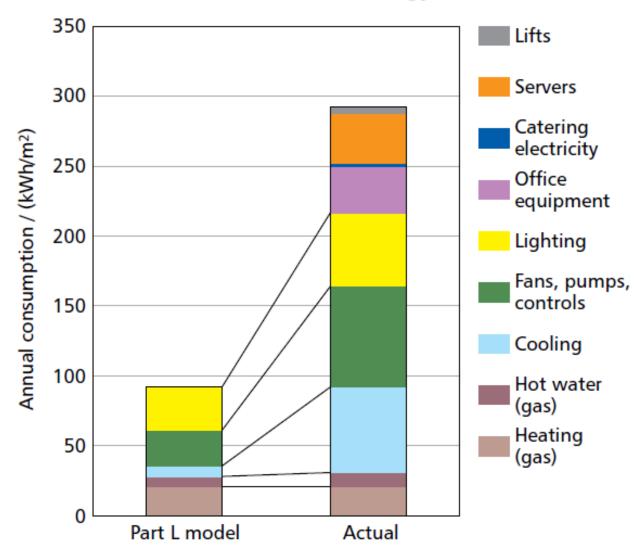
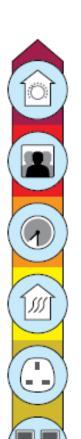
How much energy is your new building going to use?

