

# YOUR ACTION PLAN

---

Prepared by

The Chartered Institute of Building

# Table of Contents

DESIGN .....	4
DESIGN FOR EARLIER CONNECTION TO THE LONG-TERM ENERGY SOURCE.....	4
ENFORCE BETTER INSPECTION OF AIR CONDITIONING SYSTEMS .....	4
INITIATE A COMPREHENSIVE RETROFIT PROGRAMME FOR RESIDENTIAL AND COMMERCIAL BUILDINGS.....	4
MOVE TO LIFECYCLE ASSESSMENTS OF BUILDING ENERGY USE AND EMISSIONS.....	4
STRENGTHEN THE REQUIREMENTS FOR THE BUILDING REGULATIONS .....	5
STRONGLY ENFORCE THE BUILDING REGULATIONS.....	5
CONSTRUCTION .....	5
ADOPT BEST PRACTICE ENERGY USE IN CORPORATE OFFICES.....	5
ADOPT BEST-PRACTICE ENERGY MANAGEMENT ON SITE.....	5
ADOPT FUEL-EFFICIENT FREIGHT DRIVING AND RENEWABLE TRANSPORT FUELS .....	6
CONNECT TO THE LONG-TERM ENERGY SOURCE EARLIER .....	6
ENCOURAGE SUBCONTRACTORS AND THE SUPPLY CHAIN TO REDUCE THEIR OWN CARBON FOOTPRINT.....	6
PROMOTE GREENER BUSINESS TRAVEL.....	6
USE ENERGY-EFFICIENT PLANT, EFFICIENTLY.....	7
USE ENERGY-EFFICIENT SITE ACCOMMODATION.....	7
OPERATION & MAINTENANCE .....	7
BEGIN A PHASED INTRODUCTION TO EXTEND ANNUAL DISPLAY ENERGY CERTIFICATES (DECS) TO ALL NON-DOMESTIC BUILDINGS.....	7
BUILDINGS SHOULD HAVE A REGULARLY UPDATED OPERATIONS AND MAINTENANCE MANUAL... 7	
BY 2016, BUILDINGS SHOULD HAVE INSULATION MEETING CURRENT BUILDING REGULATIONS WHERE FEASIBLE.....	8
INTRODUCE A NON-DOMESTIC “CODE FOR SUSTAINABLE HOMES” .....	8
INTRODUCE SMART METERING TECHNOLOGY WITHIN ALL BUILDINGS .....	8
PROVIDE TRAINING AND SKILLS FOR ALL BUILDING TRADE PROFESSIONALS TO A RECOGNISED STANDARD .....	8
STRENGTHEN THE REQUIREMENTS OF THE BUILDING REGULATIONS.....	9
RETROFIT & RE-USE.....	9
CREATE A KNOWLEDGE HUB FOR RETROFIT .....	9
DEVELOP A COMPREHENSIVE STRATEGY FOR THE REFURBISHMENT AND RETROFIT OF THE UK’S EXISTING BUILDING STOCK .....	9
DEVELOP AN EDUCATION AND SKILLS PROGRAMME .....	9
INCENTIVISE OWNERS/OCCUPIERS TO IMPROVE THE ENERGY EFFICIENCY OF THEIR BUILDINGS.. 10	

