The JCT Povey Lecture

The Journey to Deep Green™

Mike Putnam

6 December 2011

Introduction

On Tuesday 6 December the JCT Povey Lecture was given by Mike Putnam, President & CEO of Skanska UK. His lecture, entitled 'The Journey to Deep Green™', was presented at the Bevin Hall, Local Government House, Smith Square, London.

The JCT Povey Lecture is an annual event at which an eminent person is invited to give his/her thoughts on significant matters that are relevant to the construction and property industry.

The JCT Povey Lecture was inaugurated in 2003 as a public acknowledgement and tribute to Philip Povey who served the Joint Contracts Tribunal for 50 years.

Biographical Details

Philip John Povey – Barrister – commenced in construction as a legal adviser to the NFBTE, later became the Construction Confederation, in 1951. At the same time he began to assist the Joint Secretaries of the Joint Contracts Tribunal (the JCT).

Philip first became Director of Legal Services at the Confederation and then its Director General. He later became the first Secretary-General of the restructured Joint Contracts Tribunal Limited in 1998.

Philip's work for the JCT became well known through the publication of JCT Standard Forms of Contract, which in time found their way to many parts of the world. He had a keen mind, which steered him around what he viewed as the less important or parochial issues for which the industry seems to have a particular attraction and enabled him to get to the core of a problem and to resolve it. He was an extremely skilful draftsman who invariably managed to satisfy the demands of many disparate, often competing, bodies.

Although there were committees, working parties and individuals that provided valuable input, it was Philip who shouldered the burden of writing the text.

He retired from the JCT at the end of 1999 but died suddenly only 18 months later, in 2001.

About JCT

The Joint Contracts Tribunal was established in 1931 and has for 80 years produced standard forms of contracts, guidance notes and other standard documentation for use in the construction industry.

The Joint Contracts Tribunal is an independent organisation representing all parts of the construction industry and is the leading provider of standard forms of building contract. The following are Members of JCT:

British Property Federation Limited
Contractors Legal Grp Limited
Local Government Association
National Specialist Contractors Council Limited
Royal Institute of British Architects
The Royal Institution of Chartered Surveyors
Scottish Building Contract Committee Limited

and JCT Council is comprised of five Colleges representing:

employers/clients (including local authorities)
consultants
contractors
specialists and sub-contractors
Scottish building industry interests.

Chairman: Peter Hibberd MSc, FRICS

Chief Executive: Neil Gower BA Hons, Solicitor

Past Chairmen:

1931 – 1956	Sydney Tatchell CBE, FRIBA
1956 – 1960	Sir Percy Thomas OBE, PRIBA
1960 – 1973	A. B. Waters CBE, GM, FRIBA, FRIAS, PPCIArb
1973 – 1978	P. H. Bennett CBE, MA, FRIBA, FRSA
1978 – 1983	Norman Royce FRIBA, PPCIArb
1984 – 1988	Patrick H. Barry OBE, RIBA
1988 – 1995	Roger M. Squire MA, FRICS, FRSA
	A. M. Millwood OBE, FRICS, FCIOB (Acting Chairman – May to September 1995)
1995 – 2002	Roy Swanston Hon DSc, FRICS, FIMgt, FRSA
2002 – 2007	Christopher Vickers CBE, FRICS, ACIArb
	Neil Smith FRICS, MCIArb (Acting Chairman – December 2007 to February 2009)

SKANSKA

The Journey to Deep Green™

JCT Povey Lecture 2011,
Tuesday 6th December

Introduction

It is a privilege to be giving the address this evening to such a distinguished audience. I have read Paul Morrell's Lecture notes from last year's address on the subject of Ambition in an age of Austerity and I had the privilege of being present two years ago when Francis Salway was the speaker on 'Leading on Sustainability'.

My presentation tonight on The Journey to Deep Green™ has many common threads from those two very thought provoking addresses.

Francis reminded us of the need for:
- Individuals and companies to change behaviours
- Government to use 'carrot and stick' approach e.g. rates benefits for energy efficient buildings
- True partnering – to address complex inter-relationships that exist within our industry
- A focus on existing buildings – the 98% that we can easily forget about
- Measurement and benchmarking, which is critical to drive improvement.

Paul told us of the need for:
- Good design as an enabler - value is generated on drawing boards, rather than on building sites.
- Routine adoption of the potential of Building Information Modelling (BIM)
- Industry leadership
- Benchmarking, which must be an important priority.

Interestingly, Paul also commented that PFI has shown that architects can enjoy working with contractors and contractors are understanding how to work with designers.

The industry leadership theme, in particular with regard to Green construction, strikes a real chord with me, aligned with the need for benchmarking, for integrated collaboration and early involvement of all key parties, especially at the design stage.

