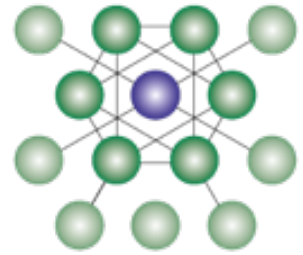


GBE Green Chronology

GBE



Sustainable Development A Chronology

Brian Murphy ONC HNC Construction BSc (Hons) PG Dip (Dist) Architecture (Part-time NLP)

Specification Consultant (38 years)

The increased requirements in Building, Health and Safety and other Regulations covering 'Green' materials, products and Construction design.

Part 1 Regulations and 'Green' materials

You could be forgiven for thinking the title of the paper suggest that there is legislation out there encouraging the use of 'Green' materials

I do not think this is quite the case but what there is, is legislation that: controls, in some cases discourages and sometimes bans the use of shall we say 'Violet' material,

Part 1 Regulations and 'Green' materials

As a consequence we are having to consider other materials which are 'less Violet' and in some cases 'Green' materials. 'Violet' Materials

'Violet' chosen as it is at the opposite end of the spectrum from 'Green'

meaning:

'any material that is unfriendly to humans or the environment or whose performance diminishes in use or over time'

Regulations V vested interest

What we now need is Legislation that drives us towards 'Green' options rather than just more of the 'Violet' materials we use already

I wonder if the next round of Building Regulations will help?

will vested interest resist change or prevent it from happening.

Obstacles

Regrettable there is also legislation out there

and policemen that patrol its zone of influence,

that will continue to maintain technical barriers (despite European Treaties)

making their use less easy than their familiar but 'Violet' counterparts

Chronology of 'Green' agenda,

legislation & awareness

Threads

There are a number of different threads running through this chronology:

- International Forum
- Publications, Guidance and Methods
- Ethical Financial Activity
- Legislation
- Green Movements
- Product Quality
- Legislation & 'Green' awareness
- International Forum establish the targets for all of us to achieve
- Guidance and methods shows us how
- Ethical Finance shows us all by example
- Legislation is implemented by governments when the populous fails to respond
- Green movements start when governments fail to act in a responsible manner

Sources: for the idea and some of the content of this Chronology.

- AJ Architects Journal
- BBA British Board of Agrément
- BBC British Broadcasting Corporation
- EHP Hadley Centre
- Estates Gazette 10 Jan 98 Environmental Liability The Muck Stops Here By Tim Smithers and Nic Seal.
- European Project for the ice Coring in Antarctica (EPICA)
- Friends Provident's Literature "Stewardship Ethical Investment, Acting on your Principles"
- Future Build 2020 Poster 31/10/2019
- Guardian Newspaper
- Mauna Loa Laboratory
- NASA
- numerous other bibliography

1700

1712 Thomas Newcomen developed first commercial steam engine,
the beginning of the industrial revolution, burning fossil fuel and releasing Carbon Dioxide

1800

1832 Quakers Founded

Friends Provident

Financial provisions created by a community for the benefit of the community

More about them in 1984

1832 First Electric Car

Robert Anderson is believed to have developed the first version of an electric car.

The reliability and lower pollutant emission rates of electric cars made them a popular choice for well-to-do suburbanites.

The absence of smelly fuel was cited as a huge plus point for them.

(Autotrader '21)

1850 Global Population: 1.2 billion, Atmospheric CO2: 285 ppm, Temperature Rise: -0.2 degrees C

1859 CO2 Linked to climate:

John Tyndall, Irish scientist, concludes that because CO2 molecules can absorb heat, changes in the CO2 in the atmosphere would change climate.

1886 First motor car patented:

Karl Benz patents first gasoline car engine design.

1896 Combustion linked to rising temperature:

Svante Arrhenius, Swedish scientist, concludes that doubling of CO2 would raise global temperatures by 5-6 degrees C (now thought to be 2-3 degrees C)

1900

1900 Traces of CO2 absorb heat:

Knut Angstrom, Swedish scientist, discovers that even small concentrations of CO2 can absorb heat.

