The Chartered Institution of Building Services Engineers
South West Region

AGM
Thursday 29th April 2010
# CIBSE SW Technical Meetings 2010-11

<table>
<thead>
<tr>
<th>Proposed Date and Location</th>
<th>Technical Meeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thurs 2nd Sept Bristol</td>
<td>site visit Filton school</td>
</tr>
<tr>
<td>Tue 14th Sept Plymouth</td>
<td>Hydro Electric Power. Site Visit in Tavistock, Devon</td>
</tr>
<tr>
<td>Thurs 23rd Sept Bristol</td>
<td>FM issues, how much do buildings cost to run?</td>
</tr>
<tr>
<td>Tue 5th October Exeter</td>
<td>Carbon Neutrality - Is it possible?</td>
</tr>
<tr>
<td>Thurs 21st October Bristol</td>
<td>Developing membership evening</td>
</tr>
<tr>
<td>Thurs 18th November Bristol</td>
<td>Presidential address, 2010. and question time</td>
</tr>
<tr>
<td>Tue 23th November Plymouth</td>
<td>Prefabrication of engineering services</td>
</tr>
<tr>
<td>Thurs 8th December Bristol</td>
<td>UVGI Systems</td>
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<tr>
<td>Tue 14th December Exeter</td>
<td>Developing membership evening</td>
</tr>
<tr>
<td>Thurs 13th January Bristol</td>
<td>Health and Safety</td>
</tr>
<tr>
<td>Tue 25th January Plymouth</td>
<td>BMS for energy saving</td>
</tr>
<tr>
<td>Thurs 3rd February Bristol</td>
<td>Thermal and air quality effects on the performance of schoolwork by children</td>
</tr>
<tr>
<td>Tue 8th February Exeter</td>
<td>Developing membership evening</td>
</tr>
<tr>
<td>Friday 11th February Bristol</td>
<td>Regional Dinner</td>
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<tr>
<td>Thurs 3rd March Bristol</td>
<td>BMS Venue UWE</td>
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<tr>
<td>Tue 8th March Plymouth</td>
<td>Acoustics in vatral ventilation</td>
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<td>Thurs 24th March Bristol</td>
<td>HTM 04 Legionella Control in Healthcare Water Systems</td>
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<td>Tue 5th April Exeter</td>
<td>Waste to Energy</td>
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<tr>
<td>Thurs 28th April Bristol</td>
<td>Sustainable district heating AGM</td>
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<tr>
<td>Tue 3rd May Plymouth</td>
<td>Efficient lighting with the help of the SSL</td>
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<tr>
<td>Thurs 19th May Bristol</td>
<td>electrical topic</td>
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<td>Thurs 9th June Bristol</td>
<td>Site Visit: Horizon House, Deanery Road, Bristol</td>
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<tr>
<td>Tue 14th June Plymouth</td>
<td>Social summer 2011. Details to be confirmed</td>
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<tr>
<td>Thurs 30th June Bristol</td>
<td>Social event summer 2011. Details to be confirmed</td>
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The Importance of Post Occupancy Evaluation

Speaker: Dr Ian Pegg, Buro Happold

6.00 pm for 6.30 pm start, 
Thursday 13th May 2010
University West of England, Bristol

Post Occupancy Evaluation is a vital part of building design that is often overlooked by the industry. Whilst recent changes to Building Regulations are welcome, it is clear that user interaction with building services and equipment is often more important than technological fixes.

Ian will share his experiences and expertise of POE and how it has helped to improve the design and operation of a number of city academies and low carbon housing projects.
‘Health Technical Memorandum 06 & other related Documents’

CIBSE Healthcare Group AGM & Talk

CIBSE Headquarters
222 Balham High Road, London SW12

Thursday 13th May 2010
9:30 for 10:00 start

Chairman: Frank Mills

Speakers
Richard Knight
Brian Mansfield, Steve Wilson

Synopsis:
Provides an overview to HTM 06 – Design Considerations, Operational Management, Risk Assessments and MEIGAN
Awarding Excellent: Horizon House
CIBSE South West Region / 29 April 2010
Agenda

- BREEAM overview
- Project background
- Design stage assessment
- MEPH specific credits
- Post construction review
BREEAM: Overview

• What is it?
• Aims
• What it assesses
• Issues
• How it works
BREEAM:
What is it?

