

Recognising the people, products and  
projects that demonstrate engineering  
excellence in the built environment

# WINNERS' BROCHURE



 FOLLOW US:

@CIBSE Awards | #BPA2016

[www.cibse.org/bpa](http://www.cibse.org/bpa)

Headline sponsor:



In association with:





# KNOWLEDGE JUST GOT EASIER



Full text search



Access to more than 350 titles



Unlimited PDF downloads for members



Commissioning codes



Technical Memoranda



Leading industry publications



The Knowledge Portal is an online reference tool providing instant and unlimited access to over 350 titles, including the full range of CIBSE published guidance and thousands of abstracts of British Standards.

[www.cibse.org/knowledge](http://www.cibse.org/knowledge)

## INTRODUCTION

It is no coincidence that the Building Performance Awards is considered to be one of CIBSE's most high profile and prestigious set of accolades. Without exaggeration, building performance is one of the most important issues that must be tackled by this industry, this country and this planet over the next few decades.

The scientific evidence behind man-made climate change is overwhelming, but energy security in Europe is as uncertain as it's ever been, and rising energy bills are squeezing already overstretched homes and businesses to the limit. As one of the major energy users on the planet, tackling waste and inefficiency in buildings is an obvious alternative to building yet more polluting sources of energy – the problem is demonstrating proven ways of achieving that aim.

That's where the Building Performance Awards come in. That crucial focus on proven building performance, rather than designed or predicted performance, provides concrete evidence of progress, and celebrates the professionals who are making a difference in driving the industry forward.

But energy efficiency isn't the only consideration in a high-performing building. The Building Performance Awards recognise that buildings are built for people to inhabit, and if it were uncomfortable or unpleasant to use, even the most efficient building possible would be a failure. These awards therefore take into account user satisfaction and comfort levels alongside efficiency whilst measuring a building's performance.

By showcasing the best that there is to offer in terms of engineering innovation and excellence, we can demonstrate what is possible and inspire the whole industry to strive for better, more efficient buildings; creating new structures, refurbishing old ones and developing the products and structures to support them.

Building performance is at the heart of everything CIBSE does, and tonight we congratulate the nominees on reaching the top of an exceptional field, as well as the overall winners for making a real difference in leading the response to the problems our industry faces.

**Nick Mead CEng FCIBSE**  
CIBSE President



Building performance is one of the most important issues that must be tackled by this industry, this country and this planet over the next few decades.”



## TOTEM 10-20kW CHP Range



Advenco Ltd. is the sister company to Advenco (AWP) Ltd, who trade as A.O. Smith Water Heaters in the U.K. and have over 44 years of expertise in the building services industry. Our ethos has always been to offer the very best products, services and support, prioritising our clients' needs and delivering bespoke, practical solutions.

The recent launch of the Advenco Totem micro-cogenerator has brought market leading performance, offering the highest total efficiency on the m-CHP market plus ultra-low NO<sub>x</sub> and CO emissions at under 10mg/Nm<sup>3</sup>. These serve as strong advantages to meet current building regulations, and assist in receiving valuable BREEAM points.

Utilising on-site cogeneration is one of the most effective ways to reduce emissions outside of usage limitation. The recovery of waste heat from the Totem enables a 28% decrease in CO<sub>2</sub> emissions; equivalent to a reduction of 50 tonnes per year when compared to consuming the equivalent mains supply of gas and electricity. Additionally the free, high-grade heat recovered on-site can amount to running cost savings of over 25%.

**28%**  
DECREASE  
IN CO<sub>2</sub>  
EMISSIONS

**25%**  
POTENTIAL  
COST  
SAVINGS

**A++**

Contact Advenco today for more information

Telephone : 01252 551 540    [www.advenco.co](http://www.advenco.co)

PRACTICAL, EFFICIENT & SUSTAINABLE  
BUILDING SERVICES SOLUTIONS

### CONTENTS



- 7 Judges

---

- 11 Building Performance Champion

---

- 13 Building Services Consultancy of the Year (up to 100 employees)

---

- 15 Building Services Consultancy of the Year (over 100 employees)

---

- 17 Facilities Management Team Award

---

- 19 Energy Saving Product of the Year

---

- 21 Building Performance Training Programme Award

---

- 23 Collaborative Working Partnership Award

---

- 25 Energy Management Initiative Award

- 27 Lighting for Building Performance Award

---

- 29 Project of the Year – Commercial/ Industrial

---

- 31 Project of the Year – Leisure

---

- 33 Project of the Year – Public Use

---

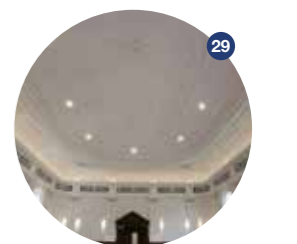
- 35 Project of the Year – Residential

---

- 37 Project of the Year – International

---

- 39 Finalists for the CIBSE Building Performance Awards 2016





# GET INVOLVED



Interested in volunteering for CIBSE? With 16 regions in the UK and 3 overseas; there are a vast number of roles in a variety of areas to choose from.

Both members and non members welcome; email: [membership@cibse.org](mailto:membership@cibse.org) and find out how you can get involved.

**Examples of opportunities include:**

- Volunteer at regional events, an excellent way to interact with CIBSE and other building services professionals
- Become a STEM ambassador to promote and inspire young people to consider a career in engineering
- Contribute to technical publications
- Become a professional interviewer for CIBSE membership

## THE JUDGES



**CHAIR OF JUDGES**  
» Hywel Davies, Technical Director, CIBSE



» George Adams, Past President, CIBSE



» Jamie Agombar, Head of Sustainability, National Union of Students



» Munish Datta, Head of Facilities Management and Plan A, Marks and Spencer



» Alan Fogarty, Partner, Cundall



» Bill Gething, Professor of Architecture, University of the West of England



» Susan Hone-Brookes, Environmental Leader, Laing O'Rourke



» Richard Jackson, Director, Sustainability, University College London



» Mitch Layng, Associate Director: Portfolio Energy Management, M&G Real Estate



» Forutan Parand, Technical Director, AECOM



» Michelle Perry, Key Account Manager, Trox



» Geoff Prudence, Chair, CIBSE FM Group



» Sarah Ratcliffe, Programme Director, Better Building Partnership



» Jeff Shaw, Associate Director, Lighting, Arup



» Tamsin Tweddell, Sustainability Team Leader and Partner, Max Fordham



» David White, Managing Director, Building Services Design



The awards focus on actual, measured performance, not just design intent or performance specifications.”



# Engineering Excellence

Our focus is on operational excellence through the design and delivery of innovative, sustainable and resilient solutions.

**Imtech is one of the largest independent technical services providers in the UK and Ireland.**

Our £400 million turnover business undertakes wide-ranging mechanical and electrical installation projects and maintenance contracts. Our 2,500 employees work across the UK and Ireland's infrastructure and built environment covering many sectors including commercial, retail, education and healthcare.

We want to be the most respected sustainable technical services business in the UK and Ireland. To achieve this we are organised into three broad work streams, engineering services, technical facilities management and systems integration. These demonstrate the breadth of our operations and the strength of our capabilities.

**Imtech has intelligent engineering capabilities and solutions that deliver real benefits to our clients.**

## Digital Engineering & Off-Site Manufacture

Our Digital Engineering team optimises the delivery of our projects by using BIM from the earliest stages of the design period. This enables us to reduce uncertainty and to ultimately create efficiencies throughout the preconstruction and build process. Health and safety is our number one priority and by using prefabrication we have reduced our Accident Frequency Rate to half the average industry rate.

Prefabrication is utilised on the majority of our projects and Imtech has:

- continued to ensure minimal disruption to players and visitors during Anfield Stadium's main stand extension
- reduced the overall programme by 30 days at a large-scale retail distribution facility in Bolton



## Site Management in the Cloud

Imtech uses tablet-based electronic site management on projects across the country, resulting in paperless sites, snag-free installations, optimised efficiency and smooth collaboration at all stages of our projects.

## Value Engineering

Our teams have a systematic and structured approach to determine potential for capital savings and can enhance the value of our projects.

Substantial capital savings have been made on the Olympic Stadium Transformation Project by identifying recyclable equipment during the reconfiguration works. The team also reviewed the technical systems



to improve the technologies used and to enhance the engineering solution.

**Imtech understands how to use innovation to create value for our clients, their advisors and the market.**

We achieve operational excellence by embracing and implementing the latest technologies, within a project, where they add value. From the early stages of each project, our teams take time to understand its intricacies and develop the right solutions. This ensures our work is delivered efficiently, cost effectively and to the high standards we set ourselves.

Imtech  
Imtech House  
33-35 Woodthorpe Road  
Ashford, Middlesex TW15 2RP  
Tel +44 (0) 1784 229 900

Follow us on LinkedIn or visit our website for the latest news, contracts, photos and events.