1900s electric cars

At the start of the 1900s, electric cars accounted for a third of all vehicles on the road better numbers than we witness even now in the 21st century.

(Autotrader '21)

1900s decline in popularity of electric cars

The development of better road surfaces, as well as the discovery of cheap crude oil reserves in Texas, made owning and operating a petrol or diesel car considerably more appealing to the average motorist.

With gas stations becoming a common sight in most towns and villages across the world, electricity soon lost the battle of convenience.

(Autotrader '21)

1914 First commercial passenger airline flight:

First fixed wing flights within Florida USA, burning fossil fuel and adding CO2 to the atmosphere.

1935 There were practically no eco-friendly EV cars left on the road.

(Autotrader '21)

1939 Hottest 5 years recoded:

Guy Stewart Callendar, British stem engineer, finds weather stations all recording increasing temperatures.

1952 The Great Smog of London:

5 day smog event (Smoke and Fog) in London reduced visibility and killed an estimated 4,500 people. (See 1956)

1955 Building Regulations and Health

BRS Report BR 289

1955 Building Regulations and Safety

BRS Report BR 290

1956 The First Clean Air Act

To control Smog (Smoke and Fog)

Meant some fires and boilers could not be used in certain areas if they generated smoke

Fuel industry generated a range of smokeless fuels and Smokeless fuel burners open fires are used less and less.

1956 Sellafield, world's first commercial nuclear reactor,

not burning of fossil fuel but generating radioactive waste with no solution to its safe 'disposal'

1957 Confirmed increase in Global Carbon:

Roger Revelle and Hans Suess, US scientists, recorded increasing levels of global atmospheric carbon.

1957 The Treaty of Rome

The beginnings of the Common Market

Established rule that no member state could create or maintain technical barriers against goods or services from other member states

1958 Charles David Keeling proves CO2 Increase:

Charles David Keeling begins systematic measuring of CO2 to chart global increase (Keeling Curve)

1958 Campaign for Nuclear Disarmament (CND)

Aldermaston March publicly questioned both the sanity and the morality of nuclear weaponry

1959 M1 UK's first Motorway: re-routed to save a forest,

1960 Global Population: 3 billion, Atmospheric CO2: 317 ppm, Temperature Rise: +0.03 degrees C

1961 Public Health Act

Sets the way for a new system of national Building Regulations to replace Local By-laws

1961 Amnesty International Founded

Founded to oppose political imprisonment, torture and executions

1961 Construction (General Provisions) Regulations SI 1961/1580

1962 Silent Spring: Book by Rachel Carson, galvanizes US public outrage over use of pesticides. USA

1965 Unsafe at any speed: Book by Ralph Nader exposes Detroit's disregard for auto-safety, kick starts the US

Consumer Movement. Detroit USA

1965 Building Regulations

A big change from what had gone before

Much more stringent than Local By-laws and now nation-wide except London

Introduced 'Deemed to Satisfy Provisions'

Set the standard for future legislation for the Construction Industry

7 amendments follow, up to 1971

1965 Nuclear Installations Act

Imposes a duty of care on licensee's to ensure that certain matters do not cause injury to any person or damage any property of any person.

1966 The Agrément Board Established set up by government hot on the heels of the Building Regulations 1965

1966 Agrément Board

Offers manufacturers opportunity to have 3rd party independent assessment and test of products

which do not meet 'Deemed to Satisfy provisions' of the Building Regulations, current British Standards or Code of Practice

but achieve a useful purpose and need some form of verification.

1966 Agrément Certificates

They became a useful promotional aid and helps get Building Regulation approvals

Equivalent bodies exist throughout Europe

But there is reluctance to accept another country's Certificates

1967 Torrey Canyon Oil Slick

Serious ecological damage done by oil slick off Cornish coast

from the wrecked oil tanker

1968 Construction (Working Places) Regulations

SI 1966/94

1968-1973 Soaring Car Fuel prices

With the OPEC-fuelled oil crisis in full swing

Shortages of fossil fuel, as well as a sharp increase in costs, suddenly turned attention back towards EV alternatives.