David Cheshire Richard Belfitt AECOM

Part L model versus actual energy use







Building management



Operating hours



Small power equipment

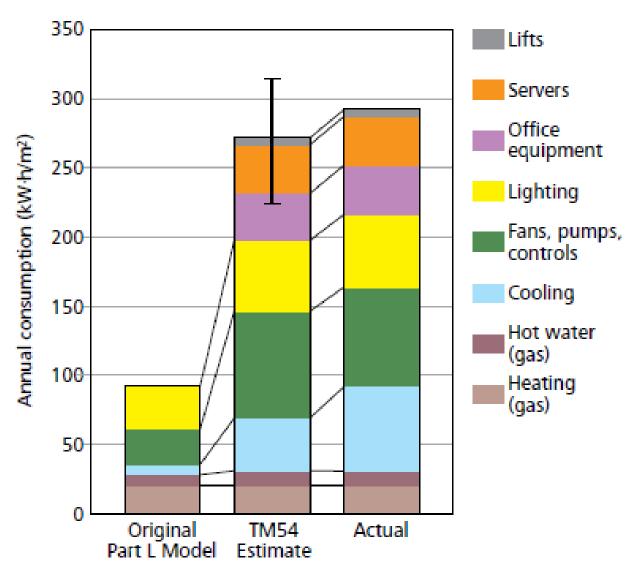
ICT including servers, telecoms

Assumptions and simplifications in models

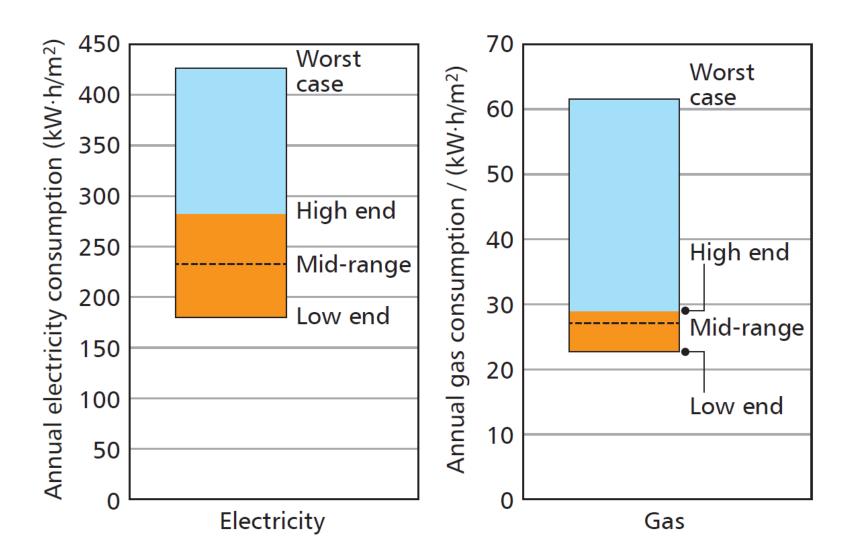
Part L calculations



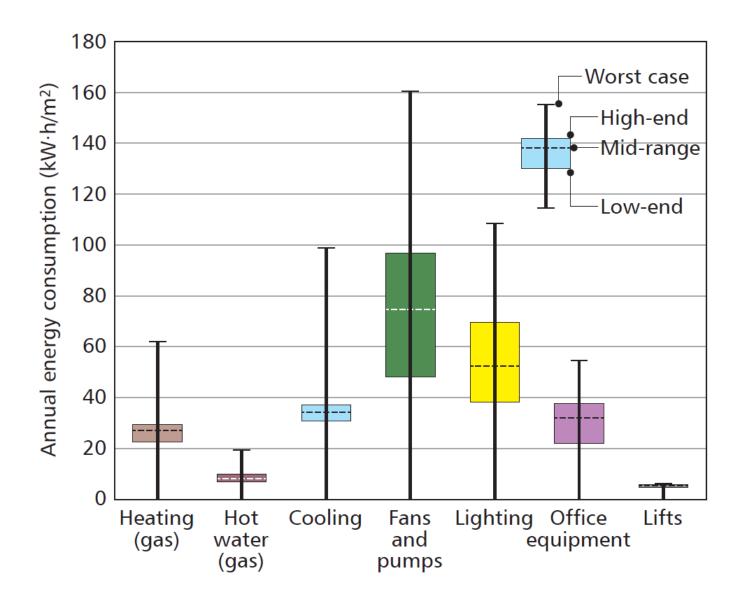
Part L model versus TM54 estimate versus actual



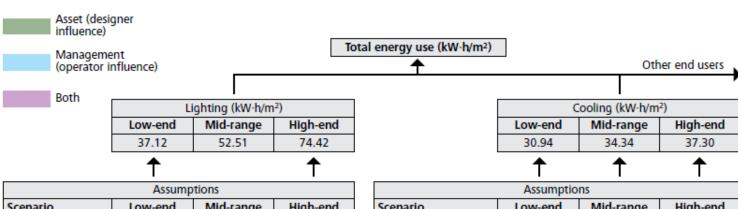








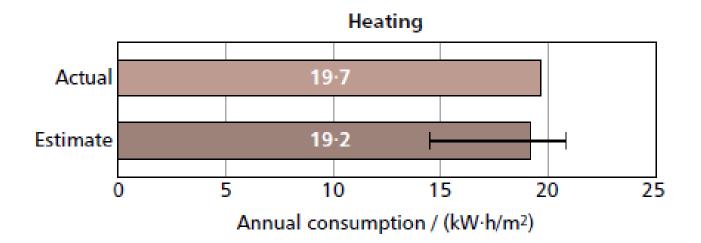


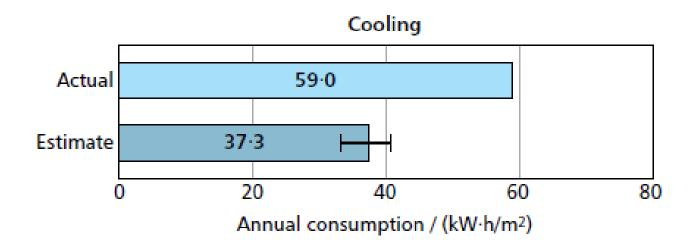


Assumptions				
Scenario	Low-end	Mid-range	High-end	
	Fully functional controls, excellent management and no weekend operation	Partially functional controls, average management and weekend operation	Non-functional controls, poor management and extended hours of operation	
Total installed power (kW)	366	366	366	
Constant illuminance factor	1.0	1.0	1.0	
Occupancy dependency factor	0.90	0.95	1.00	
Daylight dependency factor	0.90	0.95	1.00	
Daylight time usage (h)	2620	3504	4346	
Non-daylight time usage (h)	500	500	750	
Parasitic control energy (kW·h/m²)	5.00	5.00	5.00	
Parasitic emergency energy (kW·h/m²)	1.00	1.00	1.00	
Management factor	1.00	1.05	1.10	

