Entry Form
Collaborative Working Partnership Award

This award recognises examples of collaborative working that have delivered outstanding outcomes on one or more new build or refurbishment projects. It rewards integrated processes such as BIM that deliver comfortable, sustainable, low carbon, energy efficient buildings that satisfy the needs of the organisations and people who use them.

Entries may be submitted for collaborations either within the UK or overseas and should be for projects completed during the period **1 September 2012 - 31 August 2014.** The judges will be considering completed entries which are accompanied a full year of operational data.

Please complete the entry form below. The headings reflect the judging criteria and the judges will be looking for you to provide the relevant information under each heading.

Submission instructions

1. Complete and save this document
2. Click here to submit your entry online
3. Complete the required fields and follow the instructions on the online entry system
4. Upload your entry form and supporting documents.
5. Click finish to submit your entry

If you have any questions then please contact us on 020 7880 7625 or by email to lois.hunt@redactive.co.uk.

Entrant details

Full name	Job title
Mark Gifford	Consultancy Development Manager
Organisation	
IES	

Project details

Project name	
As you wish the entry to be referred to throughout the competition.	
John Lewis, York store	
Project address(es)	
John Lewis, Unit C, Vangarde Way, York YO32 9AE	
Project completion date	
March 2014	
Date the building was first fully in use after the project completed	
10 April 2014	
Start of the 12 month period for which performance data is provided	
April 2014	
Organisations	
Please provide the names of all organisations that you would like to be credited in your entry. Please ensure that the company names you list are accurate as we may reproduce these on screen and in print. It is essential that you have the consent of all those named below to include them.	

Building Services Engineer:	Lateral Technologies
Building Owner:	John Lewis
Building Occupier:	John Lewis
Project Manager:	Click here to enter text.
Quantity Surveyor:	Click here to enter text.
Brief Consultant:	Click here to enter text.
Architect:	Click here to enter text.

Interior Designer:	Click here to enter text.
Mechanical / Electrical Engineer:	Click here to enter text.
Contractor:	Click here to enter text.
Investment / Property Company:	Click here to enter text.
Developer:	Click here to enter text.
Facilities Manager:	Click here to enter text.
Other:	Next Control Systems (Controls company), IES (software/technology provider and consultants), Airedale (Chiller Manufacturer)

Summary

Please provide a synopsis of the project and its building performance, low carbon and energy efficiency objectives.

Lateral Technologies and John Lewis have been working collaboratively for over 16 years to reduce the energy consumption of John Lewis stores. For the past 7 years Lateral Technologies have been using the IES Virtual Environment (IESVE) building performance analysis suite at an advanced level to anlayse the operational efficiency of John Lewis stores. In 2012 IES Consulting joined the team to bring its revolutionary IES-SCAN technology which allowed Lateral Technologies to take operational monitoring and energy management to the next level. IES-SCAN takes data directly from a buildings BMS system and calibrates it with the design model to show any gaps in terms of predicted and actual performance and help deliver soft landings. The controls company, Next Control Systems, also joined the team at this time and were responsible for extracting the data from the BMS system to share with IES and Lateral Technologies. Together this team helped John Lewis to create its most sustainable store to date, John Lewis, York.

The stores achievements include:
The first department srore in the world to receive a BREEAM Outstanding certification. (see supporting documents, item 01)
A reduction of 43.8% in absolute carbon emissions compared to the benchmark, equating to 13.8% further savings than the original expectations of 30%. (see supporting documents, item 03)

John Lewis had set a target to reduce absolute carbon emissions by 15% across all its stores by 2020. Because the retailer is growing and adding new shops, achieving this target meant that Lateral Technologies had to set a target to reduce the carbon emissions of new stores by 30% compared to existing stores. This included John Lewis York, one of the newest department stores in Vangarde Shopping Park, York. The 30% reduction benchmark was set against a previously built store in Exeter.

To help John Lewis achieve this, Lateral Technologies used the IESVE to analyse the performance of the York store and find the best energy saving strategies. Using operational data taken from the benchmark store in Exeter, Lateral Technologies were able to build a more accurate design model of the York store, which helped them to design the store more effectively and achieve higher efficiency levels.

