



# Caledonian

*build*offsite

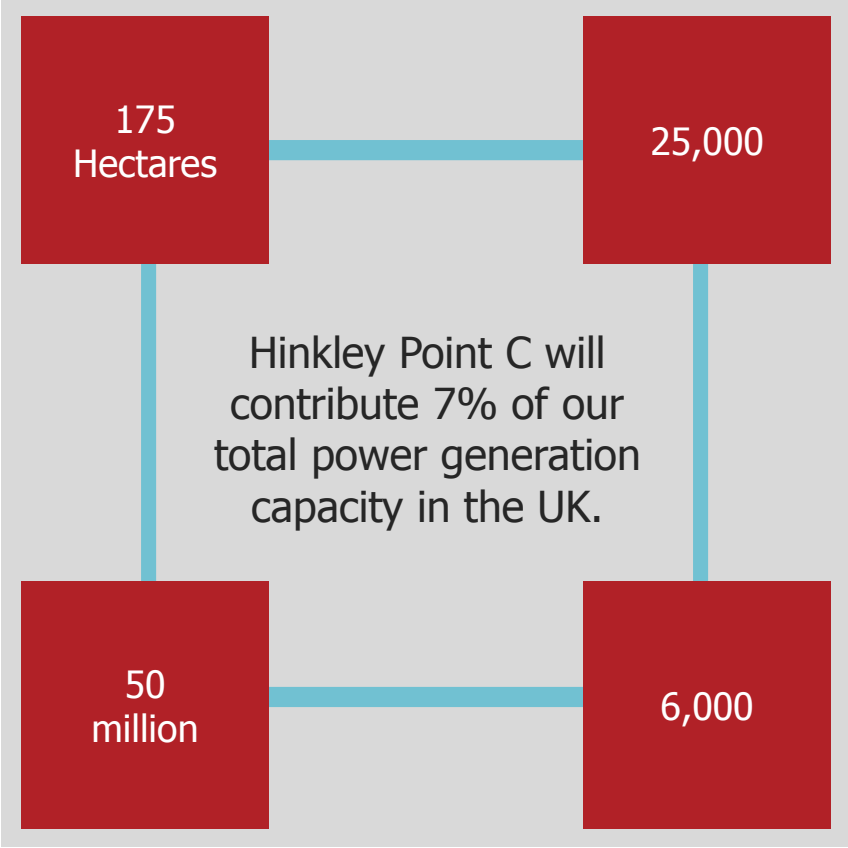
Andy Smith  
Head of Business Development

# Hinkley Point Campus Accommodation



# Hinkley Point Campus Accommodation

## Overview



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**Hinkley Point Campus is considered to be the largest hotel style development in Europe for 25 years.**  
**Works completed December 2018**

1496 en-suite  
bedrooms  
31,489m2

44 individual  
blocks across  
2 sites

Modules 96%  
completion in  
the factory

Average onsite  
workforce  
during  
construction  
47

48 weeks to  
manufacture  
1496 rooms



**Single largest Modular Building Project in the UK.**

# Hinkley Point Campus Accommodation

## Overview

**Our core strategy from the outset is to improve quality through the application of efficiency and be consistent in our approach to manufacturing**

### **DFMA**

£1.8m of cost savings and a significant reduction in on site labour costs, improving efficiency and programme

### **Lean**

35% improvement in productivity efficiency, through optimising workflow in manufacturing reducing manufacturing by 9.5 weeks

### **Smart Construction**

BIM data used to optimise and improve every stage of the Manufacturing and onsite process

### **Quality**

Inspection and Test Plans aligned to quality objectives which set out critical control points or 'hold points' at various stages within the manufacturing process

**Enabling Caledonian to reduce manufacturing by 9.5 weeks and significantly reduce onsite works. improving Health and Safety and significantly reducing working at height.**