I have a captive audience this evening and would like to share with you the journey that Skanska is on with regard to green leadership in project development and construction and how I believe this can be a road map for us all. An important journey whereby the path we follow in terms of what we build and how we build it can ensure near-zero environmental impact. I am not saying that Skanska is perfect or that this is the only way, but I do hope that I can convince you (if you need any convincing!) to join us on this or a similar journey of your own.

But first a very brief introduction to Skanska for those not familiar with the organisation.

Skanska was founded in Sweden in 1887 – we are celebrating our 125th anniversary next year and have been present off and on in the UK since the first telecoms project in Leeds in 1897 and then full time since November 2000 when the Trafalgar House construction business was acquired from Kvaerner. The company is listed on the Stockholm Stock Exchange. I believe our Swedish background has provided us with an important heritage in terms of the green agenda. Some say that the Swedish national flag, being blue and yellow is a great start in making us green!

- We are a developer as well as a contractor investing in major infrastructure projects as well as in the residential and commercial sectors
- Revenues for 2010 totaled some £11bn (SEK 122 bn)
- We have 52,000 employees and 96,000 suppliers
- We are a member of the United Nations Global Compact which means that we are committed to aligning our operations and strategies with ten universally accepted principles in the areas of human rights, labour, the environment and anti-corruption
- In the UK we have revenues of around £1.3bn and employ approximately 4600 people. We are primarily a contractor, but are getting back into house building with our first project in Cambridge. We are also an investor in infrastructure projects and get involved with some commercial developments
- We are proud to have been awarded The Greenest company in the UK across all industries by the Sunday Times in 2011 and the British Quality Foundation's 2011 Achievement Award for Sustainable Future.

Personally, I am a long standing employee with over 25 years service. I am a civil engineer by background, although I have spent my career working across the whole industry. For nearly 20 years I have lead and managed businesses – the last two of which have been as President and CEO of Skanska UK.

I am passionate about industry change, I believe strongly in leadership and behaviours influencing outcomes and driving change – above all I am a big believer in the Green Agenda. In addition to leading Skanska's Green Agenda in the UK, I am building my own new, contemporary, green home.

I am also a member of the new Government Green Construction Board.

We are living in challenging times but I am a strong believer that adversity can bring out the best in people. There are challenges but there are also great opportunities and I will touch on both.

I am going to look first at the environment that we find ourselves in, the mega drivers that are influencing our planet and ultimately influencing our governments, our legislation and the way we do business - the way we 'contract.'

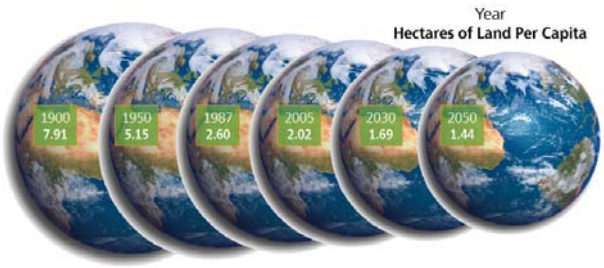
I will also go on to explain our Journey to Deep Green™ and the Skanska Color Palette™, the strategic tool that we are using to benchmark not just our own performance, but also that of our key stakeholders, including our clients!

Looking ahead, the industry leadership that Paul referred to is something that I believe all of us must grasp and show our political leaders how to use the Green initiative to help drive economic growth. Not surprisingly I have some thoughts on that as well.

Strong rationale for going Green

But first a quick reminder of the mega drivers out there and the need for a Green approach to our built environment.

Population
In 1900 the world's population was 1.6bn. Currently it is about 7bn and it is forecast to rise to more than 9bn by 2050. Which means that by 2050 there will be 1.44 hectares of biologically productive land per head of population. It is estimated that we need 2.2 hectares per person to survive.



Source: WTO 2007, Geodata Portal compiled from UNPD 2007 World bank 2006

Urbanisation
2007 was the first time that more people lived in cities than in the countryside. Over half of the world's population now live in urban areas, a figure which is expected to reach 60% by 2025 and 70% by 2050.

Source: UNIC, World Urbanization Prospects: 2005 Rev.

Carbon
Urbanisation, combined with a growing global population, has created an enormous demand for energy including that derived from fossil fuels like coal, gas and oil. One of the main consequences is man-made climate change because of the carbon dioxide produced when these fuels are burned.

Water
By 2030 over 2.1bn people will live in areas with acute water scarcity. This may not yet be of immediate concern for any colleagues from Scotland here this evening – perhaps even an opportunity! However in London the rainfall per capita is less than in Madrid. The water issue will only get bigger as the planet's population grows, and the effects of climate change become more apparent. It does beg the question, when will we stop flushing our toilets with drinking water? We have to start saving water and using and re-using it more wisely.

Source: Global Env. Outlook 2000 (GEO), UNEP, Earthscan, London, 1999

Society
There is a growing ground swell from society to take greater care of our planet, for greater corporate responsibility. Our young people especially are seeing and driving the need for change. We find that our employees' are proud to be associated with a Green company, and new recruits are attracted by it.