INCREASE THE USE AND EFFECTIVENESS OF BUILDING PERFORMANCE TOOLS ..... 10

PROVIDE DESIGN GUIDANCE FOR REFURBISHMENT AND RETROFIT WORKS AS PART OF BUILDING REGULATIONS ..... 10

WASTE ..... 10

CO-ORDINATE PROJECTS TO ALLOW SURPLUS MATERIAL FROM ONE TO BE USED ON ANOTHER. 11

CONTINUE TO PRODUCE EFFECTIVE SITE WASTE MANAGEMENT PLANS..... 11

DESIGN OUT WASTE AT THE EARLIEST OPPORTUNITY ..... 11

ENABLE EARLY CONTRACTOR INVOLVEMENT IN PRE-CONSTRUCTION PHASE..... 11

MINIMISE THE WASTE THAT CANNOT BE DESIGNED OUT ..... 11

SKILLS & EDUCATION ..... 12

ALL COURSES SHOULD INVOLVE SITE-BASED EXPERIENCE FOR THE LEARNER ..... 12

FACILITATE, VIA ACCREDITATION, GREATER INTERACTION BETWEEN ACADEMIA AND THE INDUSTRY ..... 12

REVISE THE CIOB EDUCATION FRAMEWORK..... 12

SECURE RECOGNITION OF THE STRATEGIC VALUE OF CONSTRUCTION MANAGEMENT..... 12

UP-SKILL EXISTING WORKFORCE, INCLUDING AT TRADE LEVEL..... 13

WORK WITH SCHOOLS AND COLLEGES TO ATTRACT MORE YOUNG PEOPLE INTO THE INDUSTRY 13

LEADERSHIP..... 13

AGREE A STRUCTURE OF WORK WITH THE GOVERNMENT TO REDEFINE CONSTRUCTION AND TRACK LEGISLATION..... 13

AGREE CIOB POLICY FOR COMMON, RANKED, COMPARABLE REPORTING ..... 13

DEVELOP A CARBON INDEX ..... 14

ENFORCE CARBON EMISSION PERFORMANCE STANDARDS FOR COAL-FIRED POWER STATIONS .. 14

PROVIDE STRATEGIC DIRECTION AND SHARE BEST PRACTICE ..... 14

STANDARDISE THE DATA, REPORTING AND METRICS FOR CARBON EMISSIONS, GREENHOUSE GASES AND ENERGY..... 14

UNDERTAKE CPD RELATING TO CARBON REDUCTION ..... 14

CIOB ACTION PLAN ..... 15

DECREASE CARBON EMISSIONS IN OUR TRAVEL BY 10% BY 2014 ..... 15

DECREASE THE ENERGY CONSUMED IN OUR BUILDINGS BY 5% BY 2013..... 15

DEVELOP A COMPREHENSIVE CARBON MANAGEMENT STRATEGY..... 15

ENCOURAGE CIOB MEMBERS TO ACHIEVE GRI OR A SIMILAR ACCREDITATION ..... 15

INFLUENCE CIOB ACCREDITED EDUCATION PROGRAMMES AND CIOB AWARDED QUALIFICATIONS ..... 16

PROMOTE CARBON ACTION 2050 TO KEY STAKEHOLDERS..... 16

UNDERTAKE AN AUDIT OF CIOB BUILDINGS..... 16



## DESIGN



If designers are to continue to have relevance to our industry, there requires an open understanding that designs which cut carbon emissions and increase energy and resource efficiency will become an utmost priority.

### DESIGN FOR EARLIER CONNECTION TO THE LONG-TERM ENERGY SOURCE

Where appropriate, the use of the national grid for powering sites has the potential to reduce CO<sub>2</sub> emissions because the use of diesel for powering generators is significantly reduced. Connecting to the local energy source (e.g. local combined heat and power) is even better as an energy efficient supply. Building designers and construction programmers need to design and plan so that it is easier to connect to the permanent supply earlier.

#### MEASUREMENT

Kwh and Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

#### WHO SHOULD DO THIS?

Contractors, Design Managers, Architects, Clients.

### ENFORCE BETTER INSPECTION OF AIR CONDITIONING SYSTEMS

Better enforcement, regularity and thoroughness of air condition systems will result in less energy being used and an improvement on emission levels. Research on this is needed to establish a target.

#### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

#### WHO SHOULD DO THIS?

Building Control professionals, Central Government, Local Government, Energy Companies, Building Service Engineers, Facilities Management, Research Organisations.

### INITIATE A COMPREHENSIVE RETROFIT PROGRAMME FOR RESIDENTIAL AND COMMERCIAL BUILDINGS

This will have a positive impact on energy consumption and the reduction of emissions, as well as having the added benefit of reducing consumer energy costs. Research is required to measure the benefits of cost, timing, methods etc.

#### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr.

Data from Energy Performance Certificates (EPC) and Display Energy Certificates (DEC).

#### WHO SHOULD DO THIS?

Contractors, Subcontractors, Building Control professionals, CIOB, Professional Bodies, Design Managers, Architects, Directors, Heritage/Conservation Sector, Central Government, Local Government, Energy Companies, Property Sector, Facilities Management, Building Service Engineers, Research Organisations, Training Providers, Clients.

### MOVE TO LIFECYCLE ASSESSMENTS OF BUILDING ENERGY USE AND EMISSIONS

Lifecycle assessments (e.g. BIM) will allow building procurers and owners to be aware of the real cost of their design and building decisions.

#### MEASUREMENT

SAP energy assessment / Standard assessment / Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Contractors, Design Managers, Architects, Directors, Decision-makers, Central Government, Research Organisations, Clients.