(Autotrader '21)

1969 Performance parameters & performance specification in architectural design.

BRS CP 23/69:

1969 Performance specifications for building components.

BRS CP 37/69:

1970 Power to the people

USA: First concerted shareholder action campaign on an ethical issue

launched against General Motors.

1970's First Oil Crisis

OPEC (Organisation of Petroleum Exporting Countries) predominantly Middle East countries, producing most of the world's crude oil,

create a cartel to fix the price of a barrel of oil significantly higher than previously

USA, UK and many other countries who were reliant on outside sources for fuel suffered greatly at rising costs

1970's First Oil Crisis

Although USA is a major producer of Crude oil it still purchases much of its oil elsewhere since it is a prolific consumer of fuel

It became viable for the UK to extract North Sea Oil and Gas

1970's First Oil Crisis

The Chinese centuries earlier invented the wok to reduce their demand for fuel since they had no natural resources of fuel and so little tree coverage to burn.

Unlike in the West we use vast amounts of energy to heat water to heat food to then throw away the hot water and eat the food.

1970's First Oil Crisis

Initially the Chinese suffered like everybody else, after a while they decided to become less dependant on fuel rather than pay the extra cost.

They set about looking at every aspect of their lives and sought to improve their efficiency and to reduce their demands by asking the whole population and all the work forces to put suggestions forward.

1970's First Oil Crisis

Unlike the West who would have taken the top ten ideas and implemented them

the Chinese set about implementing them all

pay back periods and unprofitable did not come into the question

Australia Power Utilities insulated buildings for free so they would not have to build any more power station

1970's Second Oil Crisis

When the second oil crisis occurred,

this time generated by the OPEC countries being concerned about the way their resources were being squandered by the West

the USA, UK and many other countries dependant on outside fuel sources

stood back in horror, and paid even more for their crude oil.

1970's Second Oil Crisis

The Chinese just stood back and said "Crisis, What crisis?"

They were almost autonomous of the world oil market and probably will remain so despite a growing population

OPEC's achieved their goal with the Chinese and Australia, not so the West

Now the USA goes to War to defend its oil sources.

Comparative figures

USA consumes 5 times the international average of energy per capita

UK consumes 2 times the international average of energy per capita

There is a lesson to be learned

On their own individuals feel incapable of making any difference

Together they can move mountains

only Governments can orchestrate and galvanize all of the people at the same time

Governments must act and act swiftly

One bit at a time

We can all do our bit for the environment, no matter how small,

Everything we do now will have a long term effect because it's likely to be there for a long time.

Lots of little interventions will lead to a great deal,

the more you do, the more you might influence others around you.

We did not learn then

For a decade or so Energy Consciousness was high on the agenda

The AJ published extensively on the subject

As a technician and student I read about it and saw it happening extensively in Europe but I never experienced it in the UK

We did not learn then

Some practices set out to do something

Some have specialised in it

For many it was a fashion-thing

Most never touched it

Were they still reeling from the 1965 Building Regulations?

If they were, their in for a shock in the future

Will we learn this time?

I think we will because legislation will eventually force us to or we can take the initiative and address the issues ourselves now, we are here today which is a step in the right direction

1970s EV's blip in popularity

Renewed interest led to the creation of a number of briefly popular cars.

(Autotrader '21)

1971 EV Lunar Rover

Demonstrated the power of electric cars to the world as it became the first-ever manned vehicle used on the moon.

EV cars looking like a viable future alternative if you live on the moon.
(Autotrader '21)

1971 5th amendment to 1965

Building Regulations

Following Ronan Point Towerblock collapses after a gas explosion

Part D revised to take account of accidental overloading by local explosion in buildings over 5 storey

1971 Greenpeace founded

2 Canadians unhappy about US nuclear testing

rode rubber boats into the US Nuclear testing areas

to disrupt and prevent activity

and draw public attention to what was still happening

1971 Pax World Fund: The first ethical fund is launched in the USA

1972 Agrément Board New Director

Tom Lant succeeds first Director, Tom Parker

1972 Metric version of the Building Regulations

brings together all the past 7 amendments and 1965 Regulations

1972 'Small is Beautiful': Book E F Schumacher publishes the classic text of green economic thought

1972 United Nations Environment Programme (UNEP) formed.

First UN Conference on the environment focuses on pollution, atomic testing and whaling.