[www.imtech.co.uk](http://www.imtech.co.uk)

## Project size

From the smallest



to the most prestigious

We undertake projects from £100k to £100m



Imtech



**Every member of the Remeha family shares the same simple design.**

That's why they're so easy to use and install. They also share many common traits: proven quality, outstanding reliability and exceptional efficiency. So whichever model you choose, whether the output is 9kW or 1202kW, you're assured of maximum energy and carbon savings. Plus, you will have the back up of the best support team in the business. Find out more about the Remeha family at [remeha.co.uk](http://remeha.co.uk) or call us on 0118 978 3434.

It's a wonderful world, let's keep it that way.



commercial

**BUILDING PERFORMANCE CHAMPION**

THE TEAM, PROJECT OR PRODUCT THAT HAS MADE THE MOST OUTSTANDING CONTRIBUTION AND COMMITMENT TO ACHIEVING IMPROVED BUILDING PERFORMANCE

**WINNER:**

**Everyman Theatre, Liverpool**  
Waterman Building Services



Like a phoenix from the ashes, the new £27 million Everyman Theatre has risen triumphantly from the site originally occupied by its much-loved, but ailing predecessor.

The reborn theatre, which opened in 2014, features outstanding energy efficiency, maximised with the help of the building's fabric and, in particular, its dramatic façade which employs sophisticated active solar shading. To boost environmental performance still further, the auditorium uses natural stack ventilation, minimising the energy consumption of fans and ventilation equipment. This is supported by a mechanical system to cope with peak loads. Low energy lighting and controls complete the energy saving measures of this iconic building.

The theatre has achieved an Excellent BREEAM rating as a result of these measures.

At the outset, the challenge for m&e engineer Waterman Building Services (WBS) was to provide a low energy theatre with a naturally ventilated auditorium in a particularly challenging location – the crowded university and cathedral quarter of Liverpool.

The theatre auditorium couldn't have large opening windows or louvres because of traffic noise/daylight breaking in and show noise breaking out. On top of this, there was a need to dissipate upwards of 115kW of internal gains while maintaining internal air quality.



The most innovative element of the design process was the simulation of the natural ventilation processes which analysed the auditorium's environmental conditions using building-wide dynamic simulation modelling and then refining the results with computational fluid dynamics.

Another innovation was the natural ventilation's control system. An array of actuator-controlled dampers has been fitted within the basement plenum and the high level auditorium plenum. A method of control was devised that enabled both sets of dampers to be interlocked, with banks of dampers capable of being opened and closed proportionally to match the internal air temperature and air quality conditions.

Finally, the building management system incorporates an energy metering and logging strategy that enables Everyman staff to review, record and store energy and resource data including lighting load, CHP energy produced, mains cold water usage, harvested rainwater usage and gas consumption.

**PROJECT TEAM:**

- Building services engineer:** Waterman Building Services /
- Building owner and occupier:** Liverpool and Merseyside Theatres Trust /
- Project manager:** GVA Acuity /
- Quantity surveyor:** Gardiner and Theobald LLP /
- Brief consultant, architect and interior designer:** Haworth Tompkins /
- Mechanical / electrical engineer:** Waterman Building Services /
- Contractor:** Gilbert Ash /
- Investment / property company:** Arts Council England, European Regional Development Fund / various funders / stakeholders /
- Developer:** The Board of Trustees of the Liverpool and Merseyside Theatres Trust

Sponsored by:



**b-a-r** beebby anderson recruitment

Let us help you realise your potential



Proud sponsor of Building Services Consultancy of the Year (up to 100 employees) Award at the CIBSE Building Performance Awards 2016

## BUILDING SERVICES CONSULTANCY OF THE YEAR (UP TO 100 EMPLOYEES)

OUTSTANDING CONTRIBUTION TO THE DESIGN OR REFURBISHMENT OF BUILDINGS TO MEET CLIENT EXPECTATIONS OF ENERGY PERFORMANCE

**WINNER:**  
**Beverley Clifton Morris (BCM)**



BCM is resolutely committed to sustainability and low cost, low carbon building solutions. Established in 2002, this inspiring consultancy takes a holistic view of building design, incorporating fabric, glazing and services, to provide high quality strategic advice to its clients.

It has also undertaken research with government innovation agency Innovate UK to develop life cycle costing techniques using building information modeling (BIM) to boost building performance.

This enlightened consultancy regularly reviews and plans relevant training that precisely fits its individuals' and the company's needs. Its training scheme is run under the auspices of the Institution of Mechanical Engineers e-MPDS (Monitored Professional Development Scheme) and was recently re-certified for a further three years with no remedial actions and with recognition of its good practice.

BCM has developed a bespoke design process that uses BIM workflows and processes to deliver energy advice and designs to its clients. To achieve this, it takes a strategic approach to the energy and carbon emission aspects of the building design, and how these interact with the building fabric and building services.



BCM reviews the potential options for the building in terms of fabric, glazing, orientation, servicing strategy and renewable energy. This approach generates valuable graphical information on carbon emissions, running costs and capital costs for each option which are then appraised with the client.

The appraisal process uses the latest dynamic simulation modelling techniques linked with Revit and BIM processes to engage with clients and help them to understand the implications of different building solutions. Often, by using this

process, BCM is able to guide the client to a solution that has a high value, but low capital costs.

But the company refuses to rest on its laurels. Its relentless drive for continual improvement incorporates a feedback process that includes a review of its collaboration with the client and design team. Its feedback system has revealed that not a single client in the past five years has rated it any less than 'good' in any category.

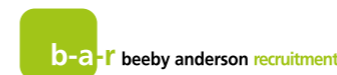
### FINALISTS:

- » Steven A. Hunt and Associates
- » SVM Consulting Engineers

### JUDGES' COMMENTS

“ You could really feel the passion coming from BCM. ”

Sponsored by:



[www.cibse.org/bpa](http://www.cibse.org/bpa)

“When the ref said early bath, I wasn’t going to argue.”



## BUILDING SERVICES CONSULTANCY OF THE YEAR (OVER 100 EMPLOYEES)

OUTSTANDING CONTRIBUTION TO THE DESIGN OR REFURBISHMENT OF BUILDINGS TO MEET CLIENT EXPECTATIONS OF ENERGY PERFORMANCE

WINNER:  
**Hoare Lea**



A guiding principle of international MEP consulting engineer Hoare Lea is to maintain a laser-like focus on the true performance and energy in use of the buildings with which it is associated. That’s why it doesn’t see its job ending when the project is finished; rather, consider it a requirement to stay involved post completion with processes like seasonal commissioning, to ensure that what has been installed works under all likely conditions.

This far-sighted business remains wholly owned by its partners, giving it independence of thought and a freedom that enables it to concentrate considerable effort on exceeding the expectations of its clients.

Hoare Lea, which has more than 150 years of design experience, is a business that puts people at the heart of everything it does. The main aim of its 2015-2020 people strategy is to create the best possible place to work by fostering a positive culture where talent can flourish.

Its graduate and placement programme recruits between 50 and 60 people every year; the intake for 2015 was a record-breaking 62 graduates.

With 614 training days recorded for 2014, towards achieving Chartered Engineer, Incorporated Engineer and Engineering Technician status, Hoare Lea is clearly committed to professional development and supporting its people.

Its home-grown graduate exchange programme offers graduates the valuable opportunity to raise their interdisciplinary awareness by encouraging a holistic approach to building design through secondments with architects. To date this popular scheme has placed 104 graduates with architects including Broadway Malyan and Stride Treglown, and received 93 of their graduate staff in return.

This progressive consultancy maintains and develops a knowledge-base, an online repository for standard documents such as specifications and report templates;

policy and guidance material and in-house developed design tools.

Hoare Lea demonstrates a collaborative approach to learning, creating opportunities to share knowledge across all its offices internationally and across the industry.

But its ambitions don’t stop there. It is also investing £225k over four years for the advanced manufacturing of homes, focusing on MEP and digital engineering to develop offsite manufactured MEP sub assemblies. It also invests over £125k a year into its research programme and, to further strengthen its resource, it has established an outsource facility in Pune, India employing more than 50 people.

### FINALISTS:

- » AECOM
- » Arup
- » Atelier Ten

Sponsored by:



When you need hot water, and you need it fast. It has to be Andrews. Proven in the most demanding environments, from rugby clubs and military barracks, to hotels, hospitals and university campuses. Our industry-leading products are designed to work, and keep on working. First time. Every time.

Sales: 0345 070 1055 Web: andrewswaterheaters.co.uk

**Andrews. Built to perform.**







A comprehensive range of services from one of the UK's leading Building Services Companies.

## Installation and Maintenance of

- Electrical Services
- Mechanical Services
- Commercial Catering Facilities
- Security Systems

Accredited to the ISO 14001 Environmental Standard.