---

## STRENGTHEN THE REQUIREMENTS FOR THE BUILDING REGULATIONS

---

The Building Regulations need to integrate the current published guidelines, such as the Code for Sustainable Homes, Passivhaus, etc. to become a more comprehensive design document.

### MEASUREMENT

Implementation of revised, strengthened regulation has taken place.

### WHO SHOULD DO THIS?

Building control professionals, Professional Bodies, Central Government.

---

## STRONGLY ENFORCE THE BUILDING REGULATIONS

---

Better enforcement of the building regulations, with particular regard to Part L, will result in reductions of carbon emissions and energy consumption of buildings in use.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Building Control professionals, Design Managers, Architects, Local Government, Central Government, Building Service Engineers, Facilities Management.

# CONSTRUCTION



Although construction processes represent a minor portion of the whole-life cycle of a building's carbon emissions, they are still responsible for the production of staggering quantities of carbon and command radical action to reduce them

---

## ADOPT BEST PRACTICE ENERGY USE IN CORPORATE OFFICES

---

Although remote from the site, the energy consumption (heating, cooling, ventilating, lighting and ICT) that takes place at the permanent corporate offices of industry firms is very much linked to the CO<sub>2</sub> impact of construction activities. In addition to the reduction of CO<sub>2</sub> emissions, initiating good-practice energy management of corporate offices results in cost savings with regards to energy, and demonstrates leadership in carbon reduction.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Contractor, Subcontractor, Design Manager, Architects, Facilities Management, Research Organisations.

---

## ADOPT BEST-PRACTICE ENERGY MANAGEMENT ON SITE

---

Particular input to best-practice energy management on site must come from clients, contracting firms, training providers and the professions. The 'Reducing the Footprint of the Construction Process' report highlights that efficient energy-management on site could result in an annual reduction in carbon of 28,000 tonnes, including a illustrative fuel cost saving of £7m.

Monitoring and analysis of energy consumption across projects, organisations and the employment of energy advisers for large-scale initiatives would further allow the industry to set and improve upon baseline targets.

### MEASUREMENT

Kwh and Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Contractor, Subcontractor, Professional Bodies, Directors, Decision-makers, Research Organisations, Training Providers, Clients.

---

## ADOPT FUEL-EFFICIENT FREIGHT DRIVING AND RENEWABLE TRANSPORT FUELS

All sectors within the building process have an input to ensure that fuel-efficient freight driving is adopted and renewable transport-fuels are used.

Adopting fuel-efficient freight driving and renewable transport fuels will result in an annual reduction in carbon of 180,000 tonnes, with an illustrative fuel cost saving of £32m.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Contractor, Subcontractor, Directors, Decision-makers, Research Organisations, Clients.

---

## CONNECT TO THE LONG-TERM ENERGY SOURCE EARLIER

Where appropriate, the use of national grid for powering sites has the potential to reduce CO<sub>2</sub> emissions because the use of diesel for powering generators is significantly reduced. Connecting to the local energy source (e.g. local combined heat and power) is even better as an energy efficient supply. In addition to reduction in emissions, cost savings can be made as well as an improvement in site safety.

### MEASUREMENT

Kwh and Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Contractors, Subcontractors, Directors, Decision-makers, Energy Companies, Research Organisations, Clients.

---

## ENCOURAGE SUBCONTRACTORS AND THE SUPPLY CHAIN TO REDUCE THEIR OWN CARBON FOOTPRINT

Contractors should encourage their supply chain to adopt best practice carbon management. Using this approach, individual businesses involved at every stage of a building's life-cycle work with each other to create a full carbon footprint, allowing carbon management across the supply chain.

### MEASUREMENT

KgCO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Contractors, Subcontractors, Directors, Decision-makers.

---

## PROMOTE GREENER BUSINESS TRAVEL

Business leaders can enforce greener business travel where it relates specifically to the construction process (i.e. not including employees driving to and from corporate offices or construction sites). This can include Smart Driving lessons for staff, greener options on the procurement and leasing of vehicles, greener options on selected passenger vehicles and company cars, promoting rail journeys instead of domestic flights and using remote conferencing instead of travelling to venues. As well as a reduction in emissions, these measures can result in cost savings with regard to purchasing fuel, insurance premiums and vehicle excise duties.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Contractors, Subcontractors, Architect Firms, Directors, Decision-makers.

### USE ENERGY-EFFICIENT PLANT, EFFICIENTLY

The use of energy-efficient plant in an effective way should be adopted by contracting firms, suppliers and manufacturers, and training providers.