What the above means is that these drivers are putting pressure on scarce resources, resulting in public pressure and government legislation to take action.

In terms of legislation, in the UK we have a target to cut emissions by 80% from 1990 levels by 2050. In part the government hopes to tackle the problem using its Green Deal Scheme, which will allow homeowners to approach their energy supplier for a loan to cover the cost of insulation, rather than paying in advance.

We have requirements for all new homes to be zero carbon by 2016 and new commercial buildings by 2019.

The built environment is responsible for more than 40% of the country's carbon emissions, half of the water consumption, a third of landfill waste and a quarter of all raw materials used in the economy. Over a third of all energy and material resources are used to operate the built environment. Over a third of total solid waste results from construction and demolition activities.

All of this is driving demand for: More green urban infrastructure, green buildings and green refurbishment, energy efficiency, renewable energy, local material sourcing, leaner designs, water efficiency, the avoidance of waste, less carbon emissions and the need to do what is right for the environment.

The green trend that is gathering pace will affect how we live, work and travel, how we do business and how we plan our cities. Being green is essential for any company that cares about its people, its brand, its reputation and its investors – a condition for doing business. It is also important for any city, region or country that wants to attract new people and investors.

Already today, non-green buildings cost more to operate and their value is declining, which means that both commercial and public investments are at risk.

Political decisions have a huge impact on our clients and their needs for the future. When we ask them what green products or services they would prefer Skanska to focus on in the next two to four years, they are clear about what they want, more energy-efficient designs and low carbon solutions.

The focus for us and our clients therefore, lies in cutting energy demand in buildings and reducing our project carbon footprints. However in the years to come, the focus will increasingly be on how to produce sustainable energy locally and to share that locally produced energy with others.

A recent survey (CBI / KPMG) of 477 UK businesses revealed that nearly all firms (95%) have concern about the cost of energy over the next five years, with the worries particularly intense among manufacturers, with 75% saying they are very concerned about the future price of energy.

Surveys also indicate that green and energy efficient properties command higher value, and they are also proven to be liquid in any market. In the US for example, properties are sold at prices that are 13 per cent higher than comparable non-green buildings. In Stockholm we found that a new green development at Hammarby commanded a 15% premium over similar non-green developments. Although we have had a remarkable downturn in the economy over the last few years, our green development properties have been divested on, or above, market values. Sustainability has been high on our agenda for more then a decade - being ahead of legislation, to prevent fade in market valuations is important.

Our recent 'Towards Zero' research report revealed that the green retrofit and refurbishment market in the UK is gaining momentum, and has the potential to become the next big thing within the commercial property sector. Over 50% of respondents agreed that there has been an increased interest in green retrofits and refurbishment within the commercial sector. Over a third were currently undertaking or had recently completed green retrofit or refurbishment projects.

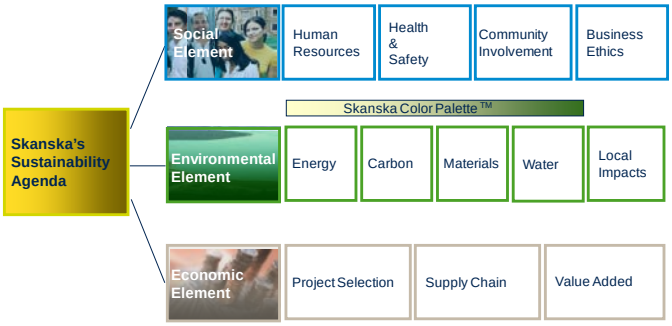
Green investment in refurbishments increases the value of an investor's portfolio. Taking sustainable parameters, such as carbon taxes and high energy standards, into the market valuation is a way of future-proofing the buildings and extending the lifespan of the investment.

Pay back for any investment is important. In the fit-out for our own Skanska offices on the 32nd floor of the Empire State Building in New York, we set a target of achieving LEED Platinum status (the highest LEED rating) and to ensure the extra investment of $250,000 would be paid back within the 15 yr lease period. After 2 years of operation our energy bills would indicate that this will be paid back within 5 years. We will then save $500,000 over the last 10 years of the lease.

Skanska's Journey to Deep Green™

I would like to share with you Skanska's Journey to Deep Green™ and what that means to us.

First let me explain our overall sustainability agenda, and the link to the Skanska Color Palette™ which is the key strategic framework and communication tool that maps and drives our Journey to Deep Green™.



At the global level Skanska has been inspired by the Global Reporting Initiative when developing its own Sustainability Agenda. This has been adapted and consolidated into a number of high priority areas, with three key elements social, environmental and economic.