2 Regents Wharf, All Saints Street, London, N1 9RL.  
Tel 020 7837 6433 Fax 020 7520 8100  
Email info@gratte.com

## FACILITIES MANAGEMENT TEAM AWARD

RECOGNISING THE ACHIEVEMENTS OF A FACILITIES MANAGEMENT TEAM DELIVERING OUTSTANDING BUILDING PERFORMANCE

**WINNER:**  
**Sirius Building, Canberra, Australia**  
Mirvac Group



Mirvac has the unique distinction of being the first organisation ever to attain an Australian six star NABERS Energy rating without the use of GreenPower. The rating was achieved for a large grade A office building called the Sirius Building in Canberra, Australia, which Mirvac owns and operates.

The 46,147m<sup>2</sup> building opened in 2010 and, over the first four full years of operation, achieved a consistent year-on-year reduction in gas and electricity use of more than 20%. This level of performance improvement requires outstanding focus and complete commitment.

The facilities management (FM) team have not only maintained the six star rating over three rating years, but have also further improved the performance over that time. The judges were particularly impressed with the range of FM measures taken to maintain consistently high levels of performance.

While the NABERS energy rating focuses on energy, achieving a high star rating also requires a great deal of effort to provide an effective and comfortable overall working environment for the building occupiers.

To reduce electricity consumption, Mirvac has invested in the latest technology including LED lights with integrated microwave occupancy

sensors and a chiller plant optimisation system to enhance chilled water plant performance. An 80KW solar photovoltaic array has also been installed.

These modifications are expected to reduce the property's greenhouse emissions by 100 tonnes a year and achieve a simple payback period of six years with current electricity prices, while also providing a buffer against future energy price hikes.

Operationally, several initiatives have been implemented to assist the FM team to monitor building performance actively. These include daily building usage profiles emailed to the FM team, and night audits undertaken to minimise out-of-hours energy consumption and to identify new initiatives. This approach has pinpointed scheduling inefficiencies, helped optimise sensor lighting periods and highlighted opportunities for lighting upgrades.

Energy consumption has been cut by a remarkable 32% from the first full year of operation in FY2011 to FY2014. This equates to an enormous \$107,844 per year saving in energy costs using current energy pricing and a potential capital value uplift of \$1.467 million if the full impact of energy cost savings and outgoings reduction is realised in the property valuation (using the capital rate of 7.35% from June 2014).

Over the remaining 10 years of the lease, the energy efficiency work should represent a saving of \$1.078 million before factoring in any forecast energy cost escalations.



### PROJECT TEAM:

**Building owner:** Mirvac Property Trust / **Building occupier:** Commonwealth of Australia Government Department of Health and Ageing / **Mechanical / electrical engineer:** ACES Air / **Investment / property company:** Mirvac / **Facilities manager:** Mirvac

17

### FINALISTS:

- » Aston Go Green, Birmingham – Aston University
- » Broadgate Estates London Portfolio – Broadgate Estates
- » International Commerce Centre (ICC), Hong Kong – Kai Shing Management Services

Sponsored by:





## Spirotech. When failure is not an option.

### Congratulations to the winner of the Energy Saving Product of the Year award.



Spirotech, the UK's leading supplier of air, dirt, pressurisation and water treatment products, is to play a key role in one of the country's largest biomass projects.

Whether designing small domestic installations to large commercial projects, Spirotech has the full system knowledge and products to meet your requirements.

To find out more about Spirotech or to benefit from our free of charge CIBSE accredited CPD, please call **0208 451 3344** or visit **www.spirotech.co.uk**



maximising performance

## ENERGY SAVING PRODUCT OF THE YEAR

RECOGNISING OUTSTANDING PRODUCTS THAT WILL MAKE SIGNIFICANT CONTRIBUTIONS TO IMPROVING BUILDING PERFORMANCE

**WINNER:**  
**EndoTherm**  
Endo Enterprises (UK)



All the numbers surrounding the EndoTherm energy saving central heating additive from Endo Enterprises are particularly impressive. For example, it has been independently proven to save 15% on heating bills and it is 100% organic, giving it an exceptionally low carbon footprint. On top of this, in the past 12 months, there have been multiple EndoTherm trial installations serving as case studies and savings have averaged at 17.5% (compensated with Degree Days) during that period.

EndoTherm is versatile, being designed for any wet heating system from traditional systems to ground and air source heat pumps, and

solar thermal. The technology can also work to improve the energy efficiency of chilled water systems.

The way EndoTherm works is ingenious. It is dosed at just 1% and reduces the surface tension of water by more than 60%. This breaks down the hydrogen bonds in water, allowing it to spread more effectively over the surfaces of the system, increasing the surface area available for heat transfer.

This increased surface area improves heat transfer efficiency meaning rooms heat up more quickly and the boiler load is reduced to maintain temperature within a property. On top of this, radiators retain heat for longer and cool more slowly, and less fuel is consumed to maintain the thermostatically set temperature.

EndoTherm has been tested by ISO17025 test house Enertek International in Hull, which conducted a number of trials over a 12-month period before the product's launch. It recorded a 15% cut in energy bills. EndoTherm was also tested by the University of Central Lancaster and Tomorrow Air Solutions (on an air handling unit system) achieving 10.4% and 23.7% savings respectively).

EndoTherm can be installed in just 10-15 minutes, is completely organic and non-corrosive, and even has slight inhibitor properties.



Although there have been attempts to save energy by changing the physical chemistry of the water in a heating system before, none, according to Endo Enterprises (UK), have reached the same levels as EndoTherm.

And further developments are afoot with Endo Enterprises (UK) advancing the field of boundary layer thermodynamics, working with a number of universities around the country to develop the science behind the product.

### FINALISTS:

- » Emerald – R290 Refrigeration and Heating Plant – A1 Engineering Solutions and Waitrose
- » Totem Energy Microcogenerator – Advenco
- » EW-HT heat pump – Climaveneta SpA
- » Hydromx® – PBA Energy Solutions

Sponsored by:



### JUDGES' COMMENTS

“This product is easy to retrofit and has the potential to save millions.”



**We believe building boilers requires a personal touch.**

**Which is why we sent our robots packing.**



**Every Vaillant Commercial boiler is hand built by a single expert. No robots. No exception.**

While we constantly embrace cutting-edge production processes, we have always been careful to maintain a human touch. This is why each boiler is hand built by a single expert, giving them 100% ownership. Only during the packing stages do we let our robots get involved. A fact we are extremely proud of.

**To take ownership of a hand built commercial heating product call 0845 602 2922 or visit [vaillantcommercial.co.uk](http://vaillantcommercial.co.uk)**



## BUILDING PERFORMANCE TRAINING PROGRAMME AWARD

TRAINING INITIATIVE, INNOVATION OR PROGRAMME THAT HAS RESULTED IN A POSITIVE IMPACT ON THE PERFORMANCE OF BUILDINGS

### WINNER:

**Building Services Explained for VolkerFitzpatrick Site Teams**  
VolkerFitzpatrick



This hard-fought award attracted a remarkably strong field of entries featuring, for the first time, major overseas training projects from Australia and the US, as well as entries from the UK.

The winning entry from VolkerFitzpatrick demonstrated an exceptional level of corporate commitment to training those who deliver building projects. Specifically ensuring that an understanding of the building's services is applied on site to improve the performance of the completed building.

The training programme was carefully developed with input from senior staff, as well as commercial, project and contract managers. The building services specialists have also participated so that they are fully aware of the training provided to their colleagues.

This has ensured that those unfamiliar with building services engineering now have a greater understanding of the needs of their building services colleagues and are far better equipped to engage with them throughout the construction process via the CPD

accredited 'Building Services For VolkerFitzpatrick Site Teams Course'.

The main objective of the course is to help staff understand that getting building services right is crucial to successful delivery of construction projects and has a huge impact on long term building performance, energy efficiency and, ultimately, client satisfaction.

The uniquely tailored one-day course was devised by training expert Glenn Hawkins of Clear Construction and Ted Pilbeam, VolkerFitzpatrick's building services and sustainability director.

Training was delivered to 109 members of staff with widely varying degrees of experience and seniority. Throughout 2015, mixed groups of between six and fourteen delegates attended the training course held in VolkerFitzpatrick's head office in Hoddesdon, Hertfordshire. Glenn Hawkins delivered the course and was supported by Ted Pilbeam and his regional building services managers.

The programme is a major step in increasing awareness of the importance of building services delivery to the overall performance of the building in practice.

VolkerFitzpatrick's tender and site teams are now planning and building construction projects with services in mind right from the start rather than as an afterthought to be managed by specialists alone,

making the engineering services part of the overall building solution.

Such integration has meant fewer defects leading to improved building performance, greater appreciation of the commissioning process and the timescales involved. This, in turn, has resulted in lower carbon buildings, better energy efficiency and fewer unscheduled returns to completed projects.