The 'Reducing the Footprint of the Construction Process' report highlights that efficient use of plant could result in an annual reduction in carbon of 84,000 tonnes, including a fuel cost saving of £19m.

### MEASUREMENT

Kwh and Kg CO2 e/m2/yr

### WHO SHOULD DO THIS?

Contractors, Subcontractors, Directors, Decision-makers, Clients.

### USE ENERGY-EFFICIENT SITE ACCOMMODATION

All sectors within the building process have an input to ensure that energy-efficient site accommodation is used.

The 'Reducing the Footprint of the Construction Process' report highlights that energy-efficient site accommodation will result in an annual reduction in carbon of 200,000 tonnes, with an illustrative fuel cost saving of £45m.

### MEASUREMENT

Kwh and Kg CO2 e/m2/yr

### WHO SHOULD DO THIS?

Contractors, Subcontractors, Decision-makers, Clients.

## OPERATION & MAINTENANCE



The variables involved with operating and maintaining buildings are vast, including everyday use, designated uses of different space, the complexity of plant and equipment installed and, of course, the behaviour of the end user.

### BEGIN A PHASED INTRODUCTION TO EXTEND ANNUAL DISPLAY ENERGY CERTIFICATES (DECS) TO ALL NON-DOMESTIC BUILDINGS

DECs provide valuable data on actual energy usage and carbon emissions. This data can then inform the commercial sector to reduce their carbon emissions, ultimately resulting in cost and carbon savings. In this way, DECs provide a reputational driver for landlords and tenants to become more energy efficient. DECs are currently mandatory for public buildings that are over 1,000m2 in area.

### MEASUREMENT

kgCO2 e/m2/yr, kWh

### WHO SHOULD DO THIS?

Central Government, Local Government, Property Sector, Facilities Management, Research Organisations, Clients.

### BUILDINGS SHOULD HAVE A REGULARLY UPDATED OPERATIONS AND MAINTENANCE MANUAL



This gives a baseline level of optimum performance of building appliances and property generally. It is an invaluable tool for building owners and Facilities Managers to maintain the efficiency of the running of buildings through their lifecycle. This results in reduced emissions and better performance costs.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup> /yr - research would provide a scale of benefit to the building owner.

### WHO SHOULD DO THIS?

Building Control professionals, Facilities Management, CIOB, Professional Bodies, Directors, Decision-makers, Central Government, Local Government, Energy Companies, Property Sector, Building Service Engineers, Research Organisations.

---

## BY 2016, BUILDINGS SHOULD HAVE INSULATION MEETING CURRENT BUILDING REGULATIONS WHERE FEASIBLE

This relates to all cavity wall and roofing. Solid wall should be achieved by 2050. Improved insulation results in a reduction in emissions and an improved energy efficiency. Given that the energy loss of buildings is around 35% for walls, 25% for roofing and 15% each for floors and windows, the correct insulation of walls and roofing alone represents a 60% reduction - a significant saving.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr. EPC/DEC before and after insulation would evidence the precise savings.

### WHO SHOULD DO THIS?

Contractors, Subcontractors, Building Control Professionals, Directors, Decision-makers, Central Government, Local Government, Energy Companies, Property Sector, Facilities Management, Training Providers, ConstructionSkills.

---

## INTRODUCE A NON-DOMESTIC “CODE FOR SUSTAINABLE HOMES”

Non-domestic property currently has no design guidance covering its efficiency. Positioning such guidance would have a major impact on the reduction of CO<sub>2</sub> and improved energy efficiency.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr. Research would suggest a target date to be measured against.

### WHO SHOULD DO THIS?

Building control professionals, CIOB, Professional Bodies, Design Managers, Architects, Central Government, Research Organisations.

---

## INTRODUCE SMART METERING TECHNOLOGY WITHIN ALL BUILDINGS

Smart metering ensures that utility companies enable building owners to be more efficient. This results in a reduction of bill costs, improved energy efficiency and reduced CO<sub>2</sub>.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr.

A target set for the number of units required against the number issued.

### WHO SHOULD DO THIS?

Contractors, Building Control professionals, Central Government, Local Government, Energy Companies, Property Sector, Facilities Management, Building Service Engineers, Research Organisations.

---

## PROVIDE TRAINING AND SKILLS FOR ALL BUILDING TRADE PROFESSIONALS TO A RECOGNISED STANDARD

This is essential in order to meet the Government's energy saving targets. A badging/registration system would increase public awareness and trust. A recognised standard for the installation of ground source heat pumps, PV panels, etc. will allow the industry to move forward.

