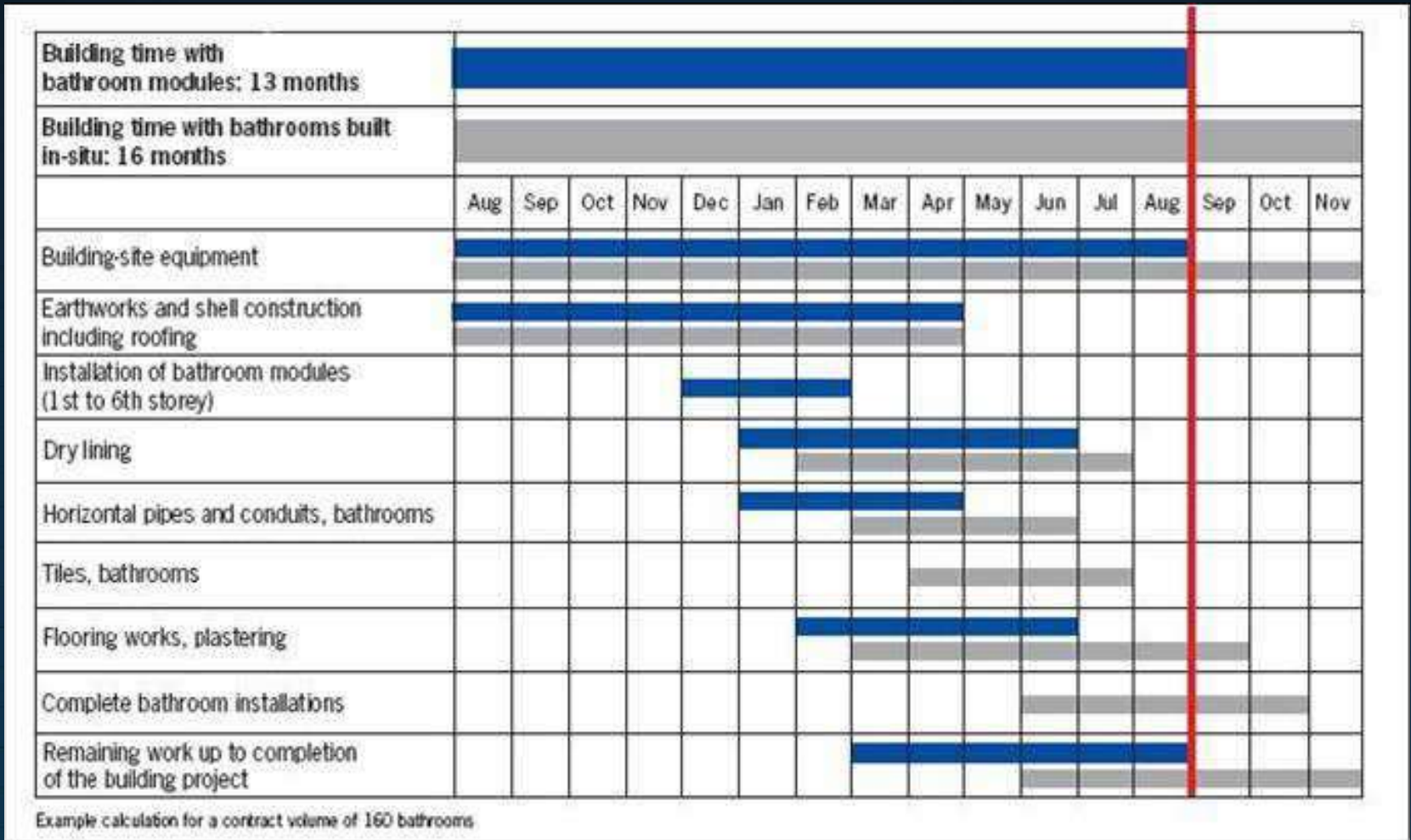
Potential Benefits
Beneficios Potenciales



- **Reduced Construction Time**

Potential Benefits
Beneficios Potenciales





Potential Benefits

Beneficios Potenciales



- **Reduced Construction Time**
- **Earlier Profitability**
- **Higher Quality Finish**

Potential Benefits
Beneficios Potenciales





Familiarity Breeds Regularity

Higher Quality Finish
Acabado de mayor calidad



- **Reduced Construction Time**
- **Earlier Profitability**
- **Higher Quality Finish**
- **Centralised Control**

Potential Benefits
Beneficios Potenciales



For example:-

- **Plumbing**
- **Tiling**
- **Electrical work**
- **Carpentry**
- **Stone masonry**
- **Glazing**

Centralised Control
Control centralizado



- **Reduced Construction Time**
- **Earlier Profitability**
- **Higher Quality Finish**
- **Centralised Control**
- **Health & Safety**

49 construction fatalities
31 manufacturing fatalities

Potential Benefits
Beneficios Potenciales





Sustainability Sostenibilidad



Sustainability

- **Factory waste is typically less than 1.5% compared with more than 10% on a traditional construction site**
- **Factory operatives are 300% more efficient**
- **Potentially 90% fewer vehicle deliveries**
- **Factory operative travels 2 miles to work and the national average is 8.5 miles**

Potential Benefits
Beneficios Potenciales



- **Reduced Construction Time**
- **Earlier Profitability**
- **Higher Quality Finish**
- **Centralised Control**
- **Health & Safety**
- **Sustainability**
- **Less Risk**

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Potential Benefits
Beneficios Potenciales





Fixed Cost Predictability

Previsibilidad de costo fijo



Weather - Clima

- **Reduced Construction Time**
- **Earlier Profitability**
- **Higher Quality Finish**
- **Centralised Control**
- **Health & Safety**
- **Sustainability**
- **Less Risk**
- **Less Construction Disruption**

49 construction fatalities
31 manufacturing fatalities

Potential Benefits
Beneficios Potenciales



**OH! YOU WANTED TO
SLEEP THIS MORNING?**

**WELL, LET ME SHIFT INTO
REVERSE AND PLAY YOU
THE SONG OF MY PEOPLE.**

Disruption - Trastorno



- **Reduced Construction Time**
- **Earlier Profitability**
- **Higher Quality Finish**
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- **Health & Safety**

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- **Sustainability**
- **Less Risk**
- **Less Construction Disruption**
- **Potentially Less Design Time**
- **Permanent Workforce**

Potential Benefits
Beneficios Potenciales



- **Reduced Construction Time**
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- **Higher Quality Finish**
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- **Sustainability**
- **Less Risk**
- **Less Construction Disruption**
- **Potentially Less Design Time**
- **Permanent Workforce**
- **Geographic Flexibility**

Potential Benefits
Beneficios Potenciales



Challenges

Desafíos

Challenges - Desafíos



- Investment in Manufacturing Facilities
- Relies on early planning
- Local acceptance – from government to users
- Greater level of coordination - DfMA
- Getting it wrong can be a big issue

- Cost



beware!

Challenges - Desafíos



**And Finally.....
Y finalmente.....**





**And Finally.....
Y finalmente.....**



Gracias por su atención

para más información.....

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