Energy saving measures taken included a 450kw chiller which required 25% less energy than those in other stores, Photo Voltaics (PV) roof panels to generate 4% of the store's electrical energy from a renewable source, building air permeability of less than 3 m3/(h.m2) and full LED lighting, all requiring 43.8% less energy. (see supporting documents, items 05, 06, and 14)

In a collaborative working partnership, Lateral Technologies have continued to monitor the operational data from the York store, collected with the help of Next Control Systems and using IES' state-of-the-art energy management tool, IES-SCAN, which allows them to import the actual building data back into the model, so they can continuously analyse the occupied building to quickly identify any performance gaps to deliver a soft landing.

Entry Details

Please outline how your entry meets each of the entry criteria – judges will be looking for information in each of the sections when assessing the entries.

Any documents, charts or photos should be referenced and included in your supporting documents.

Evidence of early appointment, involvement and contributions from the full team.

Lateral Technologies have been working with John Lewis since 1999. Originally commissioned to carry out Engineering Technical Management (ETM) work, the companies began to work more frequently together over the years and from 2004 onwards they have worked together year on year, project after project.

John Lewis was one of the first major companies to set out serious sustainability targets and to its word it has decreased its energy consumption and improved its sustainability measures year on year since 2001, when the company began to publicly report its sustainability performance, and has done every year since.

In 2011 Lateral Technologies was commissioned by John Lewis to evaluate the energy efficiency of 20 of its existing stores throughout the UK. The brief was to identify potential energy saving measures and to implement them by alterations to the BMS control systems. In addition the monthly metered energy consumptions were to be monitored as part of an ongoing process in order to both evaluate the project success and to also allow the team to identify any 'abnormal' power consumption spikes.

Lateral Technologies decided that the best approach was to model each store in the IESVE using information collated from site inspections and as-installed drawings/specifications reviews. Once the geometry was built the team then, using the existing BMS data and specifications, replicated the exact existing controls philosophy and HVAC strategies/time channels within the IESVE Apache HVAC module to allow them to get a close approximation of how the building was currently performing. (see supporting documents, item 08)

Although Lateral Technologies have been using IES software for a many number of years, IES Consultants joined the team for the John Lewis, York project in 2012, at the schematic design stage bringing it's cutting-edge SCAN technology (see supporting documents, item 09) and expertise to the project. As a technology partner, IES provided the SCAN platform for hosting the data, analyzing the data, and the capability to feedback the data to the design model. As consultants, IES helped to train and educate Lateral Technologies on the new technology and help guide the process. Inputting the operational data into the model improved the accuracy of the model. IES got involved in the project at the schematic design stage to ensure the monitoring points were installed to enable monitoring and commissioning to be carried out by Lateral Technologies down the line of the project. (see supporting documents, item 02, signed contract between Lateral and IES)

For this project Next Controls Systems came on board as the data aggregator, bringing to the project the BMS expertise, hardware and onsite works, they took care of the physical data acquisition.

Lateral Technologies were responsible for the design work, configurating the system and setting the 30% benchmark by which all new stores had to meet to achieve John Lewis' targets.

Collaborative and effective team working practices: common processes such as shared IT and project documents, adoption of processes such as BS 1192 as well as effective communications within the team.

A number of processes were put in place to ensure the team worked as collaboratively and effectively as possible. An agreement with Next Control Systems was carried out to ensure an effective back-up data process for sharing the data from the BMS system whereby, Next Control Systems set up an automated email system which emailed the data out to Lateral Technologies and IES on a daily basis in a suitable format for uploading the data to the 3D model. (see supporting documents, item 02, emails between team members)

A custom email address for data collection purposes was set up by IES which allowed all appropriate persons form Lateral Technologies and IES to receive the required data.

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.

Effective use of BIM to enable collaborative working.

From the outset of the project, tasks, data exchange formats, project goals and standards were all agreed on, 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 buildings lifecycle, from concept to schematic and detailed design on to commissioning and monitoring.