### MEASUREMENT

Number of training schemes in place, set by target date.

### WHO SHOULD DO THIS?

Contractors, Subcontractors, CIOB, Professional Bodies, Education Establishments, Central Government, Training Providers

### STRENGTHEN THE REQUIREMENTS OF THE BUILDING REGULATIONS

Current published guidance, such as Code for Sustainable Homes and Passivhaus Standards, should be incorporated into the Building Regulations.

A building in operation is not the same as building design so this change should be incremental to make it cost effective.

#### MEASUREMENT

Implementation of revised, strengthened regulation has taken place.

#### WHO SHOULD DO THIS?

Building Control professionals, Professional Bodies, Lobbyists, Central Government.

## RETROFIT & RE-USE



Retrofitting and re-using buildings is paramount to reducing carbon in the built environment. It maximises the use of an asset's embodied carbon, while rendering it as energy-efficient as possible.

### CREATE A KNOWLEDGE HUB FOR RETROFIT

Acquiring, disseminating and using information and data (i.e. Smart Data) in a centralised network will aid best practice and learning across the refurbishment and retrofit sector. Data relating to the UK's existing building stock, including 'before' and 'after' measurements, as well as feedback on ongoing monitoring tools will help to improve efficiency and reduce CO2 emissions. A consideration should be given to the historic environment.

#### MEASUREMENT

Kg CO2 e/m<sup>2</sup>/yr

#### WHO SHOULD DO THIS?

Contractors, Building Control professionals, CIOB, Professional Bodies, Education Establishments, Heritage/Conservation sector, Energy Companies, Property Sector, Facilities Management, Research Organisations.

### DEVELOP A COMPREHENSIVE STRATEGY FOR THE REFURBISHMENT AND RETROFIT OF THE UK'S EXISTING BUILDING STOCK

A strategy for refurbishment and retrofit fits into the Government's strategic framework for the improvement of the built environment. It generates a strategic view for improving a nation's stock - we know where we are now; we know where we're going to be. Research is required to give a baseline measurement, plus data relating to the refurbishment and retrofit of buildings - whole house, street, and neighbourhood is needed.

#### MEASUREMENT

A comprehensive retrofit and refurbishment strategy is put in place.

#### WHO SHOULD DO THIS?

Contractors, CIOB, CIC, Professional Bodies, Architects, Directors, Decision-makers, Heritage/Conservation Sector, Education Establishments, Central Government, Property Sector, Facilities Management, Building Service Engineers, Research Organisations, Training Providers, ConstructionSkills.

### DEVELOP AN EDUCATION AND SKILLS PROGRAMME

An education programme needs to be developed for the entire property and construction supply chain in relation to all aspects of the refurbishment and retrofit market. The programme should include

conservation and heritage issues. This is needed to ensure that we have the skills to effectively refurbish and retrofit our existing building stock, and meet carbon reduction targets.

### MEASUREMENT

A Sector Skills Council, higher and further education, and education establishment cross-sector programme is in place.

### WHO SHOULD DO THIS?

Contractors, CIOB, CIC, Professional Bodies, Architects, Directors, Decision-makers, Heritage/Conservation Sector, Education Establishments, Central Government, Training Providers, ConstructionSkills.

---

## INCENTIVISE OWNERS/OCCUPIERS TO IMPROVE THE ENERGY EFFICIENCY OF THEIR BUILDINGS

A range of incentives (such as regulation, fiscal reward, fiscal penalty) will encourage action, however this will importantly lead to raising public awareness, and provide education for building owners to improve their efficiency.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Central Government, Local Government, Energy Companies, Property Sector, Clients.

---

## INCREASE THE USE AND EFFECTIVENESS OF BUILDING PERFORMANCE TOOLS

The application and use of building-performance monitoring tools needs to broaden. Using existing, modified and possibly new tools, there needs to be a valid and consistent representative pool of publicly accessible and usable data, continually updated, for all types of existing buildings. This will facilitate the evaluation of existing, predicted and operational performance for informing, implementing and monitoring refurbishment and retrofit work, contributing to a knowledge hub as detailed above.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

Contractors, Subcontractors, Design Managers, Architects, Directors, Decision-makers, Heritage/Conservation Sector, Central Government, Property Sector, Facilities Management, Research Organisations.