Assumptions				
Scenario	Low-end	Mid-range	High-end	
	Excellent management, no weekend operation and low internal gains	Average management, weekend operation and average internal gains	Poor management, extended hours of operation and high internal gains	
Chiller cooling capacity (kW)	1450	1450	1450	
SEER	3.5	3.5	3.5	
Lighting gains (W/m²)	0.0	0.0	0.0	
Small power gains (W/m²)	13.5	15.0	17.0	
Small power gains (out-of-hours) (W/m²)	1.5	2.5	5.0	
Fan coil unit gains (W/m²)	6.8	6.8	6.8	
Servers gains (W/room)	1500	1500	1500	
Occupant gains (m² per person)	6.0	6.0	6.0	
Occupancy hours	3120	4004	5096	
Management factor	1.00	1.05	1.10	







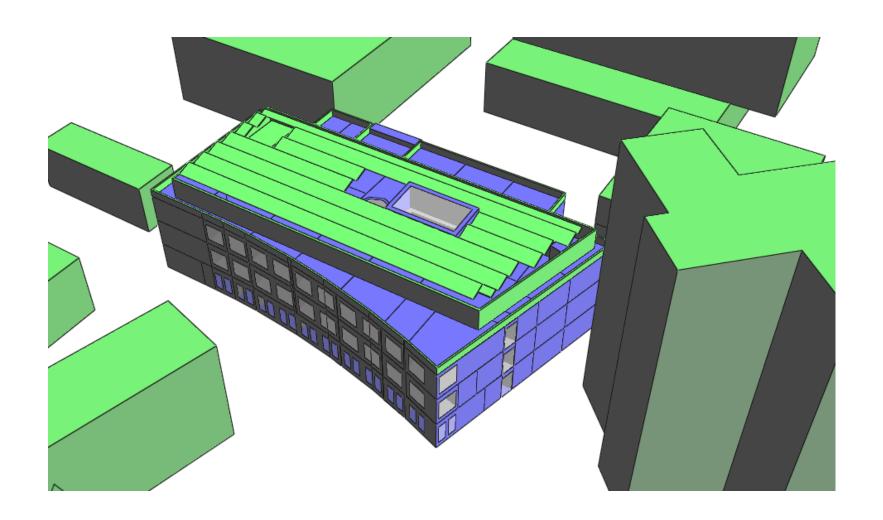




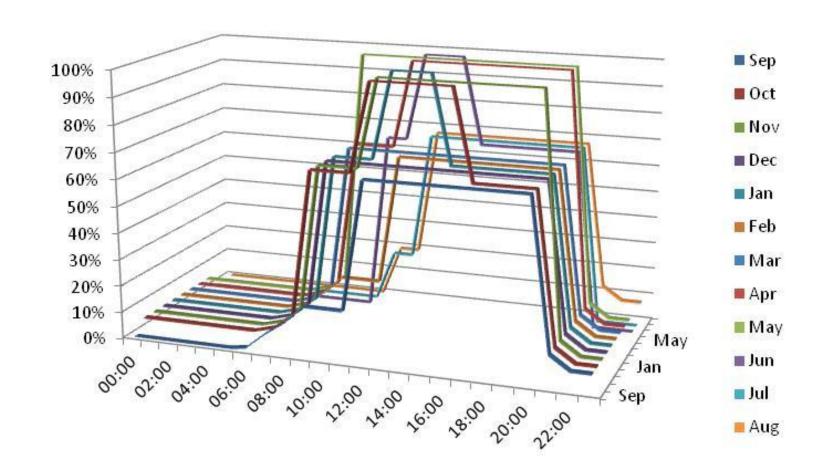




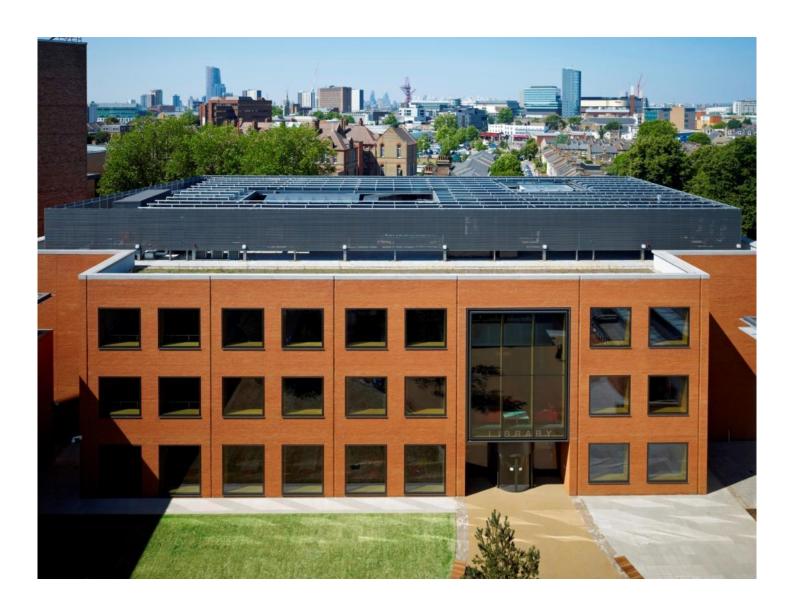










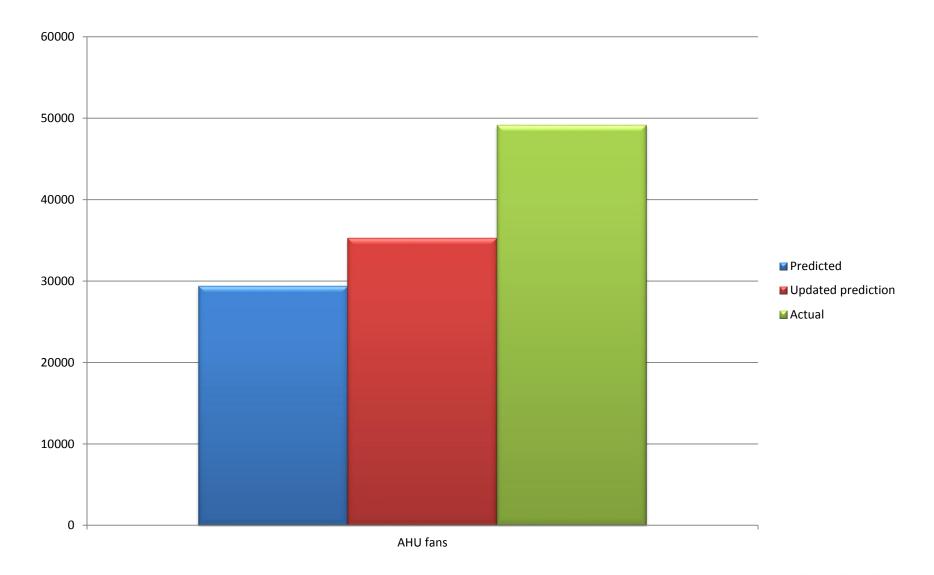






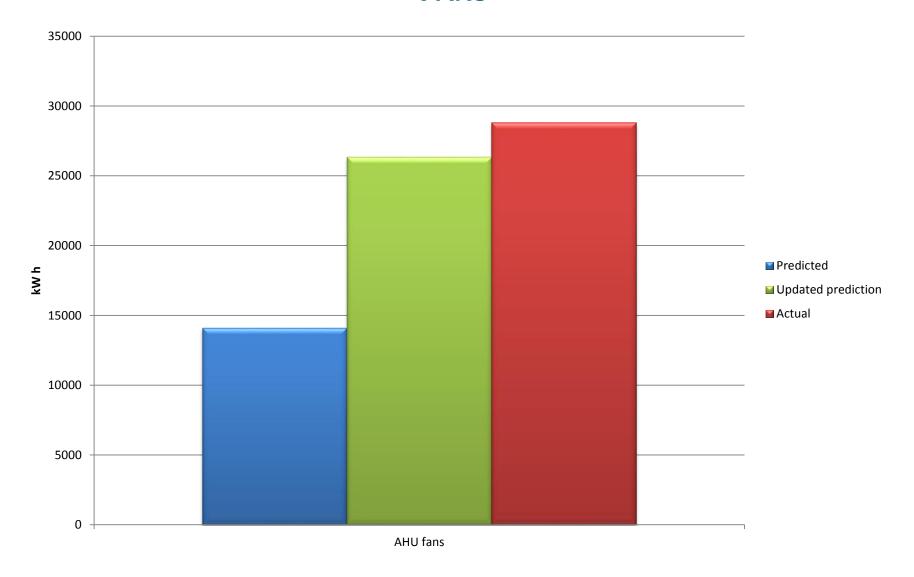


FANS





FANS

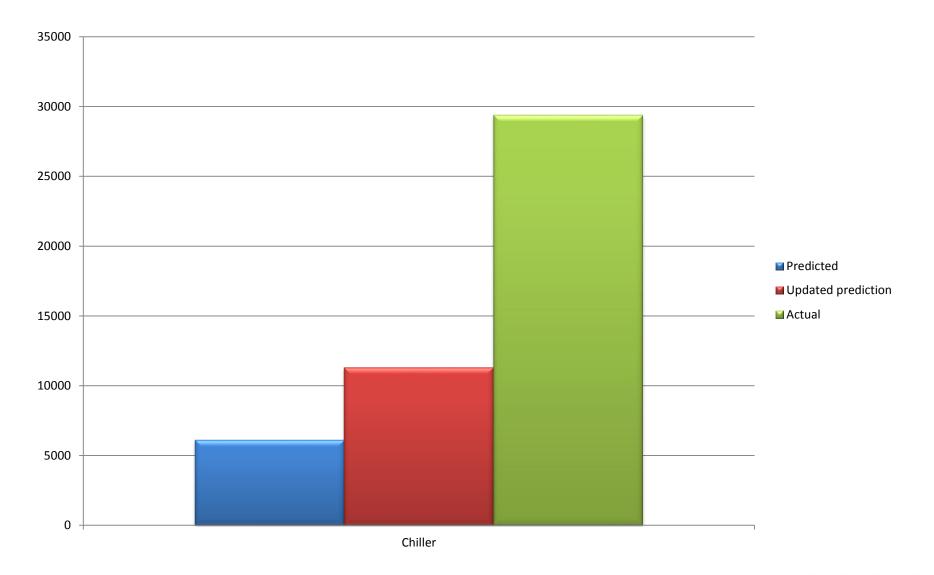




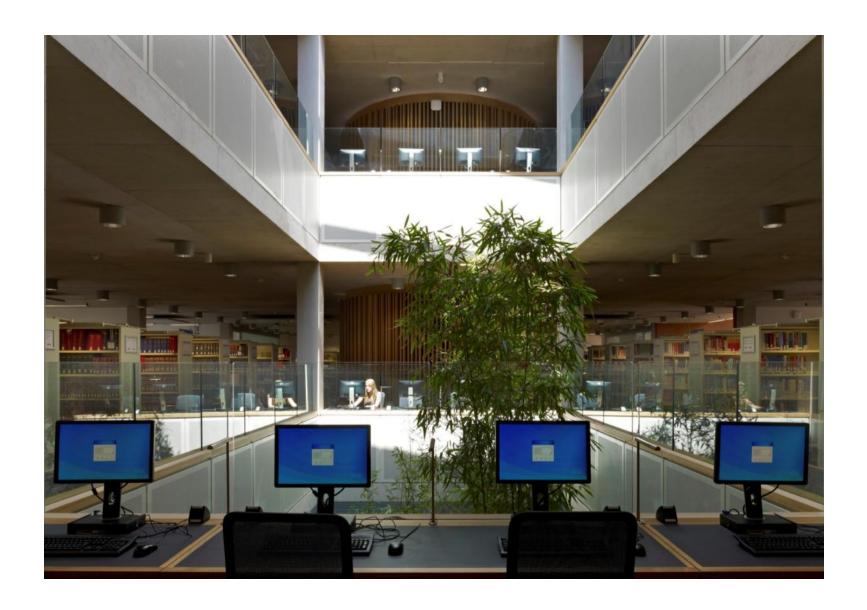




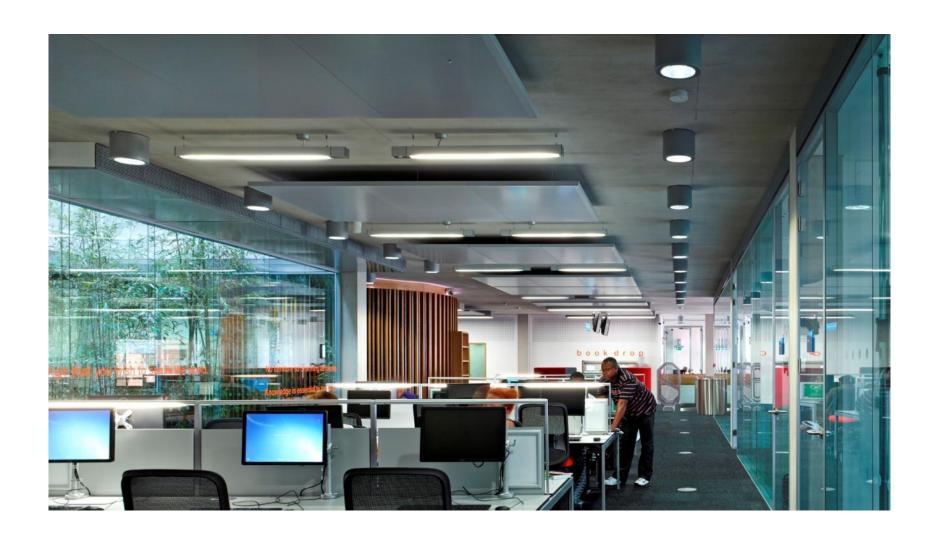
CHILLERS





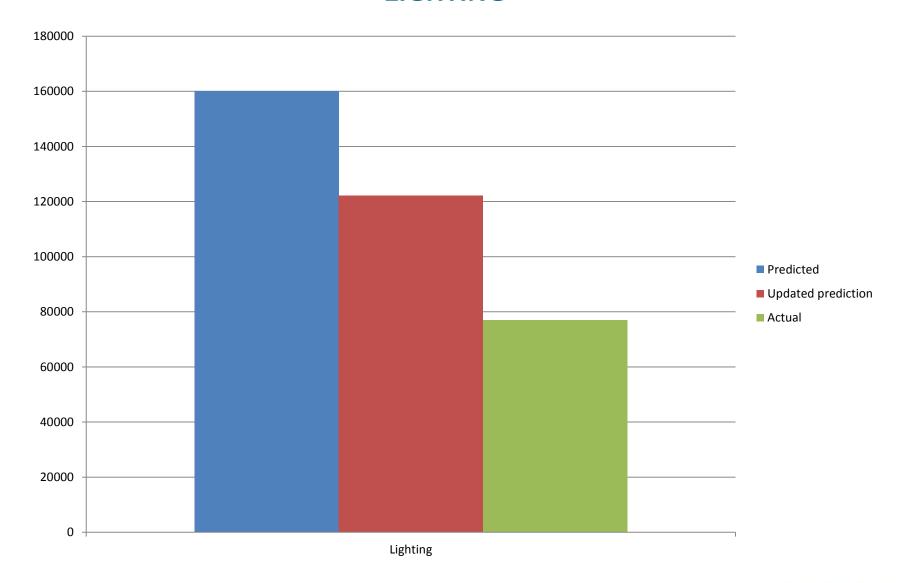








LIGHTING





Corporate Showcaller Workshop

January 20, 2015 from 11am to 4pm -

Kate Salberg's courses are always lively

and popular. Broaden your horizons and

get showcalling tips and advice from one of the best Arena and Corporate

Event showcallers in the business.

Guild House

Morning

CIBSE has released a new Technical Memorandum, TM54, 'Evaluating operational energy performance at the design stage'. The guide takes an in-depth look at how to plan for a building's actual energy use and profile far ahead of implementation David Cheshire, Lead Author, Regional Director of Sustainability, AECOM said: "The aim of the quidance is to enable designers to make better estimates of operational energy, identify the range of possible outcomes and therefore show how designs can be improved to deliver on the

predictions. The Technical Memorandum includes a preface in which Justin Snoxall, Head of the Business Group, British Land, explains that buildings account for nearly half of the UK's carbon emissions. As CIBSE Carbon Champion of the Year 2013, British Land is an exemplar company committed to increasing the performance of its buildings and has now reduced energy use across its

London portfolio by 60 London portfolio by 60 Building.CO.UK from TM54 can help dr energy demand. All CIBSE guidance is

www.cibse.org

In order to produce a design stage estimate of operating carbon emissions, it is recommended that design

teams follow the method set out in the Technical Memorandum recently published by the chartered Institute