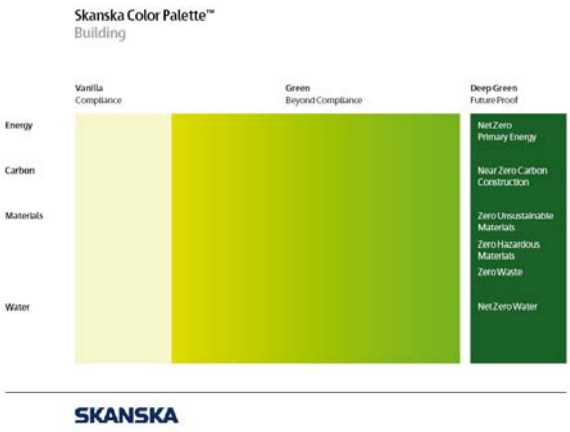
The Social Element - consists of four priority areas which address our interaction with our workforce - that means our employees and sub contractors, the marketplaces and communities in which we operate, and also how we operate.

The Environmental Element - consists of five priority areas. Four of these are of global significance, Energy, Carbon, Materials and Water and form the basis of our Color Palette™ and one, Local Impacts, is important with regard to biodiversity where we mitigate the impact of our operations on flora, fauna and related ecosystems and any possible contamination of the land, air and water, or through increased noise levels.

Economic Element - covers our selection and execution of projects for clients and how we use our purchasing activities to support Sustainable Development. When done well, these activities contribute significant added value to the societies in which we operate. Bearing in mind that over 70% of our revenue flows through our supply chain.

Now let me explain the Skanska Color Palette™ a little more. (And I should point out that no, it is not a typing error, American English is Skanska's business language!)

The Color Palette focuses on 4 key areas:



- **Energy** – which relates to operational energy
- **Carbon** - embodied carbon (the construction stage)
- **Materials** - efficient use / reuse of sustainable and non-hazardous materials.
- **Water** - minimising the use of potable water

On this, vanilla represents compliance, where what we construct and how we construct it just meets today's codes, norms and standards. At the opposite extreme, Deep Green is where the construction process and product performance has a near–zero impact on the environment and thereby future proofs our projects in relation to six key indicators (Net zero primary energy, near zero carbon construction, zero unsustainable materials, zero hazardous materials, zero waste and net zero water).

In the middle is the green zone where the process and product is beyond compliance, but not yet at a point where what we construct and how we construct it can be considered to have a near-zero environmental impact. An unstable area to be in as new codes, regulations and expectations are constantly changing and exerting a pull back into vanilla.

Internally we have stepping stones through this Green zone to allow us to position our projects and monitor our progress. Codes and regulations are changing and becoming more onerous (which is an important driver on this journey) but it means we have to keep changing, keep improving, keep innovating just to stand still.

We have developed our own project carbon foot printing tool that supports our value engineering, performance benchmarking and interaction with our supply chain.

The following are some examples of projects that are at various stages of our Journey to Deep Green™:

Brent Civic Centre – this project is under construction for Brent Council at Wembley, and we are aiming for BREEAM outstanding certification. Some of the features are:

- Energy – anticipating a 65% improvement over building regulations in terms of energy use. (The building has bio fuel combined cooling, a heat power plant which modulates output to meet demand, second generation waste bio fuel which gains government financial incentives. There is mixed mode displacement ventilation, an advanced building management system and air source heat pumps integrated into the air handling units).
- Carbon - 50% GGBS cement replacement is used throughout the building, reducing the carbon footprint of the concrete by 33% - 25% recycled content within concrete mix
- Materials – the current recycling rate is 94% (Through site waste segregation and trade contractor engagement)

- Water - making use of rain water recycling, rain water for toilet flushing, cleaning, and irrigation. There are duel flush toilets, low flow taps and showers, water sub-metered to BMS with leak detection.

Öresund Green – a residential, product in Malmo, Sweden:

- It uses approx 60% less energy for space heating & hot water than the Swedish energy standards
- The greater construction costs of an Öresund Green house can be repaid in 4 to 6 years through reduced energy costs
- A solar heating system is used which provides around 65% of the house's domestic hot water
- It uses approximately 30% less water than a typical Swedish house.

Bertschi School, USA - designed and constructed according to the Living Building Challenge (LBC) guidelines. LBC requires that buildings perform as modeled for one year prior to receiving certification, and the project is expected to become the first "Living Building" in Washington State – and the fourth in the world, in 2012:

- It achieves net-zero energy by generating its electricity from an on-site photovoltaic solar system
- It achieves net-zero water usage by managing and filtering the site's rainwater and greywater.

Lustgården – an office building of 55,000m2, currently under construction by Skanska in Stockholm:

- Energy consumption will be 50% of Sweden's building code requirements, helped by, low speed air handling units, a double heat recovery system and a Skanska patented ground source cooling system, which operates without the need for a heat pump. 'Passive House' windows are also incorporated, which are triple glazed and filled with inertia gas. The project carbon footprint is being monitored and low flush fixtures are being used to reduce potable water use.