• Building Research Establishment’s Environmental Assessment Method.

What does it do?

• Measures environmental performance
Aim

Number of buildings

Regulatory minimum

Environmental Standards

Minimal  Aspirational

BREEAM

BREEAM Consultants - Framework Discussions
What is assesses
Issues

• Management
• Health and Wellbeing
• Energy
• Transport
• Water
• Materials
• Waste
• Land use & Ecology
• Pollution
How it works

- Assessment
- Score
- Innovation credits
- Minimum standards
- Rating
<table>
<thead>
<tr>
<th>Section</th>
<th>Credits Achieved</th>
<th>Credits Available</th>
<th>% Credits Achieved</th>
<th>Section Weighting</th>
<th>Section Score</th>
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<tr>
<td>Management</td>
<td>7</td>
<td>10</td>
<td>70%</td>
<td>0.12</td>
<td>8.40%</td>
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<tr>
<td>Health &amp; Wellbeing</td>
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<td>14</td>
<td>79%</td>
<td>0.15</td>
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<td>Energy</td>
<td>10</td>
<td>21</td>
<td>48%</td>
<td>0.19</td>
<td>9.05%</td>
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<td>Transport</td>
<td>5</td>
<td>10</td>
<td>50%</td>
<td>0.08</td>
<td>4.00%</td>
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<td>Water</td>
<td>4</td>
<td>6</td>
<td>67%</td>
<td>0.06</td>
<td>4.00%</td>
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<td>Materials</td>
<td>6</td>
<td>12</td>
<td>50%</td>
<td>0.125</td>
<td>6.25%</td>
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<tr>
<td>Waste</td>
<td>3</td>
<td>7</td>
<td>43%</td>
<td>0.075</td>
<td>3.21%</td>
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<td>Land use &amp; ecology</td>
<td>4</td>
<td>10</td>
<td>40%</td>
<td>0.1</td>
<td>4.00%</td>
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<td>Pollution</td>
<td>5</td>
<td>12</td>
<td>42%</td>
<td>0.1</td>
<td>4.17%</td>
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<td><strong>Total Score</strong></td>
<td></td>
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<td><strong>54.87%</strong></td>
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Innovation Credits

- Additional 1%
- Up to 10%
- Exemplary Level
- Accredited Professional
- New credits
Minimum Standards

- Relate to rating
- Mandatory
- Exemption for refurb

<table>
<thead>
<tr>
<th>BREEAM issue</th>
<th>PASS</th>
<th>GOOD</th>
<th>VERY GOOD</th>
<th>EXCELLENT</th>
<th>OUTSTANDING</th>
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<tr>
<td>Man 1 - Commissioning</td>
<td>1</td>
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<td>1</td>
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<td>2</td>
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<tr>
<td>Man 2 - Considerate Constructors</td>
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<td>1</td>
<td>2</td>
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<td>Man 4 - Building user guide</td>
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<td>Man 9 - Publication of building information (BREEAM Education only)</td>
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<td>Man 10 - Development as a learning resource (3BREEAM Education only)</td>
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<td>Haa 4 - High frequency lighting</td>
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<td>Haa 12 - Microbial contamination</td>
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<td>Ene 1 - Reduction of CO₂ emissions</td>
<td>1</td>
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<td>6</td>
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<td>Ene 2 - Sub-metering of substantial energy uses</td>
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<td>1</td>
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<td>Ene 5 - Low or zero carbon technologies</td>
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<tr>
<td>Wat 1 - Water consumption</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
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<td>Wat 2 - Water meter</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Wat 3 - Storage of recyclable waste</td>
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<td>1</td>
<td>1</td>
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<tr>
<td>LE 4 - Mitigating ecological impact</td>
<td>1</td>
<td>1</td>
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**Rating**