---

## PROVIDE DESIGN GUIDANCE FOR REFURBISHMENT AND RETROFIT WORKS AS PART OF BUILDING REGULATIONS

Improvements in design guidance for refurbishment and retrofit could be achieved through enhancement of the Building Regulations. Presently there is insufficient guidance for these works.

### MEASUREMENT

A revision to the Building Regulations has been created.

### WHO SHOULD DO THIS?

Building Control professionals, Design Managers, Architects, Heritage/Conservation Sector, Central Government.

## WASTE



On the surface, construction waste and carbon may seem unconnected. But whatever we manufacture and ultimately dispose of is part of a wider scenario involving embodied energy and carbon. So it is fundamentally important that we continue to effectively manage and reduce construction waste

## CO-ORDINATE PROJECTS TO ALLOW SURPLUS MATERIAL FROM ONE TO BE USED ON ANOTHER

Where possible, send materials that would otherwise be recycled or sent to landfill to be re-used on other projects. Doing so saves carbon emissions from the waste process as well as costs that may arise both from landfill tax and the need to buy new materials.

### MEASUREMENT

Tonnes of waste re-used

### WHO SHOULD DO THIS?

Contractors, Sub-contractors, Consultants, Directors, Decision-makers, Clients

## CONTINUE TO PRODUCE EFFECTIVE SITE WASTE MANAGEMENT PLANS

SWMPs are set to be removed as a legal requirement on projects valued at over £300,000 from late 2013, but they carry enormous benefits from financial, environmental and regulatory perspectives. Since their implementation, construction and demolition waste sent to landfill has fallen considerably and so the principle of the plan should continue to be adhered to, not least as landfill tax itself will reach £80/tonne in 2014.

### MEASUREMENT

SWMP is in place

### WHO SHOULD DO THIS?

Clients, Architects, Design Managers, Contractors, Sub-contractors

## DESIGN OUT WASTE AT THE EARLIEST OPPORTUNITY

Waste needs to be tackled at the earliest possible opportunity – in this case, at design stage. Preventing waste, such as unsuitable materials that create large amounts of offcuts, should be targeted; re-use and recycling of materials on site should be considered; and on projects involving the use of BIM, the benefits of its use in terms of waste management should always be considered.

### MEASUREMENT

Tonnes of waste saved

### WHO SHOULD DO THIS?

Architects, Design Managers, Clients, Engineers, Consultants

## ENABLE EARLY CONTRACTOR INVOLVEMENT IN PRE-CONSTRUCTION PHASE

On a typical project, waste management usually ends up the responsibility of the main contractor, who also pays for the cost of disposal. Using a procurement route which facilitates early contractor involvement allows the contractor to recommend how best to effectively manage waste from an early stage as they can inform on technical solutions, and advise on buildability and project planning. In addition, the contractor may be able to advise on aspects that other members of a project team have not considered.

### MEASUREMENT

Tonnes of waste saved

### WHO SHOULD DO THIS?

Clients, Contractors, Architects, Design Managers, Directors, Decision-makers, Engineers, Consultants

## MINIMISE THE WASTE THAT CANNOT BE DESIGNED OUT

Work with supply chains to minimise packaging or employ re-useable packaging alternatives; allocate sufficient space and protection on site to reduce the chance of damage to materials or the off-site pre-fabrication of components; use clearly labelled separate recycling containers for timber, rubble, glass etc.; hold 'toolbox talks' with site staff to make the benefits of waste management clear.

**MEASUREMENT**

Tonnes of waste saved

**WHO SHOULD DO THIS?**

Contractors, Sub-contractors

## SKILLS & EDUCATION



Our own research indicates that there are knowledge gaps at student level of low carbon construction methods. Educating both the current and future workforce will be vital to meeting carbon targets and creating jobs.

### ALL COURSES SHOULD INVOLVE SITE-BASED EXPERIENCE FOR THE LEARNER

Site based experience allows students to test and apply their knowledge in the workplace. This gives a solid grounding in the working culture and practices of industry. It also provides vital contextual knowledge in overcoming problems - for example there may not be space on site for a skip, so reuse becomes more important than recycle.

**MEASUREMENT**

Percentage increase in accredited courses offering site placements over the next 5 years.

**WHO SHOULD DO THIS?**

Contractors, CIOB, Education Establishments, Training Providers, ConstructionSkills.

### FACILITATE, VIA ACCREDITATION, GREATER INTERACTION BETWEEN ACADEMIA AND THE INDUSTRY

Up-to-date industry practice, including low carbon technologies, needs to flow from the industry through education to students and teachers. Organisations like the UKCG can work to provide placements for teachers so they have the latest industry knowledge.