# Hinkley Point Campus Accommodation

**HPC - 15 blocks**



# Hinkley Point Campus Accommodation

## HPC - 15 blocks





# Hinkley Point Campus Accommodation

## HPC 15 Blocks





# Hinkley Point Campus Accommodation

St John's Cemetery

## Bridgewater Site



# Hinkley Point Campus Accommodation

## Bridgewater





# Hinkley Point Campus Accommodation

## Bridgewater





# Hinkley Point Campus Accommodation

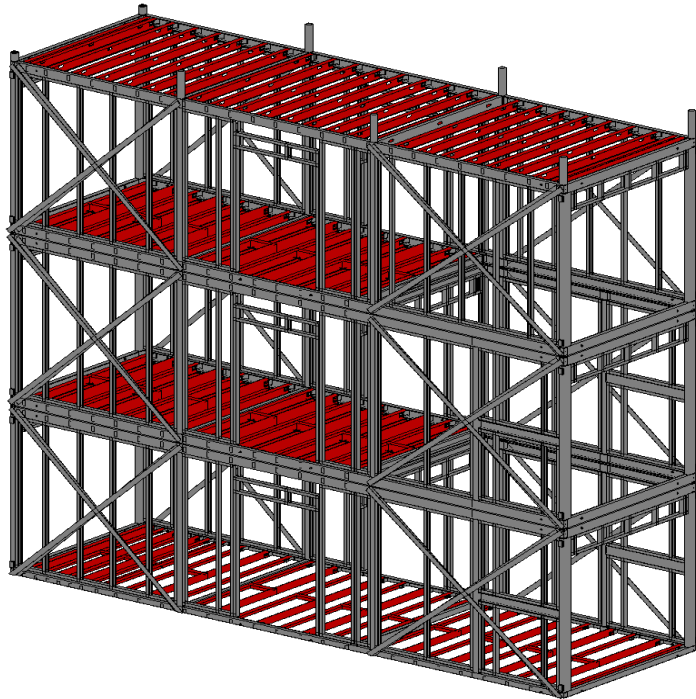
## Bridgewater



# Hinkley Point Campus Accommodation

## Design Philosophy

- Fully federated BIM model to level 2
- Level of Detail 350 - for Mechanical Electrical and Plant
- Level of Detail 400 - for structural steel chassis (i.e. down to nuts/bolts/washers)



# Hinkley Point Campus Accommodation

## Our Approach

- Bedrooms and en-suite bathrooms fully completed, quality checked prior to leaving the manufacturing facility
- < 1 hour of work required on-site in each en-suite bedrooms

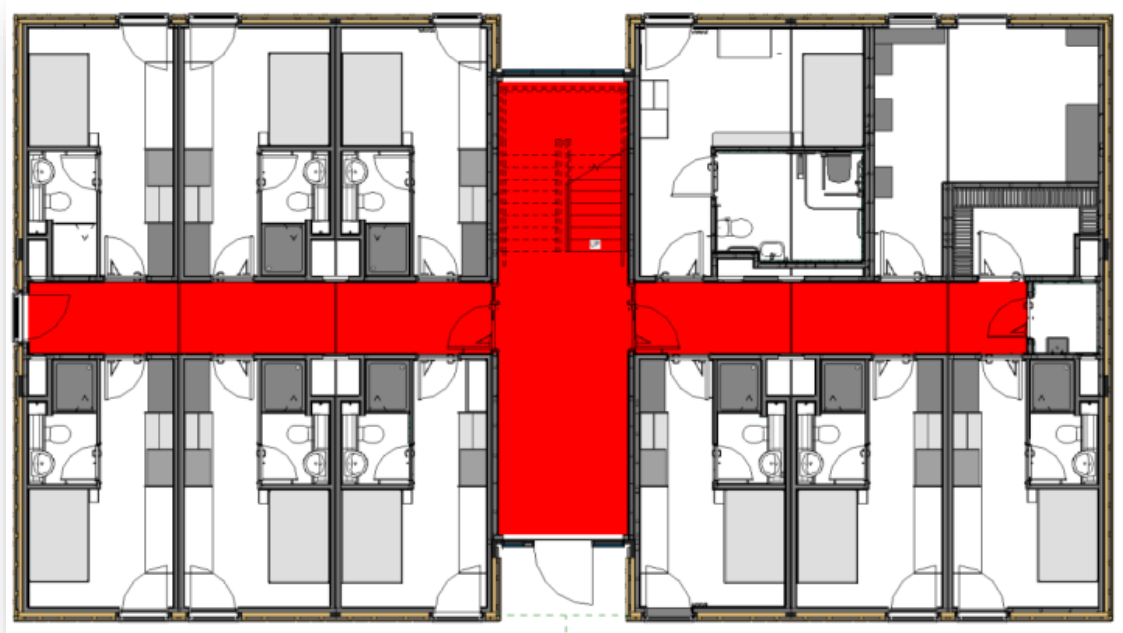




# Hinkley Point Campus Accommodation

## Our Approach

- 96% of the work undertaken in each block is limited to the corridor line, which equates to less than 20% of the overall building footprint.
- External work is limited to bolted connections /cladding infill's /sealing roof joints.