Design Stage" (August 2013) sets out a standard method, and identifies a series of specific input assumptions

aligned with those set down in CIBSE Guide F. Provision of estimates against each end use category will be

Wednesday, 10 December 2014

ordered by non memb HOME NEWS ANALYSIS ECOBUILD AND SUSTAINABILITY BUILDINGS DATA PROFE

Debbie Hobbs, Legal and

General

Blogs, opinions and insights from BSRIA

SUPPORTING COMMUNITIES AND

Sustainability Brief for Developments

Energy Performance of Buildings at the Design Stage

← Government Soft Landings

Global BEMS Market set to Approach \$7 billion by 2020 -

Layng, M&G Real Estate,

Associate Director : Portfolio

Energy Management

"Building services maintenance contractors have a key role in reducing carbon emissions from our existing building stock"

Carry out thermal modelling in accordance with CIBSE TM54 Operational

The title of this not managed c Mitch Layng, M&G Real

The UK has a target of an 80% reduction in o this target cannot be achieved without reducing our energy

existing non domestic buildings. These 1.8 million buildings account for UK's total carbon emissions, with a consumption of 300TWh

In addition to regulatory requirements that are in place to assist in the operational performance of buildings, such as building log books, metering strategy, air conditioning inspections. DECs for public buildings. ESOS, to name a few, there are many standards and good practice guides from recognised and respected bodies available to the industry to help in optimising energy performance

However, even where these are put into practice properly, the actual performance really comes down to the operational staff in control of the building and the services

and at a more granular level, depends on the competence and performance of the maintenance engineers

There are two key elements that need to be considered when agreeing maintenance contracts, understanding the design intent of the building services, and ensuring the clients' needs and business operations are clearly understood and a suitable maintenance regime is put in place.

It is challenging enough to ensure even with a new building, that the design intent is transferred across to actual operation, let alone in a building that has services twenty plus years old with little or no information available, and that may have had scores of different tenants and many different maintenance contractors. Studies have shown the n hetween design an ration exists due in part to a lack of understanding by the operational staff of that the process involving the design, commissioning and handover does olve the maintenance contractor. If the industry struggles to get a new building to operate as it should, even indings are included, what chance to we have with older buildings?



The real measure of sustainability

October 2013 | By Debbie Hobbs

he industry needs universally accepted re realistic about the true operation

> As a topic increasingly broached or even interrogated by investors, sustainability credentials are clearly now an

important factor in attracting new capital or retaining existing fund commitments. We at Legal & General are no strangers to this, with our managed property fund recently awarded the National Employment Savings Trust (NEST) ethical mandate for our ability to recognise the 'importance of sustainability in real estate construction and nanagement in terms of generating long-term value for

> et level? With a st (UN global compact iness in the

n Star, HQE, DGND, just a few), how do rtfolios against each of Building Services Engineers (CIBSE). TM54 "Evaluating Operational Energy Performance of Buildings at the

Is there a business case for green buildings?

Energy performance: Postulation or practice?

Let's hold firm on green

Sustainability: Green hotels

Above and beyond the rules on sustainability

3 Jul 14

10 Oct 13

s mantel is GRESB (Global Real Estate Sustainability ember with 543 funds participating worldwide nce and protect shareholder value by evaluating and

required. The method breaks overall energy consumption down into a series of end-use categories, which are ector (www.gresb.com). etting out to tackle this is EcoPAS, an interesting piece rtaken by IPD, which, now in its second year, 1-depth analysis of long term trends in sustainability

and building values. Although this will take a while to rends, it is the starting point for identifying the value that sustainability has on property performance (www.ipd.com/ecopas).

аоош те тие ореганопас performance of buildings

However, we still do not have a single, universally-used benchmark for assessing the sustainability of individual buildings, which means that ad assessing acquisition opportunities remains reliant on in-house bespoke systems in some measurements that do exist remain unrealistic about the true

CIBSE's new guidance, TM54: Evaluating op rational energy performance of buildings at the design stage, es that while design-stage energy models, based on the National lation Methodology guides, provide a useful way of contrasting the various design options on offer, they do rational energy output. Indeed the Part L model doesn't account for office equipment servers, lifts or realistic daily use of a building, therefore could estimate as little as a third of the real



ational performance of buildings attempts to tackle this issue head on. It beli