**MEASUREMENT**

Percentage of accredited degree courses with industry partners.

**WHO SHOULD DO THIS?**

Contractors, CIOB, Professional Bodies, Architects, Directors, Education Establishments, ConstructionSkills.

### REVISE THE CIOB EDUCATION FRAMEWORK

The CIOB Education Framework should include modules dedicated to low carbon at all levels, from apprenticeships through to under- and post-graduate degree courses. This is necessary to ensure the development of skills and knowledge to meet carbon targets.

**MEASUREMENT**

Percentage increase in accredited courses with carbon modules over the next 5 years.

**WHO SHOULD DO THIS?**

CIOB, Education Establishments.

### SECURE RECOGNITION OF THE STRATEGIC VALUE OF CONSTRUCTION MANAGEMENT

The government must recognise the importance of the construction industry in achieving a low carbon economy by upgrading the status of construction jobs. The additional funding and kudos associated with being a prestigious career choice would attract more and better people in the long run, with the knowledge and skills to deliver a low carbon economy.

### MEASUREMENT

Whether recognition is achieved.

### WHO SHOULD DO THIS?

Contractors, CIOB, Professional Bodies, Education Establishments, Central Government.

---

## UP-SKILL EXISTING WORKFORCE, INCLUDING AT TRADE LEVEL

---

Sectors need to work in a cross-disciplinary manner, from the top down to trade and craft level, to ensure that practitioners in maintenance, repair, retrofit and refurbishment have the skills they need to enable carbon targets to be achieved.

### MEASUREMENT

Number of training schemes in place, set by target date.

### WHO SHOULD DO THIS?

Contractors, Subcontractors, CIOB, CIC, Professional Bodies, Design Managers, Architects, Directors, Decision-makers, Heritage/Conservation Sector, Education Establishments, Central Government, Training Providers, ConstructionSkills.

---

## WORK WITH SCHOOLS AND COLLEGES TO ATTRACT MORE YOUNG PEOPLE INTO THE INDUSTRY

---

The industry needs to attract the best people into its professions in order to meet the low carbon requirements. This will only be achieved by raising the profile of construction jobs as attractive and prestigious career choices, and by attracting ambitious and intelligent young people.

### MEASUREMENT

Continued CIOB engagement with the b-Live scheme.

Engagement with the SmallPiece Trust.

% increase on students taking up construction courses and apprenticeships.

### WHO SHOULD DO THIS?

Contractors, CIOB, CIC, Professional Bodies, Education Establishments, Training Providers, ConstructionSkills.

# LEADERSHIP



Data collection is the central plank to leadership; what you cannot measure you cannot manage, and what you cannot manage you cannot change. We need to embed changed behaviours, using common metrics to evidence leadership and improvement

---

## AGREE A STRUCTURE OF WORK WITH THE GOVERNMENT TO REDEFINE CONSTRUCTION AND TRACK LEGISLATION

---

The CIOB, working with others, can lead the industry to achieve the change that places sustainability at the heart of everything we do in the built environment.

### MEASUREMENT

Change of legislation has taken place.

### WHO SHOULD DO THIS?

CIOB, CIC, Professional Bodies, Decision-makers, Central Government, Local Government.

---

## AGREE CIOB POLICY FOR COMMON, RANKED, COMPARABLE REPORTING

---

The CIOB can lead and provide a consistent message to the industry for standardised data reporting and metrics.

### MEASUREMENT

Global Reporting Initiative (GRI) policy is in place and implemented.

### WHO SHOULD DO THIS?

CIOB

---

## DEVELOP A CARBON INDEX

A Carbon Index could be a very useful tool and provide a single place to collect and report carbon data. We can consolidate and report on the state of the industry as a whole.

### MEASUREMENT

A Carbon Index needs to be created - possibly an online web service.

### WHO SHOULD DO THIS?

Contractors, Subcontractors, CIOB, Professional Bodies, Architect Firms, Directors, Decision-makers, Education Establishments, Research Organisations.

---

## ENFORCE CARBON EMISSION PERFORMANCE STANDARDS FOR COAL-FIRED POWER STATIONS

Emission performance standards for coal fired power stations need to be enshrined in law and enforced, ensuring the fitting of carbon capture and storage technology to new stations and retrofitting to older power stations.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup> /yr and GJ

### WHO SHOULD DO THIS?

Energy Companies, Central Government, Regulators.