### FINALISTS:

- » Refrigeration and Climate Control Centre of Excellence (RCCC) – Air Conditioning and Mechanical Contractors' Association (AMCA)
- » BIM Level 2 Fundamentals – BRE Academy
- » Soft Landings Training – BSRIA
- » Building Disclosure and Benchmarking Course – University of Nebraska – Lincoln (UNL)

Sponsored by:





# WITH A CLEARER VIEW OF YOUR MRO COSTS

## WE CAN HELP YOU SAVE UP TO 35%

MRO procurement is costing you twice as much as you think. Through data insights we can reveal the hidden MRO process costs that invariably outweigh product costs, and deploy proven strategies across product, inventory, sourcing and purchasing that can help you save up to 35%.

We should be talking.

 [lets-talkmro.com](http://lets-talkmro.com)  
 RS MRO Procurement



Find out more



## COLLABORATIVE WORKING PARTNERSHIP AWARD

RECOGNISING EXAMPLES OF COLLABORATIVE WORKING THAT HAVE DELIVERED OUTSTANDING OUTCOMES

### WINNER:

**John Lewis, York**

IES / John Lewis / Lateral Technologies and Solutions / Next Control Systems



The power of outstanding collaboration is brilliantly demonstrated at John Lewis in York, the first department store in the world to receive BREEAM Outstanding certification.

By working closely with its energy technology suppliers and consultants, John Lewis, York has slashed its absolute carbon emissions by a massive 43.8% compared to the benchmark, almost 14% more savings than the original expectation.

John Lewis has been working with low carbon consultant Lateral Technologies for the past 16 years. For the last seven years, Lateral Technologies has been using the IES Virtual Environment (IESVE) building performance analysis suite to analyse the operational efficiency of John Lewis stores.

In 2012 IES Consulting joined the team to bring its IES-SCAN technology which allowed Lateral Technologies to take operational

monitoring and energy management to the next level. IES-SCAN takes data directly from the building management system (BMS) and refines it with the design model to highlight any performance gaps.

Controls company Next Control Systems also joined the team around this time and was responsible for extracting data from the BMS system to share with IES and Lateral Technologies.

Together, this close-knit team assisted John Lewis in the creation of its York store – its most sustainable to date – and is helping the retailer achieve its target of reducing carbon emissions by 15% across all its stores by 2020.

A number of processes were put in place to ensure the team worked as effectively as possible. For example, Next Control Systems set up an automated email system which emailed data out to Lateral Technologies and IES on a daily basis in a suitable format for uploading to a 3D model.

IES provided the secure cloud server on which to host the data collected by Next Control Systems. The IESVE 3D model was then able to be shared between all parties.

Tasks, data exchange formats, project goals and standards were all agreed on from the outset of the project, enabling an integrated workflow that was critical to achieving the project requirements.



The IES 3D model was used collaboratively by the whole project team throughout the building's development, from concept to schematic and detailed design onto commissioning and monitoring.

### PROJECT TEAM:

**Building services engineer:** Lateral Technologies and Solutions / **Building owner / occupier:** John Lewis / **Other:** Next Control Systems (controls company), IES (software/technology provider and consultants), Airedale (chiller Manufacturer)

### FINALISTS:

- » Bolton Market, Bolton – Beverley Clifton Morris (BCM) and Willmott Dixon
- » Barclays CPMO – Realys (part of ISG Group) and Barclays

Sponsored by:



### JUDGES' COMMENTS

“Amazing carbon and energy results; they really stepped up to the mark – all credit to them for cleverly using data to inform design.”

# Delivering innovative sustainable solutions

Western International Market is the largest roof top solar installation in London and the first in the UK to use a Tesvolt lithium battery storage system.

## Proud Sponsor

Imtech is one of the largest independent technical services providers in the UK, with extensive expertise and experience in engineering services, technical facilities management and systems integration, delivering innovative sustainable solutions through digital engineering technology.

**Proud sponsor of the Energy Management Initiative Award**

[imtech.co.uk](http://imtech.co.uk)

**Imtech**

To be the most respected...

## ENERGY MANAGEMENT INITIATIVE AWARD

RECOGNISING THE INITIATIVES OF THE BUILDING OWNER OR OCCUPIER WHO MOST EFFECTIVELY DEMONSTRATES ENERGY EFFICIENCY AND REDUCED CARBON EMISSIONS

### WINNER:

**British Land Portfolio Energy Reduction Programme**  
British Land



The judges were really struck by the quality, range of approaches and portfolios shown in this hard-fought category, but it was the stellar environmental performance of British Land that won it the top prize.

British Land marked a major milestone in its ground-breaking portfolio energy reduction programme in 2015 with the achievement of a particularly challenging target to reduce landlord energy by 40% compared with 2009, as well as the launch of a sustainability strategy to drive further environmental, social and commercial results.

This is likely to have a huge impact on the UK's environmental performance because British Land is one of Europe's giants. Its properties are home to more than 1,200 organisations ranging from international brands to local start-ups. Around 60,000 people work across its office portfolio and its retail sites receive an astounding 350 million visits per year.

The company's efficiency programme has saved occupiers a whopping £10 million since 2009 and cut carbon by 60,400 tonnes – equivalent to the annual emissions from 9,300 homes.

British Land is passionate about its work in this area and, as a result, claims to have achieved greater reductions than any other UK real estate investment trust. What's more, it has delivered these reductions while maintaining excellent user approval.

In 2015, the business achieved energy reductions across 8.4 million sq ft of retail and office space – an area large enough to contain more than 190 football pitches. It has also delivered 3.5 million sq ft of new offices, shops, homes and cinemas rated BREEAM Excellent for sustainability since 2009.

But the company has gone even further. In 2015, lessons from its energy management programme informed the development and launch of a new sustainability strategy, with new targets to drive further positive environmental, social and commercial results.

Working closely with local managers, each individual property has a tailored Environmental Action Plan and automatic metering in premises alert managers when energy use exceeds agreed thresholds.

Building on the success of its efficiency initiatives, British Land is now partnering with occupiers to pilot features that promote wellbeing and productive working. It is also exploring opportunities to increase on-site energy generation and associated revenue, while continuing to focus on improving operational efficiency and occupier costs.

### JUDGES' COMMENTS

“To make the progress they have in the last year is really impressive, and across such a wide estate.”

### PROJECT TEAM:

**Building services engineers:** Broadgate Estates, Colliers International, Montagu Evans, Munroe K, Savills, Smith Young and Workman / **Building owner:** British Land

### HIGHLY COMMENDED:

» Bupa UK – Energy Saver Fund

### FINALISTS:

- » ALDI Stores – Energy Management and Optimisation Project
- » Lateral Technologies and Solutions – John Lewis Store, York
- » Sainsbury's Supermarkets – Project Graphite

Sponsored by:

**Imtech**

# CMR

## in complete control

CMR Controls manufactures low air pressure and air volume measurement sensors and control systems for standard air conditioning, clean rooms, sterile laboratories, containment facilities, and fume cupboard extract systems.

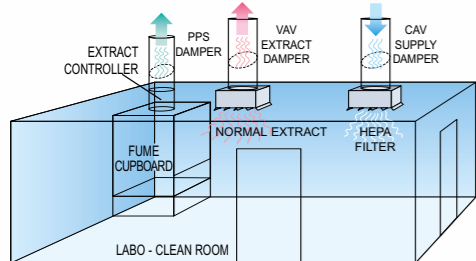


### DPM PRESSURE SENSOR

Panel Mount Pressure or Velocity Transducers with remote alarms, analogue and digital interfaces. Traceable calibration certificates supplied as standard.

### AIR MANAGEMENT SYSTEM

A complete turn-key system to control room pressure to +/-1Pa. Fume cupboard face velocity to 0.5m/s at high speed and provide constant air changes into the labo - clean room.



### PRECISION COMPONENTS FOR VENTILATION AND PROCESS CONTROL

**CMR CONTROLS**

22 Repton Court, Repton Close,  
Basildon, Essex SS13 1LN. GB  
Website: <http://www.cmr.co.uk>

Tel: +44 (0)1268 287222  
Fax: +44 (0)1268 287099  
E-mail: [sales@cmr.co.uk](mailto:sales@cmr.co.uk)



### DPC CONTROLLER

Fast and accurate controls to drive high speed dampers or invertors. Full PID stand alone controls with BMS interface.

### CAV AND VAV DAMPERS

Accurate air flow measurement with the unique CMR Venturi built into the airtight shut-off damper to control room pressure or constant volume.



Metal Damper

### PPS EXTRACT DAMPER

Poly-propelene control and shut off valve incorporating the CMR Venturi Nozzle. This is essential when dealing with corrosive extract air especially from fume cupboard systems.



PPS Damper

## LIGHTING FOR BUILDING PERFORMANCE AWARD

RECOGNISING THE INNOVATIVE LIGHTING DESIGN THAT DELIVERS OUTSTANDING LIGHTING QUALITY FOR OCCUPANTS AND MOST EFFECTIVELY DEMONSTRATES ENERGY EFFICIENCY

### WINNER:

**WWF – Living Planet Centre, Woking**  
Atelier Ten



A stunning, highly integrated building, WWF's £20 million Living Planet Centre in Woking uses natural daylight wherever possible to reduce its dependence on artificial lighting and minimise energy usage.

