



**INNOVATION IN MODULAR BUILDING
and
SUPPLY CHAIN MANAGEMENT
within the
MINISTRIES of DEFENCE AND JUSTICE**

MICHAEL WEBB

Intelligent Construction


**Innovation and supply chain management to benefit the MoD
and
the MoJ market**

INNOVATE
'from the Latin novus'
meaning 'bring in new methods, ideas, make changes'

SUPPLY
'from the Latin suppleo'
meaning to 'fill up'

CHAIN
'from the Latin catena'
meaning (amongst others) 'a group of associates'

Intelligent Construction




Examples of innovation to benefit the MoD and MoJ market

QUESTION
Is off site modular building by definition
Innovative?

ANSWER
Almost certainly not
because it is not new!


Intelligent Construction




Examples of innovation to benefit the MoD and MoJ market

Early offsite modular buildings

A set of chalets built to accommodate officers at Netheravon airfield in Wiltshire. Manufactured in Old Sarum and erected on site. Dating back to 1910, these Grade 2* listed buildings were used by the pioneers of the Royal Flying Corps and are considered to be of similar historic significance as the remains of the Wright Brothers' workshops in the USA.



Intelligent Construction



Examples of innovation to benefit the MoD and MoJ market

So what does innovation bring to the party in terms of modular buildings?

The gains can be broadly classified into the following groups

- Commercial gains
- Sustainability gains
- Quality control gains
- Carbon 'foot print' reduction gains

Intelligent Construction


Examples of innovation to benefit the MoD and MoJ market

The use of a more automated production system is becoming more of a 'norm' thereby increasing the commercial, sustainability and carbon reduction gains

Flexible lean manufacturing

Volume production and a variety of building types, sizes and finishes.

Semi automated system gives up to 40% production advantage against static systems



Intelligent Construction


Examples of innovation to benefit the MoD and MoJ market

The use of pre-production proto-type examples thereby increasing the commercial and sustainability gains

The A9 proto type cell was a design development vehicle

Reduced costly 'last minute' changes

Allow the client the opportunity to trial sustainable materials




Intelligent Construction

Examples of innovation to benefit the MoD and MoJ market

Taking 'off site' off site thereby increasing the commercial, sustainability and carbon reduction gains

Riser cassettes built offsite by the M&E company and installed at the module manufacturing facility

The increasing use of M&E cassette 'roof sledges' to deliver services within a building



Intelligent Construction

Examples of how supply chain integration is of benefit to the MoD and MoJ market

- Greater involvement of the supply chain at the earliest possible point in the project process in order to capture their innovation and incorporate into the 'final solution' via:
 - design process
 - communication through workshops and seminars
 - the sourcing of sustainable materials
 - the encouragement towards a pro-active R and D regime
 - The saving of cost

Examples of innovation to benefit the MoD and MoJ market

Research and Development

The light weight 'synthetic concrete' floor to meet the demanding requirement of the NHS Level 1 standard tolerances for use in operating theatres, areas of work calling for the use of precision instruments, the nuclear industry and high end residential buildings

The use of high performance adhesive technology in the steel framed modular manufacturing process

The use of advance engineering solutions for joining together of modules in the forming of the continuous steel framed building

The use of modular technology in relation to major disaster relieve on a global basis

Intelligent Construction



Intelligent Construction