---

## PROVIDE STRATEGIC DIRECTION AND SHARE BEST PRACTICE

Organisations must develop policies to engage with schools and universities sharing thinking on how to adapt, innovate, prosper, and lead with confidence in the emerging low carbon economy.

### MEASUREMENT

Qualitative by annual report – list/schedule activities and describe the interactions.

### WHO SHOULD DO THIS?

Contractors, CIOB, CIC, Professional Bodies, Architects, Directors, Heritage/Conservation Sector, Education Establishments, Central Government, Local Government, Property Sector, Facilities Management, Research Organisations.

---

## STANDARDISE THE DATA, REPORTING AND METRICS FOR CARBON EMISSIONS, GREENHOUSE GASES AND ENERGY

The industry requires common comparable data which is transparent and universally understood.

### MEASUREMENT

A standardised system is in place: Kg CO<sub>2</sub> for carbon and greenhouse gases, gigajoules (GJ) for energy.

### WHO SHOULD DO THIS?

Building Control professionals, Education Establishments, Central Government, Research Organisations.

---

## UNDERTAKE CPD RELATING TO CARBON REDUCTION

Professionals should seek CPD on carbon and sustainability and engage in industry wide transformational change.

### MEASUREMENT

Annual CPD hours on courses related to carbon by individual, per organisation.

### WHO SHOULD DO THIS?

Individuals and companies in all fields of work in the built environment.

# CIOB ACTION PLAN



The CIOB is dedicated to reducing carbon emissions from its business operations and to ensuring sustainability is at the centre of everything we do. To this end, we have created a set of our own actions that we will commit to.

---

## DECREASE CARBON EMISSIONS IN OUR TRAVEL BY 10% BY 2014

Using more effective means of travel, such as rail and using technology to reduce the travel needed to facilitate face-to-face meetings, such as Skype, web conferencing, etc. will help the CIOB reduce its carbon and save on travel and mileage costs.

### MEASUREMENT

Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

CIOB

---

## DECREASE THE ENERGY CONSUMED IN OUR BUILDINGS BY 5% BY 2013

This will ensure that the CIOB reduces its level of carbon emissions and saves costs.

### MEASUREMENT

GJ and Kg CO<sub>2</sub> e/m<sup>2</sup>/yr

### WHO SHOULD DO THIS?

CIOB

---

## DEVELOP A COMPREHENSIVE CARBON MANAGEMENT STRATEGY

The CIOB must first measure and develop a plan that engages staff at all levels if it is to actively address its level of carbon.

### MEASUREMENT

Strategy operational by mid-2012 i.e. after initial carbon measurement.

### WHO SHOULD DO THIS?

CIOB.

---

## ENCOURAGE CIOB MEMBERS TO ACHIEVE GRI OR A SIMILAR ACCREDITATION

CIOB and its members need to take the lead in carbon reduction to all their stakeholders and beyond their supply chain by encouraging common measurement of carbon emissions. The industry would benefit if it is able to report against a standardised, transparent system that allows organisations to first measure, and then manage, their respective carbon footprints.

### MEASUREMENT

Number of members with GRI or a similar accreditation.

### WHO SHOULD DO THIS?

CIOB



---

## **INFLUENCE CIOB ACCREDITED EDUCATION PROGRAMMES AND CIOB AWARDED QUALIFICATIONS**

---

To ensure best practice carbon management in the industry through the education, professional activities and self-development of our members, including the accreditation process, CPD and qualifications such as Chartered Environmentalist.

### **MEASUREMENT**

Revision of Education Framework.

Number of CPD events related to carbon and energy efficiency.

Number of members awarded the Chartered Environmentalist qualification.

### **WHO SHOULD DO THIS?**

CIOB

---

## **PROMOTE CARBON ACTION 2050 TO KEY STAKEHOLDERS**

---

The CIOB needs the industry, Government, academia, policy-makers, other professional bodies and more to engage with the initiative and act on the key points if we are to reduce carbon emissions in the built environment.

### **MEASUREMENT**

Number of views to the website, profile of initiative in the media.

### **WHO SHOULD DO THIS?**

CIOB

---

## **UNDERTAKE AN AUDIT OF CIOB BUILDINGS**

---

This is necessary to get a full understanding of the Institute's carbon footprint, and to act on reducing carbon thereon in.

### **MEASUREMENT**

Audit has taken place.

### **WHO SHOULD DO THIS?**

CIOB.