Where natural daylighting is impractical, the artificial lighting scheme draws upon commonly available elements such as efficient luminaires and lamp sources, DALI dimming and controls, daylight harvesting and occupancy sensing.

The principle office space in this brilliantly-designed building is over two levels – a lower level beneath a mezzanine podium level – each space requiring a different lighting treatment.

The lower office space is housed beneath an exposed concrete slab. The space and lighting had to be sufficiently flexible to allow for alternative patterns of working and partitioning. A grid of linear suspended fittings was used to co-ordinate with the building's architectural grid. The fittings are custom length using 28W T5 lamps to achieve an average illuminance of 300 lux.

Each pair of fittings is controlled by a dedicated photocell / occupancy sensor. The sensors automatically

dim the local lighting when sufficient daylight is present. The sensor will also dim the lighting if a zone is left unoccupied for a period. An applet is provided to allow users full control of their lighting from a PC or laptop.

The open plan office space at podium level is extensively illuminated by daylight from large rooflights. This is supplemented by carefully integrated downlights within the diagrid itself, which are linked via a DALI control system to multiple photocells which are used to dim lighting zones automatically with available daylight. Bespoke inclination adaptors match the varying angles of the curved ceiling and allow the lighting to be truly integrated.

LED uplights are mounted at the springing point of the ceiling to give some gentle brightness to the diagrid at night to reduce contrast between the downlights and the

ceiling. The daylight design ensures an average daylight factor higher than 2% in all naturally daylighted spaces.

The building achieved a much sought after BREEAM Outstanding rating with a score of 90.6%.

### PROJECT TEAM:

**Client:** WWF / **Architect:** Hopkins Associates /  
**Contractor:** Wilmott Dixon /  
**Electrical contractor:** DES Electrical

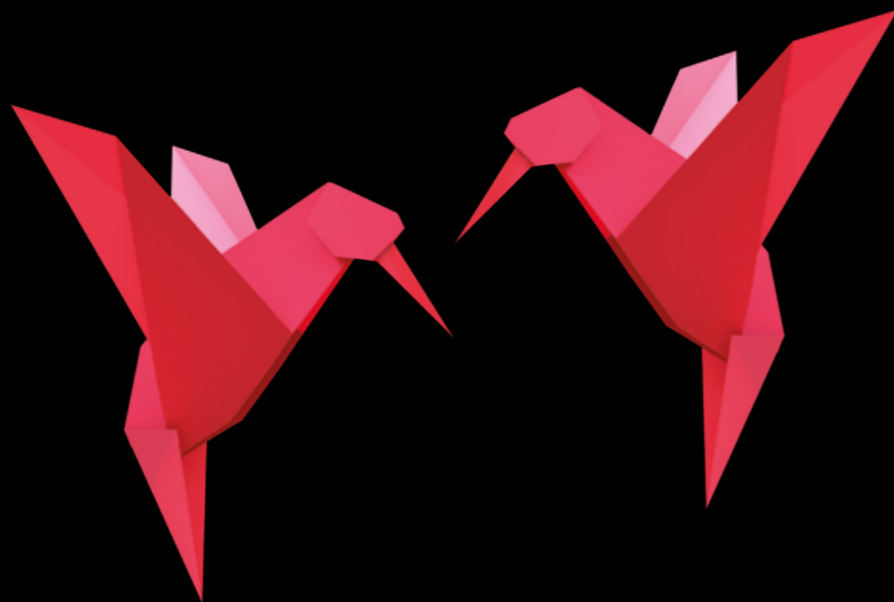
### FINALISTS:

- » The National Theatre – NT Future, London – Atelier Ten
- » New Emergency Department and 24 Bed Ward, Antrim Hospital, Northern Ireland – Beattie Flanagan Consulting Engineers

Sponsored by:



# Engineering excellence, naturally



Our innovative heating and cooling products for home, commercial and industrial applications are skilfully engineered for seasonal efficiency.



Equipped with a range of flexible and energy-saving features – such as our highly reliable screw and scroll compressors, lightweight and modular outdoor units, unique System Free indoor units with ECO motion sensors and anti-bacterial filters – Hitachi has a market-leading heating or cooling solution for every situation. And there's a generous 5-year warranty, naturally.



Building our reputation of quality engineering for over 100 years. Designed for today, engineered for tomorrow.



Japanese engineering excellence, naturally.

To find out more call Hitachi on **01628 585 394**  
[hitachiaircon.com](http://hitachiaircon.com) | [hitachiheating.com](http://hitachiheating.com)

\*5-year warranty on Set Free and Utopia product ranges.

## PROJECT OF THE YEAR – COMMERCIAL/ INDUSTRIAL

RECOGNISING THE NEW BUILD OR REFURBISHMENT OF A COMMERCIAL OR INDUSTRIAL BUILDING THAT MOST EFFECTIVELY DEMONSTRATES HIGH LEVELS OF USER SATISFACTION AND COMFORT WHILST DELIVERING OUTSTANDING MEASURED BUILDING PERFORMANCE

**WINNER:**

**50 Shakespeare Street  
 Refurbishment, Nottingham**  
 Nottingham Trent University



In 2012, Nottingham Trent University (NTU) acquired this former council registry office built in 1887. The building had suffered several unsympathetic refurbishments as well as sustaining damage in World War II.

NTU set itself the challenging task of carrying out a full refurbishment of the Grade II listed property to minimise energy use and carbon emissions in line with the university's goal of reducing overall carbon emissions by 48% by 2020.

To ensure the building met the needs of the users whilst

significantly reducing carbon emissions, NTU undertook a full review of the building and its existing services. It assessed the heating, lighting and ventilation requirements; and managed the installation and also carried out thermal and CFD modelling to confirm the proposed design would work as intended.

A natural ventilation strategy was adopted to take advantage of the building's tall ceilings and allowed building users to control their own environment.

Modern offices and meeting rooms were carved out from an existing warren of rooms, with glass walls installed for natural daylight optimisation. Occupants were impressed with the 'modern feel' of this new space and the 'good amount of natural daylight', one occupant stating that the open plan layout allowed for more collaborative working.

To minimise carbon emissions, the heat to the wet radiator-based heating system is supplied through a 150kW Hargassner biomass pellet boiler and connection to the Nottingham District Heating Scheme.

The building's artificial lighting is a mix of high frequency T5 and LED fittings, and glass partitions between rooms allows light to spill from one room to the next.

Energy consumption is 50% lower than if no works were carried out so

the project has cut energy costs by around £10,000 per annum. NTU will also benefit from an additional income of between £15,000 and £20,000 a year from the Renewable Heat Incentive associated with the biomass boiler.

**PROJECT TEAM:**

**Building services engineer:** Mark Godfrey/Ashley Allsop / **Building owner, occupier, project manager, quantity surveyor, architect, interior designer, mechanical/electrical engineer:** Nottingham Trent University / **Contractor:** Mellor Bromley and Nottingham Trent University / **Investment / property company:** Nottingham Trent University / **Developer:** Nottingham Trent University / **Facilities manager:** Nottingham Trent University / **Other:** Rolton & Gleeds

**FINALISTS:**

- » One Embankment Place, London – ChapmanBDSP
- » Foundry, London – Cullinan Studio
- » 101 Park Drive, Abingdon – Elementa Consulting (member of Integral Group)

Sponsored by:



**JUDGES' COMMENTS**

“ This project had a very good focus on energy efficient design, coupled with metering strategy and engagement with occupiers. ”



# HEATING & HOT WATER SOLUTIONS FUTUREPROOF



**HIGH EFFICIENCY  
BOILERS**

**HIGH EFFICIENCY  
WATER HEATERS**

**INTEGRATED  
RENEWABLE SOLUTIONS**

Lochinvar products have been providing economical solutions for hot water and heating systems in the UK since 1976. Knight and Charger Water Heater ranges were among the first of their type to be available.

Based in Banbury, Oxfordshire, the company has continued to provide energy efficient products for a wide range of Commercial, Industrial and large Domestic applications.

We offer a flexible range of gas-fired Condensing Boilers and Water Heaters which are suitable for new build, refurbishment or replacement requirements. We also offer a range of integrated renewable solutions, including technologies such as Solar Thermal and Air Source Heat Pumps.



