WHERE DO WE STAND?

We stand with you. Whoever you are – a client, a colleague, a supplier, someone who lives or works in, or is just passing through, a building we’ve designed. We stand with you because, for us, architecture is all about people. Get to know them and what’s important to them, connect with them and collaborate, deal with them respectfully and with integrity and, together, you can solve any problem, overcome any challenge and achieve any ambition. That’s what it takes to create sustainable, innovative, valuable and positive architecture. Architecture that improves lives, builds communities and enhances society.

Life touching design.
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Life touching design.
Crome Court

Project Information Model - Asset Information Model
Client

Architect

Main Contractor

Structural Engineer

CLT Fabricator

MEP Designers

MEP Sub-Contractor
232 En-Suite Bedrooms

£900k Under Budget

Project Cost £10.1m - Value £17m

Feasibility to Occupation in 22 Months

BIM Pathfinder Project

Multiple BIM Authoring Tools

First Asset Information Model for all Stakeholders
232 En-Suite Bedrooms

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Multiple BIM Authoring Tools

First Asset Information Model for all Stakeholders

“Exceeded the clients expectations in every way”
2014

Constructing Excellence - Legacy Award for Sustainability

Construction Computing Awards – Collaboration Project of the Year
Construction Computing Awards - Shortlisted for BIM Project of the Year

2015

Constructing Excellence – Integration and Collaborative working

RICS National Award – Design through Innovation

British Construction Industry Awards – BIM Project Application of the Year (shortlisted)

Green Apple Awards for the built environment and architectural heritage – National Gold Award

Graphisoft ArchiCAD awards – BIM Project of the Year

NAA Craftsmanship Award
“Each team member will utilise technologies which are most appropriate for the task in hand, and in which they are fully skilled to complete that task.”
Federation
Rule Based Checking
Communication

Data Capture
Communication
Snagging
Data Verification
Cross Laminated Timber (Panelised System)

- More difficult to manage than a frame system
- Architects need control over walls!
- We kept CLT until the end of stage E
- Structural Verification through stage F
- Fabrication Model at stage K
CLT Design, Co-ordinate, Manufacture

Geometry
Space planning
User engagement

Penalisation, Optimisation, Transport,
Logistics, Programme, Manufacture, Assemble

Structural integrity

Check
Validate
Communicate

Graphisoft Archicad

Ramboll

Lsi

Solibri

CAdWork
CLT Design, Co-ordinate, Manufacture, Assemble

- 1600 CLT Panels
- 1500 m3
- 750,000 nails
Martin Lovett - Senior Estates Project Manager
University of East Anglia
Environmental Optimisation

- Optimised Building Envelope
- Lifecycle Costing

**Table: UEA**

<table>
<thead>
<tr>
<th>Run Analysis</th>
<th>New Strategy</th>
<th>Annual Energy Consumption kWh</th>
<th>Annual Energy Use per Gross Internal Area kWh/m²</th>
<th>Annual Water Use l/person</th>
<th>Water Use per Person per Day l/person</th>
<th>Annual CO2 Production kgCO₂</th>
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<td>80</td>
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<td>7,800</td>
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<td>0</td>
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<tr>
<td>Brise Soleil</td>
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<td>124</td>
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<td>273,127</td>
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<td>111</td>
<td>5,840</td>
<td>64</td>
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<td>106</td>
<td>7,800</td>
<td>0</td>
<td>249,279</td>
</tr>
</tbody>
</table>

TIP: Drag strategies from the list above to create bundles.

**Charts:**

- Energy Footprint (kBTU)
- Monthly Energy Sources (kBTU)
- Net Renewable Production (kBTU)
- Airflow Rate (cfm)
UEA students urged to urinate in shower

University students are being urged to urinate in the shower in a bid to save water.

The Go with the Flow campaign is the brainchild of students Debi Torr and Chris Dobson, from the University of East Anglia (UEA) in Norwich.

They want the university's 15,000 students to take their first pee of the day while having their morning shower.

Mr Dobson, 20, said the idea could "save enough water to fill an Olympic-sized swimming pool 25 times".