One and Two Kingdom Street, London - we worked alongside a consultant to calculate the total carbon footprint of both projects, which were constructed as part of the Paddington Central development:

- Two Kingdom Street is a 13-storey office building that was calculated to have a total carbon footprint of 92,230tCO_2e or 2.6 tCO_2e/m2 over a 60-year operational period. Operational carbon is responsible for 61% of the carbon footprint and embodied carbon 39%, which has been influenced by the energy efficient nature of the building.

M25 – it is not just building projects that can be mapped on our Color Palette TM , we also use it for our civil infrastructure projects . The M25 has some excellent green features:

- Small equipment such as weather stations are powered with PVs. Trials are being carried out using LED lighting and intelligent management systems with potential for energy savings in the order of 35%
- Carbon footprinting has helped focus our attention on the use of recycled steel for sheet piles and on reducing the use of sheet piles where possible
- Major savings have been made on materials with the use of recycled aggregate and asphalt. The project is a net importer of waste when recycled aggregates have been taken into consideration, importing materials for recycling such as glass sand
- Potable water use has been reduced by 10% through its re-use for dust suppression.

The M25 project has received a CEEQUAL excellent rating, CEEQUAL being the assessment and awards scheme for improving sustainability in civil engineering, landscaping and the public realm.

As noted by Francis, some 98% of buildings are existing buildings and this is an area that we really need to focus on if we are going to make any impression on the energy use and carbon emissions associated with the built environment. A few examples of what can be achieved:

Österport office building, Malmö, Sweden – occupied by several Skanska operating units, Skanska's renovation of the Österport building in Malmö to LEED-EBOM (Existing Buildings: Operations and Maintenance) platinum certification, involved evaluating and improving the performance of the building's mechanical, electrical and building automation systems:

- It reduced the building's total annual energy consumption by 34%. Re-commissioning of the building's heating, ventilation and air conditioning (HVAC) system was responsible for significant energy savings. The adjustment and sealing of the heat exchangers and optimization of the air handling units annually saves over 90,000 kWh compared with prior to the redevelopment.
- Other improvements included night/weekend schedules for the HVAC system, filter replacements, cleaning of the ventilation systems and the heat exchangers, updating of the building automation systems and reducing air leakage in the main entrance.
- The building uses around 2,900 litres of water per occupant per year, which is over 30% less than the Swedish building code.
- Skanska sources 100 percent of the building's electricity from wind power.

Cambridge secondary school - we have evaluated a series of interventions on an existing secondary school in Cambridge to establish their cost effectiveness:

These included the use of photo voltaics, LED lighting, biomass boilers, voltage optimisation and a behavioural change programme. They showed payback periods of between 2 and 12 years, and combined, a payback period of 10 years when capital costs, energy savings and incentives were taken into consideration, with a CO2 saving of 50% .

And what of the future, where is this journey taking us? A few examples of 'leading edge' projects we are currently involved in:

Oregon Sustainability Center, Living Building Challenge Project - we are proud to be involved with this project in Portland, Oregon which is currently at early design stage, where the regions public, private and academic communities are collaborating to create a space to keep Portland in the forefront of the new green economy:

- This is a high density, mixed-use building, the tallest building to pursue meeting the Living Building Challenge (LBC).
- A critical feature of the design is to create a platform for developing the systems of tomorrow. This will allow companies to test new systems, components, and technologies in a unique 'living laboratory', allowing for rapid technological improvements and shortening the time-to-market.

Powerhouse, Trondheim, Norway - Skanska is in an alliance with 5 other key industry stakeholders as the preferred innovation contracting partner on what will be Norway's first 'energy positive building'. We are working together on the 'how', sharing knowledge and connecting to an industry research programme. We are also setting the agenda for the development of green buildings in Norway, working closely with the authorities on setting standards and regulations for future building developments. There is a strong focus on:

- Reducing electricity demand
- Smart ventilation
- Elimination of cooling
- Energy production

In the future we want to be offering Energy Performance Guarantees and hopefully net zero primary energy for a lot more of our buildings. In a longer perspective, Skanska will be a stake holder when it comes to renewable energy production, and we are currently focused on developing energy from wind and from waste.

Note: Living Building Challenge (LBC) - is a green certification programme that goes well beyond the industry standard in the US of LEED Platinum, and requires structures that have net zero energy, water and wastewater consumption and be built with non-toxic materials sourced to minimize the construction carbon footprint. The underlying principle is that all development projects should use nature as the ultimate measurement stick for performance – the Challenge uses the metaphor of the flower to illustrate this principle. All elements of the built environment are rooted in place. Yet, a flower has place-based solutions to meet all of its energy, water and resource needs and to maintain balance with its surroundings. So, imagine a building, site or infrastructure project that generates all of its own energy with renewable resources, captures and treats all of its water, and operates efficiently and for maximum beauty; and a neighbourhood that has scaled these solutions appropriate to its size and function. Certification is based on actual performance instead of modeled outcomes.

Leadership
Green leadership is one of the five key leadership focus areas within Skanska's overall 2015 Business Plan. How are we going about this bearing in mind that we are already one year into a 5 year plan?