[www.lochinvar.ltd.uk](http://www.lochinvar.ltd.uk)

Email: [info@lochinvar.ltd.uk](mailto:info@lochinvar.ltd.uk)

Tel: +44 (0) 1295 269981

[@LochinvarLtd](https://www.facebook.com/LochinvarLtd)  
[Lochinvar Ltd](https://www.linkedin.com/company/LochinvarLtd)

## PROJECT OF THE YEAR – LEISURE

RECOGNISING THE NEW BUILD OR REFURBISHMENT OF A BUILDING WITHIN THE LEISURE SECTOR THAT MOST EFFECTIVELY DEMONSTRATES HIGH LEVELS OF USER SATISFACTION AND COMFORT WHILST DELIVERING OUTSTANDING MEASURED BUILDING PERFORMANCE

### WINNER:

**Everyman Theatre, Liverpool**  
Waterman Building Services



WBS devised an innovative hybrid controls strategy to provide mixed mode ventilation with heating and cooling using an air handling unit (AHU) located within the inlet plenum. The AHU provides the auditorium with the main source of heating in winter, but also has cooling coils capable of tempering the incoming fresh air during peak summer conditions.

The strategy relies on a series of set-point initiation points which change the functionality of the auditorium ventilation from natural to mechanical ventilation through to mechanical cooling.

Energy efficiency is further enhanced through the building's fabric, and in particular, its dramatic façade which comprises of a series of 105 movable solar shading panel. Each panel, with an image of a person cut into it, is arranged around central pivots and is adjustable to decrease the cooling energy demands of the building.

A comprehensive commissioning programme, developed in consultation with the design team, client and their facilities team, provided training and introduced the client to their new building.

Although architecturally stunning, winning the UK's most prestigious architecture award – the RIBA Stirling Prize – in 2014, the new Everyman Theatre in Liverpool is essentially a black box.

This presented Waterman Building Services (WBS) with a big test – how to provide a naturally ventilated system to a theatre auditorium, which, by its nature, can't incorporate large opening windows or louvres because of the danger of traffic noise/daylight breaking in and show noise breaking out.

Combine this with the requirement to dissipate upwards of 115kW of internal gains while maintaining internal air quality within a central city location, and you begin to see how challenging the project really was.

The concept for the Everyman Theatre building was to develop a modern theatre on the site previously occupied by the original theatre.

Sponsored by:



[www.cibse.org/bpa](http://www.cibse.org/bpa)

### PROJECT TEAM:

**Building services engineer and mechanical / electrical engineer:** Waterman Building Services / **Building owner and occupier:** Liverpool and Merseyside Theatres Trust / **Project manager:** GVA Acuity / **Quantity surveyor:** Gardiner and Theobald LLP / **Brief consultant, architect and interior designer:** Haworth Tompkins / **Contractor:** Gilbert Ash / **Investment / property company:** Arts Council England, European Regional Development Fund / Various Funders / Stakeholders / **Developer:** The Board of Trustees of the Liverpool and Merseyside Theatres Trust / **Facilities manager:** In house facility

### FINALISTS:

- » Splashpoint, Worthing – AECOM
- » Butlin's Skegness Firehouse restaurant, Skegness – CD International Building Services Engineers
- » Chichester Festival Theatre, Oaklands Park – Skelly and Couch

### JUDGES' COMMENTS

“ This was a great total approach to sustainability – great design combined with fantastic energy performance results. ”



**A COMPLETE RANGE OF ALTERNATIVE REFRIGERANTS AVAILABLE**

Including HFOs, HCs and R32

## PROJECT OF THE YEAR – PUBLIC USE

RECOGNISING THE NEW BUILD OR REFURBISHMENT OF A PUBLIC USE BUILDING THAT MOST EFFECTIVELY DEMONSTRATES HIGH LEVELS OF USER SATISFACTION AND COMFORT WHILST DELIVERING OUTSTANDING MEASURED BUILDING PERFORMANCE

### WINNER:

**Wilkinson Primary School, Wolverhampton**  
Architype with E3 Consulting

**ARCHITYPE**



## Supplier of the award winning Turbomiser chiller, and total cooling solutions

Cool-Therm's award-winning technology covers the full spectrum of cooling equipment, backed by outstanding service and maintenance throughout the life of your system.

Wherever you are in the country, our bespoke design team can solve the most complex technical and site-specific issues, delivering a solution perfectly matched to your needs.

Our offering includes a full range of standard and low global-warming refrigerants, so you can relax knowing your carbon emissions and green credentials are top of the class.

**CALL US NOW FOR A QUOTE**, and see how we can reduce your running costs and boost your cooling performance:

TEL: **0117 9610006**

EMAIL: **enquiries@cooltherm.co.uk**



**TURBOMISER CHILLER**



**PACKAGED CHILLERS**



**PROCESS COOLING**



**AIR HANDLING UNITS AND FAN COILS**



**SERVICE AND MAINTENANCE**



**VRF AND SPLIT AIR CONDITIONING**



**DATA CENTRE COOLING**



**CONSULTANCY AND BESPOKE DESIGN**



the building's internal environment is maintained using a passive fabric first approach and there is no reliance on mechanical cooling except in the WC areas and kitchen.

To maintain this comfortable and productive environment a robust natural ventilation strategy is required with cross ventilation in the classrooms enhanced via attenuated air paths into the central hub. This is provided via manually opening windows and secure night vents at a reachable height so the occupants have full control; high level windows in the hall and circulation spaces are controlled by the BMS with manual override.

Wilkinson Primary School suffered a devastating arson attack in 2010. However, the new school that has, quite literally, been raised from the ashes is an exemplar of sustainability and 21st Century school design, bringing delight and a safe environment to 420 pupils and their teachers.

This is Architype's most recent Passivhaus school and the product of continuous improvement and lessons learned from involvement in three previous such schools.

In construction, preference has been given to recycled and reclaimed materials to reduce the overall embodied carbon of the building.

A fabric first approach and the use of central heat recovery ventilation help reduce the heating demand to less than 10% of a conventional school.

Wilkinson Primary School operates a mixed mode ventilation strategy which means classrooms benefit from CO2 levels five times lower than regulations, aiding wellbeing and concentration. This view is supported by teacher observations of improved performance and attention of students. In the summer months,

In winter, excellent thermal performance and exceptional air tightness with mechanical ventilation minimises the demand for heat to a single 90kW gas boiler.

A shading strategy has been developed with close collaboration between Architype and E3 Consulting Engineers to minimise summer solar gains while maximising beneficial winter solar gain and not impacting daylight levels.

Daylight dimming is used in the classroom to reduce lighting load. Daylight switching with passive infrared sensor is used in the circulation spaces to ensure the lighting is not left on when the space is adequately day lit.

Wilkinson Primary School achieved an A rated EPC without the need for renewables.

### PROJECT TEAM:

**Building services engineer:** E3 Consulting Engineers / **Building owner:** Wolverhampton City Council / **Headteacher:** Tina Gibbon / **Project manager:** Carillion and The Local Education Partnership / **Quantity surveyor:** Smith Thomas Consulting / **Brief consultant:** Jacobs / **Architect:** Architype / **Interior designer:** Architype / School / **Mechanical / electrical engineer:** Coalway / **Contractor:** Thomas Vale Construction / **Facilities manager:** School / **Landscape architects:** Coe Design / **Structures and civil:** Price & Myers

### HIGHLY COMMENDED:

» Mayville Community Centre (renamed Mildmay Centre), London – Bere: architects

### FINALISTS:

» Manchester Town Hall Complex Transformation Project Manchester (MTHCTP), Manchester – Building Design Partnership (BDP)  
» Andrew Wiles Building (Mathematical Institute, University of Oxford), Oxford – Hoare Lea  
» Britten Pears Archive, Suffolk – Max Fordham

Sponsored by:





Congratulations to Box Hill Institute and the Air Conditioning and Mechanical Contractors' Association (AMCA) on their unique industry partnership and collaboration to develop Box Hill Institute's \$41 million Integrated Technology Hub, transforming it into a world-first Refrigeration and Climate Control Centre of Excellence (RCCC) located in Melbourne, Australia. The result of which is:

- » partnership with industry to equip over 30 PODs with the latest HVAC&R products
- » the launch of the Master Refrigeration Programme as an industry best-practice requirement for post-trade employees
- » development of Free Interactive and blended learning platforms and solutions
- » improved personal and professional development opportunities for teachers.

[boxhill.edu.au](http://boxhill.edu.au)  
[amca.com.au](http://amca.com.au)



Refrigeration and Climate Control Centre of Excellence (RCCC)

## PROJECT OF THE YEAR – RESIDENTIAL

RECOGNISING THE NEW BUILD OR REFURBISHMENT OF A BUILDING IN THE RESIDENTIAL SECTOR THAT MOST EFFECTIVELY DEMONSTRATES HIGH LEVELS OF USER SATISFACTION AND COMFORT WHILST DELIVERING OUTSTANDING MEASURED BUILDING PERFORMANCE

### WINNER:

**Clapham Retrofit, London**  
Arboreal Architecture



An imposing 170-year old Grade II listed Victorian townhouse in Clapham has undergone a 'deep retrofit' to become the first listed building in England to meet the AECB Silver Performance Standard.