# Hinkley Point Campus Accommodation

## Our Approach

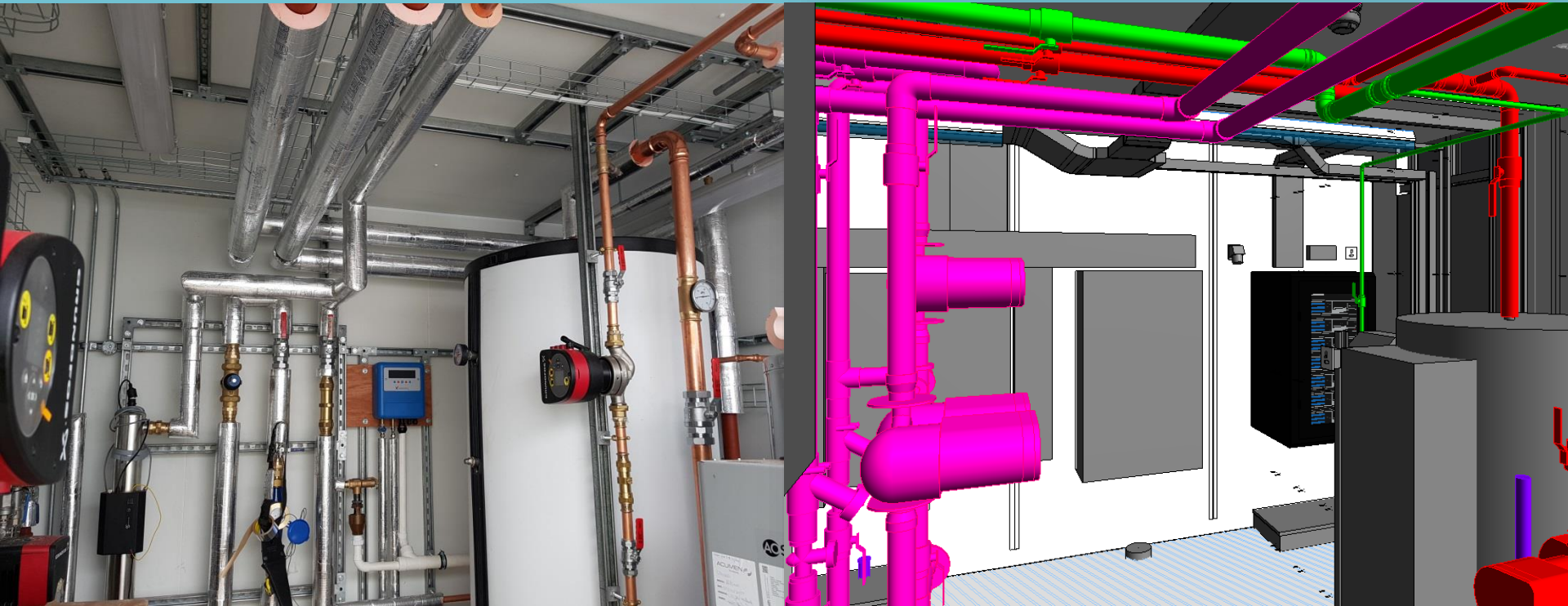
- 88% of external cladding fixed in the manufacturing facility at ground level
- Curtain walling installed in the Manufacturing facility



# Hinkley Point Campus Accommodation

## Our Approach

- Plant rooms fully completed and tested in the manufacturing facility





# Hinkley Point Campus Accommodation

## Our Approach

Volumetric Solution with 96% factory completion

- Stair Core modules completed in the manufacturing facility with concrete infill's
- Curtain walling installed and glazed in the manufacturing facility



# Hinkley Point Campus Accommodation

## Our Approach

- 25 year roof membrane laid to falls and completed in the manufacturing facility
- Parapet details and aluminium, trims installed





# Hinkley Point Campus Accommodation

## Our Approach

Volumetric Solution with 96% factory completion

- Minimise working height onsite





# Hinkley Point Campus Accommodation

## Our Approach

Volumetric Solution with 96% factory completion

- **Maximise the Pre Manufactured Value (PMV)**



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THE FARMER REVIEW OF  
THE UK CONSTRUCTION  
LABOUR MODEL

### PRE-MANUFACTURING VALUE MEASUREMENT

$$\text{PMV} = \text{TOTAL CONSTRUCTION PRICE} - \text{LESS}$$

- PRELIMINARIES COSTS
- OHP & RISK ALLOWANCES
- COST OF SITE LABOUR & SUPERVISION

PMV should be a proxy for cost, time & quality predictability, plus greater efficiency & speed.

MODERNISE OR DIE  
This is about the quality of life.

# Hinkley Point Campus Accommodation

## Summary of the key benefits

Factory conditions are 80% safer than on-site conditions

Site labour is 2.7 times more expensive than factory labour

We have reduced our waste down to >4%

85% higher productivity compared with 35% for Hinkley Site

Inventory control and management Kanban



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## Bridgewater





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