The workflow of this project consists of elements that are in line with the aspirations of BIM Level 3. Evaluating building performance and implementing energy saving strategies through knowledge gained from operational data from existing assets. This enabled significant cost and energy savings during operation to be achieved in any existing or new assets being procured.

(see supporting documents, item 02, emails between team members)

Active specialist contributions to successful project delivery.

IES provided specialist technology and consulting services in the form of it's Virtual Environment software and VE-SCAN technology - new technology fresh from its R&D division. Lateral Technologies used the IES VE to model the energy efficiency of John Lewis stores and brought in IES Consulting to help them embed SCAN into their process. (see supporting documents, item 09)

IES consulting developed a back-end driver which automatically extracted the received CSV data channels and uploaded it directly to the SCAN web server. With the help of IES, Lateral Technologies have now incorporated the SCAN technology for all energy savings works with John Lewis and other clients. The company saw the value in incorporating real time Trend controls data back into the VE in an effort to close the performance gap even further than what they were already achieveing.

It is the hope of the project team that in the coming years they can have a full portfolio of John Lewis building models that incorporate the real time controls data and that this powerful tool will enable even more understanding of how these building are operating. This will allow the team to be even more aggressive than they currently are with plant specifications and should allow John Lewis not only significant operating cost savings but in capital expenditure as well.

Another specialist contribution was that of Next Controls. They used their intelligent Building Optimisation System (iBOS) which blends a 'software as a service' (SaaS) model with expert engineering resource to improve overall building performance. iBOS is a cloud based toolset that can acquire data from any building technology and apply performance analytics and profiling to create a rapid and sustainable return on investment.

The data was streamed from the York store Building Energy Management System (BEMS) through the John Lewis network to the Next CSL servers which then automatically packaged the information and provided it to IESVE for Lateral to use in the Dynamic Simulation Model. (see supporting documents, items 10 and 16)

Selection and procurement of equipment by performance and whole life value, not just price.

By using a more advanced modelling system, the team were able to propose procurement of a smaller chiller. Being able to input actual control settings meant they could create a realistic system and ensure optimum size of the plant and reduce the chiller size by 40% whilst maintaining optimal efficiency and load requirements. Reducing the size of the chiller, not only saved significantly in capital costs it also meant that the running costs were also dramatically reduced.

(Supporting documents, item 04) illustrates the difference in predicted plant sizes using various design scenarios available: Steady State Method, Dynamic Simulation Method (DSM) and Enhanced DSM

By having greater control over the inputs into the system the team were able to fine tune the design and provide the optimum plant selection for projects to provide the most cost effective and efficient design solutions.

The selected chiller was a new type of chiller manufactured by Airedale. As one of the first of its kind to be installed, there were a few teething issues with the installation. Some operational control faults were identified by Lateral Technologies during the commissioning phase. Airedale were informed of these faults and as a result were able to fine tune the chillers to ensure they were running at their maximum efficiency levels.

Long-term relationships between the client and the supply chain.

John Lewis and Lateral Technologies have worked together on a variety of projects for the past 16 years. IES have worked with Lateral Technologies as a Technology Partner for John Lewis projects for the past 6 years and both IES and Lateral Technologies have worked with Next Controls Systems for just over 6 years.

Delivery of the project(s) on time and budget, meeting the client's aspirations.

The project was delivered on time and budget exceeding the clients sustainability goals and aspirations, by being the first ever department store in the world to achieve a BREEAM Outstanding certification, reducing the carbon emissions by a further 13.8% against the benchmark and making the store the most sustainable John Lewis store to date. (See supporting documents, items 01, 03, 13 and 15)

Lateral Technologies were awarded with 2 awards from John Lewis for their contribution to the design of the York Department Store Project
The Awards were:
• Responsible Development Innovation
• Carbon Reduction

(See supporting documents, item 13)

Evidence of energy performance and actual operating costs against predictions, and of overall life-cycle costs of the building.

With this store being a new build, the team were able to provide simulations to allow analysis of predicted energy (See supporting documents, item 16). From the initial model Lateral Technologies were able to see how the energy loads and carbon emissions would compare with the benchmark store at Exeter, the 30% reduction target, and furthermore allow for design revisions to be made to ensure the targets were achievable. (Supporting documents, item 03) illustrates the carbon emissions targets for this project and the predicted emissions for the store.