The retrofit design objectives for the four-storey semi-detached masonry building were to:

- Sensitively restore the structure and fabric of the house respecting original features.
- Open up the dark lower ground floor into a light-filled stepped courtyard.
- Thermally upgrade the house following English Heritage retrofitting best practice.
- Create a comfortable home fit for the future.

Following consultation with English Heritage and the conservation officer, the condition of the building's fabric was investigated, as were key elements of historic significance and the existing thermal performance. Before design proposals were developed, measuring and monitoring expert ArchiMetrics carried out airtightness and thermographic surveys, U-value measurements and interstitial moisture monitoring

to deepen the project team's understanding of the building and allow a 'finer grain' of design and specification.

The key technical innovation in the project lies in its approach towards the specification of the internal insulation to the roof, floor and walls. Nine key insulation materials (including woodfibre, aerogel and cellulose) were installed, responding directly to localised historic fabric and performance requirements. During installation, workmanship and airtightness detailing were monitored and wireless sensors were fitted.

Other energy efficiency technology installed included LED lighting, solar thermal panels, Stelrad radical radiators, MEV ventilation and double-glazed secondary glazing.

Using Passivhaus methodology, the estimated space heat demand of the 170 sq m building has been cut by more than 75% from 180kWh/m<sup>2</sup>/yr (5,631 kgCO<sub>2</sub>e) to 40kWh/m<sup>2</sup>/yr (1,251 kgCO<sub>2</sub>e). Air leakage has been reduced from 9.6ach to 1.8ach. Measured actual gas energy use for the year from January 2014 (9,146kWh) was under the predicted energy demand of 9,619 kWh.

Since the building has been occupied, its internal temperature has remained at 20°C and the internal relative humidity has stayed within 50-60%. One occupant reported that the 'even temperature and humidity made the housing extremely comfortable to live in'.

### JUDGES' COMMENTS

“ This is a ground breaking project that shows what can be achieved with existing stock. The entry provided evidence of a mind-blowing set of work, really cutting edge. ”

### PROJECT TEAM:

**Building services engineer and mechanical / electrical engineer:** Alan Clarke / **Building owner and occupier:** Simon and Veronica van Heyningen / **Project manager, quantity surveyor and architect:** Arboreal Architecture / **Contractor:** Noble & Taylor / **Structural engineer:** The Morton Partnership

### HIGHLY COMMENDED:

- » Girton College, Cambridge – Max Fordham

### FINALISTS:

- » LILAC, Leeds – SSoA, Sheffield University and Faculty of Architecture, Wroclaw University of Technology, Poland
- » Derwenthorpe Phase 1, York – Studio Partington



Emax 2. Because good things come in small packages.



ABB introduced the Emax 2 to meet industry's calls for a low voltage circuit breaker that packs greater performance and functionality into a more compact unit. Emax 2 integrates accurate measurement, built-in load management, smart grid enabled IEC 61850 communication, G59 option and synchrocheck. Emax 2 is 25 percent smaller in footprint and volume than comparable breakers, saving space that can be used for other building services or by a building's occupiers. [www.abb.com/emax2](http://www.abb.com/emax2)

**ABB Limited**  
Low Voltage Products Division  
Tel. 0333 999 9900  
E-mail: [lv.products@gb.abb.com](mailto:lv.products@gb.abb.com)

Power and productivity  
for a better world™ **ABB**

## PROJECT OF THE YEAR – INTERNATIONAL

RECOGNISING AN INTERNATIONAL PROJECT THAT MOST EFFECTIVELY DEMONSTRATES HIGH LEVELS OF USER SATISFACTION AND COMFORT WHILST DELIVERING OUTSTANDING MEASURED BUILDING PERFORMANCE

### WINNER:

**David and Lucile Packard Foundation  
Headquarters, California, USA**

Elementa Consulting (member of Integral Group)



In its first year of operation, the imposing David and Lucile Packard Foundation headquarters building in Los Altos, California exceeded all expectations, meeting its zero energy target three months early and becoming a net positive generator of energy.

Elementa Consulting performed MEP engineering, commissioning, and post occupancy verification and tracking of the building performance to ensure Net Zero Energy operation for the building.

At the heart of this exceptionally green two-storey office building is an extremely efficient chilled beam heating and cooling system and a high efficiency air source heat pump with thermal storage. Highly efficient systems together with the building envelope reduce energy demand by 60% over code baseline, while

the remaining required power is supplied by onsite photovoltaic power generation. The building operates in natural ventilation mode for half the year. Thermal energy storage, chilled beams, dedicated outside air systems, fully dimmable lighting fixtures, and circuit-by-circuit power monitoring are some of the facility's novel features.

Post-occupancy feedback shows 97% of occupants are satisfied with the building overall, and thermal comfort satisfaction ranks in the 96th percentile.

The success of the design was measured on several fronts. The current in-operation energy use is 68.76kWh/m2/year, and this is expected to decrease further as enhanced commissioning continues. The building confirmed its net positive energy status in 2013, generating 418 MWh of electricity in the first year of operation with on-site photovoltaic rooftop panels. It consumed just 351 MWh of electricity and zero natural gas.

All this has led to the building earning coveted 'Net-Zero Energy Certification' through the International Living Future Institute, a LEED Platinum rating from the US Green Building Council, and an ASHRAE Technology Award.

Sponsored by:

Power and productivity  
for a better world™ **ABB**

### PROJECT TEAM:

**Building services engineer:** Elementa Consulting/Integral Group / **Building owner and occupier:** David and Lucile Packard Foundation / **Project manager:** Rhodes Dahl / **Architect and interior designer:** EHDD Architects / **Mechanical / electrical engineer:** Integral Group, Eric Soladay and David Kaneda, Engineers of Record / **Contractor:** DPR Construction / **Facilities manager:** Juan Uribe (with Packard Foundation) / **Structural engineer:** Tipping Mar / **Civil engineer:** Sherwood Design Engineers / **Landscape architect:** Joni L. Janecki Associates

### HIGHLY COMMENDED:

» Sirius Building, Canberra, Australia – Mirvac Group

### FINALISTS:

» Shopping and Entertainment Centre PROSPECT, Kiev, Ukraine – CD International Building Services Engineers  
» American University of Sharjah (AUS), Campus Service Centre, Sharjah, United Arab Emirates – Cundall  
» Holiday Inn Express, Orchard Road, Singapore – Intercontinental Hotels Group

# Climate Control Specialists

Space Air® supplies and supports all Daikin products from 1kW to 9MW+.



Congratulations to all those shortlisted and winners of the **CIBSE Building Performance Awards 2016**



Contact **Space Airconditioning plc** for more information!  
**0333 0069 755**  
**consulting@spaceair.co.uk**  
**www.spaceair.co.uk**

© 2016 Space Airconditioning plc. SA161055-01.16

**UK Daikin distributor since 1980**  
**NOBODY KNOWS DAIKIN BETTER**



DAIKIN products are distributed in the UK by 2 official distributors - SPACE AIRCONDITIONING plc and DAIKIN UK/DAIKIN APPLIED UK.

## FINALISTS FOR THE CIBSE BUILDING PERFORMANCE AWARDS 2016

### BUILDING SERVICES CONSULTANCY OF THE YEAR (UP TO 100 EMPLOYEES)

Sponsored by Beeby Anderson Recruitment

- Beverley Clifton Morris (BCM)
- Steven A Hunt & Associates
- SVM Consulting Engineers

### BUILDING SERVICES CONSULTANCY OF THE YEAR (OVER 100 EMPLOYEES)

Sponsored by Andrews Water Heaters

- AECOM
- Arup
- Atelier Ten
- Hoare Lea

### FACILITIES MANAGEMENT TEAM AWARD

Sponsored by Gratte Brothers

- Aston Go Green, Birmingham – Aston University
- Broadgate Estates London Portfolio – Broadgate Estates
- International Commerce Centre (ICC), Hong Kong – Kai Shing Management Services
- Sirius Building, Canberra, Australia – Mirvac Group

### ENERGY SAVING PRODUCT OF THE YEAR

Sponsored by Spirotech

- Emerald – R290 Refrigeration & Heating Plant – A1 Engineering Solutions and Waitrose
- Totem Energy Microcogenerator – Adveco
- EW-HT heat pump – Climaveneta SpA
- EndoTherm – Endo Enterprises (UK)
- Hydromx® – PBA Energy Solutions

### BUILDING PERFORMANCE TRAINING PROGRAMME AWARD

Sponsored by Vaillant

- Refrigeration and Climate Control Centre of Excellence (RCCC) – Air Conditioning and Mechanical Contractors' Association (AMCA)
- BIM Level 2 Fundamentals – BRE Academy
- Soft Landings Training – BSRIA
- Building Disclosure and Benchmarking Course – University of Nebraska – Lincoln (UNL)
- Building Services Explained for VolkerFitzpatrick Site Teams – VolkerFitzpatrick