The pair want those taking part to pledge their allegiance on Facebook and Twitter and have offered gift vouchers to the first people to join the challenge.

Go with the Flow
Water savings could result in:

720m litres annually if everybody in the UK took part

£42.5m per year if population of East Anglia backed campaign

£125k per year if all UEA students accepted challenge

Source: Go with the Flow campaign
What M&E assets do we need to manage in BIM?
What Architectural and Structural assets do we need to manage in BIM?
What Architectural and Structural assets do we need to manage in BIM?
<table>
<thead>
<tr>
<th>What Data should we capture?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantity</strong></td>
</tr>
<tr>
<td><strong>Access Requirements</strong></td>
</tr>
<tr>
<td><strong>Commissioning Information</strong></td>
</tr>
<tr>
<td><strong>System</strong></td>
</tr>
<tr>
<td><strong>Manufacturer Consumables</strong></td>
</tr>
<tr>
<td><strong>Replacement Cost</strong></td>
</tr>
<tr>
<td><strong>Manufacturer Part Number</strong></td>
</tr>
<tr>
<td><strong>Manufacturer Reference / Range / Type</strong></td>
</tr>
<tr>
<td><strong>Manufature Spare Parts</strong></td>
</tr>
<tr>
<td><strong>Drawings</strong></td>
</tr>
<tr>
<td><strong>Manufacturer Manual</strong></td>
</tr>
<tr>
<td><strong>Regulatory Compliance</strong></td>
</tr>
<tr>
<td><strong>Maintenance Description / Intervals</strong></td>
</tr>
<tr>
<td><strong>Manufacturer Colour / Material</strong></td>
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<tr>
<td><strong>Specification</strong></td>
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<tr>
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<tr>
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- Serial Number
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- Location
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- Specification
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- Guarantees / Warranties
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- Manufacturer contact information
- System
- Guarantee / Warranties
- Replacement Cost
What Data should we capture?

**Native Model**
- UEA Code
- Supplier contact information
- Design Criteria
- Specification
- Manufacture Spare Parts
- Location
- Description
- Serial Number
- Commissioning Information
- Quantity
- Manufacturer Colour / Material
- Location
- Drawings
- Manufacturer reference / Range / Type
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**Database**
- System
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- Guarantees / Warranties
- Manufacturer contact information
- Replacement Cost
- Manufacturer Part Number
- Manufacturer Manual
- Regulatory Compliance
- Maintenance Description / Intervals
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- Manufacturer contact information
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- Manufacturer Consumables
- Guarantees / Warranties
- Manufacturer contact information
Where Should the Data go?

Native Model

- Description
- Size
- Location
- System
- Quantity

Flexibility

- Manufacturer Part Number
- Manufacture Spare Parts
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- Manufacturer Colour / Material
- Serial Number
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- Manufacturer Manual
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- Manufacturer Colour / Material
- Specification
- Manufacturer Consumables
- Commissioning Information
- Design Criteria
- UEA Code
UEA - Crome Court Student Residences

74,000 assets modelled
380,000 data attributes
1000 associated documents
“What’s the Point?”
LSI 3D to BIM timeline

Castle Mall, Norwich. 3D hidden line from Gable

First model to manufacture use point cloud & lighting analysis

First project using IFC

Design team collaborations

6D FM handover


3D Visualisations  Lonely BIM  Collaborative BIM

1994 2007 2008 2010

Models used to communicate Employers Requirements

Fully co-ordinated FFE “C”sheets

First Use of Interactive models
Typical timeline
Rubbish
Expensive
Limited people to talk to

Powerful
Less expensive
Everybody's got one
Simple Data

Area – square meter costing
Compliance / guidance checks
Perimeter – skirting
Area – Floor / ceiling finishes
Volume – heating / cooling loads
Carbon in use calcs
Condition
Running costs
Occupancy – Fire Assessments
Power loads
Income / revenue
Payback
Number of people
Additional spaces required
Structural Spans……
Impact on existing infrastructure
Relationships
Space Management
Area of carpet to replace
No. of mattresses to replace
Locations for maintenance items ......
“it’s like a bookcase, for our data”
clients Practical demonstration of collaboration... I need 4 volunteers
Thank you