- Outstanding
  - Case study
  - BREEAM In Use

<table>
<thead>
<tr>
<th>Rating</th>
<th>Score</th>
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<tbody>
<tr>
<td>Pass</td>
<td>30</td>
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<tr>
<td>Good</td>
<td>45</td>
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<tr>
<td>Very Good</td>
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<td>Excellent</td>
<td>70</td>
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<tr>
<td>Outstanding</td>
<td>85</td>
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</tbody>
</table>
Horizon House: Background

- Developer: Westmark
- Tenant: Environment Agency HQ
- Architect: Alec French
- Services Engineers:
  - Arup (up to stage C)
  - Hoare Lea (from stage D)
- Contractor: Sir Robert MacAlpine
- Structural & Acoustic: Arup
College Green

Brstol Cathedral

Brstol Library

Horizon House

Council House

Residential Block

Office B

BREEAM Consultants - Framework Discussions
Design Stage Assessment

Rating: Excellent

Score: 85.06%

BREEAM Award 2010

Base Build
Basic Assessment

Pre-Assessment

Design Assessment

Interim certificate

Post Construction Review

Final certificate

Design Stage

Construction stage
Involved Assessment

Pre-Assessment

Design advice

Pre-assessment review

Design Assessment

Evidence tracking

Establish targets, understand brief, business case, budget

Final certificate

Change tracking

Post Construction Review

Client report

Design Stage

Construction stage

BREEAM Consultants - Framework Discussions
Issues

• Management
• Health and Wellbeing
• Energy
• Transport
• Water
• Materials
• Waste
• Land use & Ecology
• Pollution
Management: Commissioning

- First credit
  - Commissioning monitor
  - Specialist commissioning agent
- Second credit
  - Seasonal commissioning
Health and Wellbeing:

- High Frequency Lighting
- Lighting Levels
- Lighting Zones
- Natural Ventilation
- Internal Air Pollution
- Ventilation Rate
- Thermal Comfort
- Thermal Zoning
- Microbial Contamination

BREEAM Consultants - Framework Discussions
Health and Wellbeing:

- High Frequency Lighting
- Lighting Levels
- Lighting Zones
- Natural Ventilation
- Internal Air Pollution
- Ventilation Rate
- Thermal Comfort
- Thermal Zoning
- Microbial Contamination
Health and Wellbeing: Lighting Zones

- PIR control
- Manual switching
- Daylight dimming
- One zone: 10 m²
Health and Wellbeing: Natural Ventilation

- Mixed mode
- All occupied spaces naturally ventilated
- Cross vent
Health and Wellbeing: Internal Air Pollution

- AHU intake 10 m from exhausts
Health and Wellbeing: Thermal Zoning

• Perimeter and internal controlled separately
• Fan coil units
• Automatic windows
Energy:

- Reduction of CO₂ emissions
- Sub-metering substantial energy uses
- Sub-metering areas
- External lighting
Energy: Reduction of CO₂ emissions

- Notional – 68 kg CO₂/m²
- Target – 49.1 kg CO₂/m²
- Building – 31.2 kg CO₂/m²
- 26.32% improvement
- 10 credits
Water:

- Water consumption
- **Water meter**
- Major leak detection
- Sanitary supply shut off
Water: Water Consumption

- Dual flush WC
- Waterless urinals
- PIR taps
- Rainwater harvesting
- 1.27 m³/person/year
Pollution:

- Preventing refrigerant leaks
- NOx emissions
- Renewables
- Reduction night time light pollution
Pollution: Renewables

- 19.5% of energy
- PV system
  - 13 kWp
  - 24 no. panels
  - 10.8 MWh/year
  - 3 no. inverters
Pollution: Renewables

- Solar Hot Water
  - 44% demand
  - 10 no. panels
  - 22 m²
  - 10.2 MWh
  - 2000 l cylinders: 1 day storage
  - gas back up: 33 kW
Pollution:
Renewables

- GSHP
  - 25 no. boreholes
  - Heat: 155 kW peak
    - 64.6 MWh/ year
  - Cool: 100 kW peak
    - 128.19 MWh / year
Post Construction Review

- Not mandatory
- Contractual
- 6 weekly site visits
- Tracking changes
- On target to meet design score
Awarding Excellent: Horizon House

Liz Meddings: liz.meddings@arup.com