Just over a year ago we undertook a major research project internally to understand the issues and challenges involved in achieving this ambition. Some of the key findings included:

- Further culture and behavioural change was required – starting with our leaders who must 'walk the talk'
- Visibility and enthusiasm of managers are important, with clear targets and incentives - they need to understand the 'why' and the 'how' as well as the 'what'
- Lots of opportunities were identified e.g. renewable energy (sun, wind, energy-to-waste), building refurbishment, energy guarantees, facilities management / waste water treatment, zero carbon buildings.
- The Color Palette™ was recognised as a great tool and one that can be used to clarify expectations and targets.

Francis and Paul stressed the importance of benchmarking and we have developed "Green Strategic Indicators" to address the findings in our research and drive forward our 2015 ambition to be the leading green project developer and contractor. The indicators focus on three Priority Areas (Image, People and Projects) which are essential to delivery of this leadership vision. The logic for this is as follows:

Our Image - in order to attract, recruit and retain the best people in the industry, we need to stand out from the crowd. It also means that we will be seen as a credible partner for stakeholders interested in Green Business.

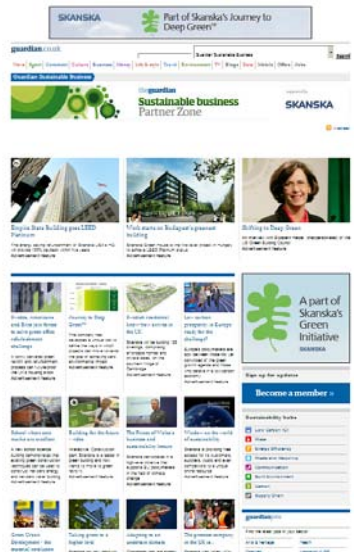
Our People - in order to get the opportunity to work with the best customers and projects, we need people who are competent and visible leaders in our markets. We have 2 indicators focussing on committed leadership and green competency.

Our Projects - using the Skanska Color Palette™ we have defined four priority opportunities when it comes to our Journey to Deep Green™, Energy, Carbon, Materials and Water. Indicators exist for each to help us on the journey to delivering projects that are future proofed.

There are seven key indicators in total – we used to have fifteen!

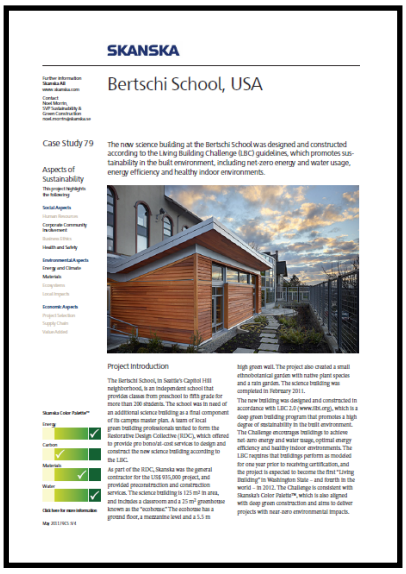
One of the biggest challenges facing any organisation when embarking on the type of journey I have just been outlining is the management of change. And that also relates to our stakeholders, from our own people, to major policy makers, clients, designers, our supply chain and the end user.

Communication and leadership are very closely linked. Raising awareness of the need for change and the benefits this can bring is important for successful implementation.



This means embracing the latest technology, including social media, to its fullest. For example we are currently working closely with The Guardian as one of their partners to promote their green "Partner Zone" on Guardian Sustainable Business website (www.guardian.co.uk/sustainable-business) one of the top-10 most read on-line news sites in the world with 2.5 million unique readers each day. The hub attracts over 60,000 unique users a month and other partners include Coca Cola, DHL, Veolia.

We publish Green journals on a regular basis such as Green Thinking and our Green Urban Development Reports. These help raise awareness and stimulate the green debate amongst our wider stakeholders.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Bertschi School, USA

Case Study 79

Aspects of Sustainability

The new science building at the Bertschi School was designed and constructed according to the Living Building Challenge (LBC) guidelines, which promotes sustainability in the built environment, including net-zero energy and water usage, energy efficiency and healthy indoor environments.

Project Introduction

We record each month the number of visitors to our external web site and in particular to the Sustainability Project Case Studies. Interestingly one of our projects in the UK, the North London Gas Alliance with National Grid, has for some months been consistently the most popular project on our worldwide web.

Our own people are a vital ingredient on our Journey to Deep Green™. Only by ensuring that employees from all areas of an organisation are involved, can an organisation successfully integrate improvements into its culture. Well motivated employees in leading organisations demonstrate an interest and commitment towards the business strategy and have confidence in the commitment and leadership of senior management. We are very proactive when it comes to engaging with our staff and understanding their expectations and needs. They have helped us shape our green culture.

As part of the Sunday Times employee questionnaire - an important element of their Best Green Companies assessment, our employee responses have continually improved over the last four years and the number of responses has quadrupled.