It can be seen from (supporting documents, item 03) that the York store exceeded the 30% reduction, and that an approximate 44% net reduction against the Exeter Benchmark figure could be achieved.

The data from the store has been monitored for a full year, and on a monthly basis collated to track ongoing performance (See supporting documents, item 11). From monitoring in this way the team were able to split the data into end use categories which enables better analysis and allows areas of concern to be highlighted and assessed quicker. (supporting document, item 12) illustrates the predicted and actual energy usage for York against the benchmark store in Exeter.

It can be seen from (supporting document, item 12) that the actual monitored data collected for York is significantly reduced compared to both the predicted and benchmarked loads.

Using the IES SCAN technology, Lateral Technologies were able to download real time monitored data from the meters on site and bring them into the IESVE model to analyse further against the predicted loads. They also used the data from the Exeter benchmark store to guide the design and from here the team were able to produce greater detailed charts, thus giving a major advantage in the monitoring of the stores energy use, to ensure continuation of reduced energy, emissions and costs for John Lewis.

Evidence of client and occupant satisfaction with completed projects.

Google Reviews (proof of occupant satisfaction)

"Probably the best John Lewis store I have visited and will definitely go again if in York!"

"Ultra modern store with expert staff."

"Really great shopping experience"

https://www.google.co.uk/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=John+Lewis+York+store+customer+reviews&lrd=0x487931fae94b4999:0x75cedb606b6f7047,1

Extract from John Lewis website (Proof of client satisfaction)
(see supporting documents, item 13)

Our most sustainable shop so far:

"One of the biggest challenges when planning a new shop is how we find a better and more sustainable way of building and operating the store. We're particularly proud of John Lewis York as it's our most sustainable shop to date and includes the following initiatives:

- A roof-mounted solar energy system made of photovoltaic cells to generate energy. The cells use the sun's rays to store heat and convert it into electricity.
- An air displacement system will reduce our energy usage and carbon emissions
- LED lighting throughout the shop.
- A wildlife wall which will create a safe habitat for passing migrating bats.

BREEAM
In July 2014 John Lewis York became the first department store in the world to be awarded BREEAM Outstanding status. BREEAM is the world's leading measure of a building's environmental performance and sustainability with 'Outstanding' being the highest award."

http://www.johnlewis.com/our-shops/york

Quote from article by York and North Yorkshire Chamber of Commerce

A Better Way Of Doing Business
"John Lewis York is the culmination of hard work, technological innovations and a commitment to find a better way of doing business in the future, with suppliers, local authorities, communities and customers.
The sustainability initiatives and community engagement that have gone into building the new department store has not only secured industry recognition in the form of BREEAM 'Outstanding' accreditation, it also clearly demonstrates the Partnership's commitment to leading the way in building a responsible and sustainable future."

http://www.yorkchamber.co.uk/john-lewis-york-achieves-breaam-outstanding-rating/

Further information
Please provide any further information, evidence or references that you would like to include in your entry.

Click here to enter text.

Supporting documents
Entries should include supporting documents or evidence to supplement this written part of the submission.
All supporting documents should be collated into one PDF document for upload.

Please explain in a list or one or two sentences what your supporting documents add to your submission.

The following supporting documents all provide evidence to illustrate or backup the points made throughout the entry:

Item 01 BREEAM
Item 02 Collaborative Working
Item 03 Carbon Targets
Item 04 Chiller Sizing
Item 05 Photo Voltaic (PV) Panels
Item 06 Air Test Certificate
Item 07 Displacement Ventilation Design
Item 08 Enhanced Modelling Approach
Item 09 Cutting-Edge Technology (SCAN)
Item 10 BMS Data
Item 11 Annual Data Log
Item 12 Energy Use Analysis
Item 13 Client Satisfaction
Item 14 LZC Feasibility Report
Item 15 Case Studies and Journal Articles
Item 16 3D Model Images
Item 17 Site Photographs