### COLLABORATIVE WORKING PARTNERSHIP AWARD

Sponsored by RS Components

- Bolton Market, Bolton – Beverley Clifton Morris (BCM)/Willmott Dixon
- John Lewis, York – IES/John Lewis/ Lateral Technologies and Solutions/ Next Control Systems
- Barclays CPMO – Reals (part of ISG)/Barclays

### ENERGY MANAGEMENT INITIATIVE AWARD

Sponsored by Imtech

- Energy Management and Optimisation Project – ALDI Stores
- British Land Portfolio Energy Reduction Programme – British Land
- Bupa Energy Saver Fund – Bupa UK
- John Lewis, York – Lateral Technologies and Solutions
- Project Graphite – Sainsbury's Supermarkets

### LIGHTING FOR BUILDING PERFORMANCE AWARD

Sponsored by CMR Controls

- The National Theatre – NT Future, London – Atelier Ten
- WWF, Living Planet Centre, Woking – Atelier Ten
- New Emergency Department and 24 Bed Ward, Antrim Hospital, Northern Ireland – Beattie Flanagan Consulting Engineers

### PROJECT OF THE YEAR – COMMERCIAL/ INDUSTRIAL

Sponsored by Johnson Controls Hitachi

- One Embankment Place, London – Chapman BDSP
- Foundry, London – Cullinan Studio
- 101 Park Drive, Abingdon – Elementa Consulting (member of Integral Group)
- 50 Shakespeare Street Refurbishment, Nottingham – Nottingham Trent University

### PROJECT OF THE YEAR – LEISURE

Sponsored by Lochinvar

- Splashpoint, Worthing – AECOM
- Butlin's Skegness Firehouse restaurant, Skegness – CD International Building Services Engineers
- Chichester Festival Theatre, Oaklands Park – Skelly & Couch
- Everyman Theatre, Liverpool – Waterman Building Services

### PROJECT OF THE YEAR – PUBLIC USE

Sponsored by Cool-Therm

- Wilkinson Primary School, Wolverhampton – Archetype with E3 Consulting
- Mayville Community Centre (renamed Mildmay Centre), London – Bere: architects
- Manchester Town Hall Complex Transformation Project (MTHCTP),

### Manchester – Building Design Partnership (BDP)

- Andrew Wiles Building (Mathematical Institute, University of Oxford), Oxford – Hoare Lea
- Britten Pears Archive, Suffolk – Max Fordham

### PROJECT OF THE YEAR – RESIDENTIAL

- Clapham Retrofit, London – Arboreal Architecture
- Girton College, Cambridge – Max Fordham
- LILAC, Leeds – SSoA, Sheffield University/ Faculty of Architecture, Wroclaw University of Technology, Poland
- Derwenthorpe Phase 1, York – Studio Partington

### PROJECT OF THE YEAR – INTERNATIONAL

Sponsored by ABB

- Shopping and Entertainment Centre PROSPECT, Kiev, Ukraine – CD International Building Services Engineers
- American University of Sharjah (AUS), Campus Service Centre, Sharjah, United Arab Emirates – Cundall

- David and Lucile Packard Foundation Headquarters, California, USA – Elementa Consulting (member of Integral Group)

- Holiday Inn Express, Orchard Road, Singapore – Intercontinental Hotels Group

- Sirius Building, Canberra, Australia – Mirvac Group

### BUILDING PERFORMANCE CHAMPION

Sponsored by Remeha Commercial

- Everyman Theatre, Liverpool – Waterman Building Services

If you control energy  
**efficiently and precisely**, you create  
 the optimum working environment



**SAUTER creates the best working environments in London**

Exceptional architecture meets good environmental practice; exceptional energy efficiency meets good service.

We supply products, systems and services for integrated Building and Energy Management Systems, which ensures your investment is long term and which helps you reduce your operating costs.

If you wish, we will work with you from your initial idea to the day-to-day running of your building.

For further information contact:  
 Gary Williams on 0203 486 2045  
 or by email [gary.williams@uk.sauter-bc.com](mailto:gary.williams@uk.sauter-bc.com)

Systems  
 Components  
 Services  
 Facility Management



THANK YOU  
 TO OUR  
 SPONSORS



Recognising the people, products and projects that demonstrate engineering excellence in the built environment

Headline sponsor:



Media partner:



Sponsored by:



# HOW TO ENTER



THE CIBSE BUILDING PERFORMANCE AWARDS ARE FREE TO ENTER.

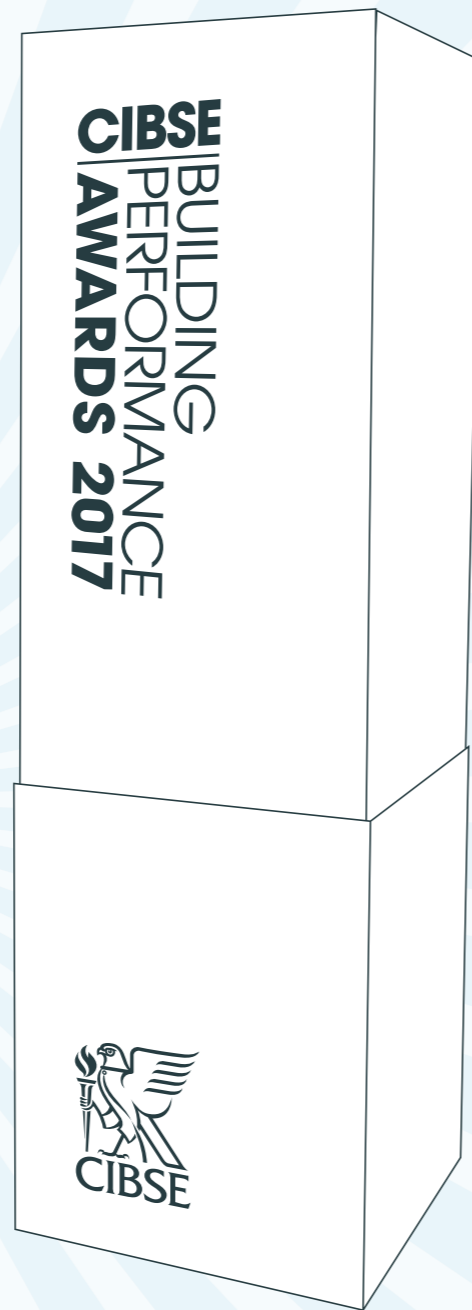
Entries are submitted online and to make the process as simple as possible there are template entry forms for each category. Entrants are also asked to provide supporting documentation and evidence to strengthen their submission.

Call for entries to the 2017 competition open on Monday 9 May and close on **Thursday 15 September 2016.**

To receive the latest news and updates about the awards please sign up to our newsletter at [www.cibse.org/bpa](http://www.cibse.org/bpa)

**E:** [awards@cibse.org](mailto:awards@cibse.org)  
**T:** +44 020 7880 6226

**Follow on twitter**  
[@CIBSEAwards](https://twitter.com/CIBSEAwards)  
[#BPA2017](https://twitter.com/BPA2017)



## REGISTER NOW

[www.cibse.org/conference](http://www.cibse.org/conference)

The CIBSE Conference and Exhibition are focused on the efficient design, construction, maintenance and operation of buildings and the systems that support them.

Featuring:

- Award winning aspirational case studies from the 2016 CIBSE Building Performance Award winners
- Speakers highlighting and debating the issues faced by the building supply chain
- Exhibitors showcasing the latest innovations and solutions for improved building performance



## Performance. Inspiration. Aspiration.

17-18 November  
**2016**  
QEI Centre  
Westminster, London  
[@CIBSE](https://twitter.com/CIBSE) [#CIBSEconf](https://twitter.com/CIBSEconf)

For more information please contact Michelle Michelucci today on 01892 518877 or email [conference@cibse.org](mailto:conference@cibse.org)

### Why Attend?

- Learn from the most innovative and influential built environment professionals
- Discover effective solutions to deliver building performance
- Keep informed about changes to legislation and the most critical issues facing the built environment
- Advance your career by receiving over 10 hours of CPD over the two days
- Raise your profile, meet and network with like-minded industry professionals
- Refreshed inspirational programme with new speakers, debates, and best practice

2015 Supporting Partners:



Principal Media Partners:



With thanks to our headline sponsor:



With thanks to our media partner:



With thanks to our sponsors:



The Chartered Institution of Building Services Engineers (CIBSE)  
222 Balham High Road, London SW12 9BS  
General enquiries: +44 020 8675 5211 | Email: [info@cibse.org](mailto:info@cibse.org) | Website: [www.cibse.org](http://www.cibse.org)  
CIBSE is a registered charity number 278104

CIBSE Building Performance Awards  
Enquiries: +44 020 7880 6226 | Email: [awards@cibse.org](mailto:awards@cibse.org) | Website: [www.cibse.org/bpa](http://www.cibse.org/bpa)