Skanska's annual 'Environment Week' is another good example of employee engagement. This gives us the opportunity to discuss and raise awareness of green issues, reflect on the progress we are making and embed it further in our DNA, including the green journey that we can take in our personal lives. In the UK we have been running this now for six years. It always proves to be a fun week at both project and office level up and down the country.

We believe there are many similarities here between the journey we have been on over the past 10 years with regard to Health and Safety and our current Journey to Deep Green™. Leading by example, listening to and understanding what the barriers are, 'walking the talk' by engaging in environmental tours, and working not just on what we want to achieve but on how we are going to achieve it.


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Green Solutions

Street Lighting Central Management System

Description

Skanska Infrastructure Development and Skanska UK use street lighting Central Management Systems (CMS), to remotely monitor and control streetlights making significant energy, carbon and financial savings.

We invest a lot of time in sharing our existing Green Solutions with our own staff and across our business, as well as working closely with our supply chain in encouraging the development of new Green Solutions. These include: energy management centers, hot water recycling, hybrid ventilation systems, heat and moisture recovery, voltage optimization, geothermal energy, solar photovoltaics, cogeneration (CHP) and tri-generation (CCHP), LED lighting, street lighting central management system and many more.

Sometimes the solution is not investment in new technology or specialist plant and equipment but in changing behaviours and helping to educate the end users of buildings on how to make the most of the facilities we have provided - post contract energy management, or commissioning the user (sometimes referred to as soft landings). Perhaps this is something that JCT can help promote through the development of a contract that will cover post construction operations management. I am thinking specifically with regard to an Energy Performance Guarantee backed by a Service Agreement for a fixed term - promoting energy efficient solutions in buildings that are fully utilised by the occupants.

I cannot emphasise enough the need for lifecycle costing. Often an initial higher investment is paid back over time, but there is a resistance in our 'quarterly economy' to invest in higher upfront costs. Skanska has developed an in-house Life Cycle Cost Optioneering model that looks at both current and future costs, which in addition to other key factors helps teams to make decisions today that will provide the best value for money into the future. This is supported by BIM (Building Information Modelling) and is extremely useful in communicating and promoting the benefits of green construction.

In 2008 Skanska made a commitment that all projects for which we have design responsibility would adopt BIM principles - this is a major undertaking, but the benefits are undisputable. Better to discover and resolve issues in the virtual world than in the real world – it costs less! We have also established our own BIM centre of excellence in Finland.

I was pleased to note that Lord O'Neill, chairman of the Strategic Forum for Construction, has advised Paul Morrell that coordinating industry's implementation of BIM will be one of five priority areas for 2012. BIM supports the Government's Construction Strategy and the potential of BIM to deliver key elements of that strategy, including reducing the costs of construction and providing a built environment which is efficient and effective.

We need to take waste out of the construction process if we are going to deliver the 20% savings required by the government. Implementation of BIM right through the project supply chain is fundamental to this. Clients need to take this into consideration when selecting the form of contract to be employed, and early contractor involvement is essential in order to reap the benefits of BIM.

As so much of our revenue flows through our supply chain we need to recognise that 'to build green' we need a green supply chain. A supply chain that brings the best people and the best innovation to our projects.

We work hard to align our supply chain with our green strategic objectives and I am pleased that our efforts have been acknowledged by, amongst others, the Mayor of London's Responsible Procurement Awards, and the Chartered Institute of Purchasing and Supply's (CIPS) 'Supply Management Awards 2011'. We have also been involved in the development of the new British Standard – a framework for sustainable procurement (BS 8903).

In 2010 we introduced the Skanska Supply Chain, Green Solutions Award, to encourage innovative green solutions that provide both environmental and economic benefits. This year we had 100 submissions, and it was a pleasure to be able to recognise the winners at our recent annual management meeting. It is amazing what a little encouragement can achieve.

We are playing a major part in Green Building Councils around the world, with a major leadership role in the US and helping to establish seven Green Building Councils in Europe.

We have a lot to do in terms of leadership but we are already reaping the dividends in many of our projects and we were proud this year to win the Sunday Times Best Green Companies Award for 2011.

There were some interesting comments from Alastair McCall, Editor of the Sunday Times Green List;

".. the first time a large company with a high environmental impact has won the contest"

And that Skanska is:

".. in the vanguard of efforts being made to transform what was once one of our 'dirty industries"

Our environmental performance is critical for the foundation of our Green business aspirations. We have to live green to build green – we use low emission company cars and we believe our own offices and development projects should be at the fore-front of delivering leading green projects.

And it is not just in New York that we are leading by example with our own offices, but also for example in Seattle, Orlando, Tampa and Atlanta in the US, and in Malmo in Sweden. Closer to home we are investing in our Woking offices and our Maple Cross UK head quarters with green interventions to show our clients and employees that we live as we learn.

Stakeholder responsibilities

Whilst a nation has an important role in setting overall goals and regulations and establishing incentives these can often take a long time to implement. By issuing local mandates, a city or local authority can set tougher, more specific goals which enhance national policies. Since local governing bodies own the most relevant tools for deciding planning and development, implementation can be achieved with greater flexibility.

In California for example development and construction must commit to building LEED-certified buildings in order to be allowed to purchase land and build.

In Stockholm a requirement for their major Royal Seaport project is that energy use should be half of the current norm and 0.5 parking spaces per apartment instead of 1.0 which is the standard.

The JCT Guidance Note - Building a sustainable future together 2011, is, I believe, a very useful document and captures well the role clients can play in green leadership.

'Sustainability objectives are best achieved when the client organisation is committed and takes the lead.

Clients need to look at the long term performance of the building. Equally important is the early involvement of the supply chain in the design and planning of the project in order to realise fully the sustainability objectives.'

We are always looking for intelligent and committed clients because we know that just as with health and safety, these are the clients, and their projects, which will motivate and drive us to out perform. We know from mapping our clients on the Color Palette™ that our greenest projects are often with our greenest clients.

Our construction and development sector is characterised by fragmentation. Also, the many stakeholders with different responsibilities create a complexity of interaction between the systems involved in an urban area, resulting in considerable barriers for green development. I strongly believe that multidisciplinary, collaborative working in the early design phase, instead of the traditional 'silo' approach, can serve to bring together clients, architects, engineers and other key players to create a shared vision. It leads to improved building performance, lower costs and fewer disruptions during later project stages. We know that it also leads to a better, more predictable project performance for us – this must also be true for our clients.

We have discovered that internal collaboration is equally important when you are part of a large international organisation such as Skanska, working across many different cultures and environments. Bringing together different skill sets and diversity leads to a far more dynamic and innovative organisation. Our Green Toolbox, which we use for internal knowledge sharing, and our Group wide Green Strategic Indicators, are tools to help facilitate this process.

Summary

To our politicians and officials at local, regional or national level, you have a big role to play in accelerating the greening of society by facilitating and encouraging, breaking down barriers and introducing incentives as well as regulation. We have seen, here in London, just how local politicians' in the form of both Mayors' of London have been massively influential in this area.

If you look behind many of the most advanced green initiatives, you will find visionary and passionate people. In many cities in the markets in which we operate, forward–looking Mayors and urban planners, companies and organisations, have achieved amazing results by leading, without waiting for national laws and regulations.

To our clients, architects, designers, surveyors and supply chain partners, I would say you can drive green building development by setting even more demanding targets in your own projects, engaging earlier, working in a collaborative way to deliver, and by looking at the big picture – the whole life cycle, include the operations and maintenance benefits.

An Energy Performance Guarantee backed by a Service Agreement for a fixed term is going to be a requirement for the future. An area where I believe JCT can bring its expertise to bear.

Together we can build a society that minimizes environmental impact, saves energy, reduces greenhouse gas emissions, prevents mountains of waste, avoids hazardous substances and saves water. A society that is less dependant on non-renewable resources. A Deep Green society.

Together we can shed for ever any slur of being a 'dirty industry' and one that has a 'high environmental impact'.

The UK construction industry has been a major leader on the world stage, but you can see from some of the examples that I have just drawn upon, that a lot of green innovation and a lot of great collaborative work is taking place in international markets, and pushing boundaries - we need to be part of this. The UK has provided BREEAM and CEEQUAL certification systems, and our expertise is valued the world over, but we cannot stand still or we will be drawn back into the 'vanilla zone'.

The Journey to Deep Green™ is simply a way to stay sound, prosperous and future proof in terms of our infrastructure assets. Green construction is good for our planet and it is good for business – a slightly larger investment today will yield even larger cost savings over time. In addition savings will increase as the cost of energy, water and waste treatment rise.

I hope that my description of our Journey to Deep Green™ has given one or two gems at least to everyone. We live in a competitive world, but there is much to gain from sharing knowledge and joining forces to collaborate and drive real momentum across our industry.

JCT launches Sustainability: Life Cycle Consultation

The purpose of this consultation by JCT is to collect data, informed views and opinions from property professionals, the supply chain and other stakeholders on life cycle matters within the context of sustainability and construction contracts.

The consultation will take place via an online questionnaire which can be accessed easily through JCT website at www.jctltd.co.uk/life-cycle-consultation.aspx

The consultation period will close on Thursday 5 April 2012, and the results will be published on the JCT website.

JCT Building a sustainable future together 2011

Building a sustainable future together is a guidance note showing how sustainability requirements can be provided for in the contract. It also provides information on key areas, such as procurement, different contractual approaches to sustainability, JCT's sustainability provisions, framing detailed requirements, building use and maintenance, and project evaluation.

For more details and how to purchase the guidance note, visit: www.jctltd.co.uk/building-a-sustainable-future-together.aspx

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