1972 Limits of Growth: Published by the Club of Rome

1972 Blueprint for Survival by the Ecologist magazine

1973 Agrément Board Test unit set up.

Technical Development Manager appointed to promote Agrément idea

1973 Stewardship Unit Trust

Attempts begin to win Department of Trade approval of the Stewardship Unit Trust Supporting positive activities

In seeking to identify activities which make a positive contribution to society

Stewardship pays particular attention to the following:

Supplying the basic necessities of life

Providing high quality products and services which are a long term benefit to the community

Supporting positive activities

Conservation of energy & natural resources

Environmental improvements and pollution control

Good relations with customers and suppliers

Good employment practices

Training and education

Strong community involvement

A good equal opportunities record

Openness about company activity

Seeking to avoid negative activities

In identifying activities which harm the world or its inhabitants

Stewardship are particularly concerned with the following:

Environmental Damage and Pollution

Unnecessary exploitation of animals

Trade with or operations in oppressive regimes

Seeking to avoid negative activities

Exploitation of Third World countries

Manufacture and sale of weapons

Nuclear Power

Tobacco and alcohol production

Gambling

Pornography

Offensive or misleading advertising

1973 Social Audit

Public Interest Research Centre

publishes first Social Audit

1973 CITES Convention on International Trade of Endangered Species Appendix I & II. Restricts use of Hardwoods

1973 BS 4949 Glossary of terms relating to Building Performance

1974 Powdered Milk & 3rd World

Campaigners target the marketing of powdered baby milk

in the Third World by multinationals

1974 ChloroFlouroCarbons (CFCs) linked to the breakdown of ozone layer.

Mario Molina, Mexican Scientist and Frank Sherwood Rowland, US Scientist discover link

1974 Control of Pollution Act: to control pollution of surface water

1974 Health & Safety at Work Act

designed to protect the employee from environmental hazards in the workplace

This act continues to enable the enactment of European Directives.

Examples:

VDT Operator Directive

Manual Handling Directive

SI 1974/

1974-1977 Sebring-Vanguard's Citicar highlights the potential that EV cars have.

(Autotrader '21)

1975 "Global Warming" first coined

Wallace Smith Broecker, US Scientist, uses term in a paper.

1975 Everyday details

AJ Series

1975 AJ Specification series

100975>

1975 AB First Certificates Roads and Bridges Certificates published

1977 Agreement Board

moves to Garston

1978 Seal Culls

Greenpeace's Rainbow Warrior

stops seal cull

by fishermen competing for fish stocks

1978 What has become of Performance Specification

AJ Study 9: 150278

1979 Three Mile Island

USA's worst ever nuclear accident

1979 DoT approves Stewardship

Department of Trade gives approval in principle for The Stewardship Unit Trust to be launched

1979 – 1980s EV Interest fades

Without anyone really perfecting electric cars and conquering the market, and with traditional fuel levels replenished Post-OPEC oil crisis, EV cars lose popularity again.

Major limitations: performance and range.

Electric cars remained largely dormant and forgotten about during the 80s

(Autotrader '21)

1980 Recommendations for performance standards in building:

BS 6019

Contents and Presentation

1981 Agreement Board

doing well

Annual total of Certificates issued passes 100

1981 Government White Paper

Maggie Thatcher gave UK industry 11 years advance notice of need for quality and competitiveness as we go into the European Market,

giving us a head start on the road to QA and product quality.

1981 Government White Paper

The Design side of the Construction industry hardly noticed it was going on

and did little to support the changes that took place.

18 Years later the DETR has to remind us

to comply with Building Regulations Regulation 7.

1981 Quality control on building sites

BRE IP 28/81

1982 AB becomes the BBA

William Courtney appointed Chairman,

the Agreement Board becomes

the British Board of Agreement and

current logo is adopted

1982 Traditional Housing:

A BRE study of quality

BRE IP18/82

1982 Material control to avoid waste.

BRE Digest No. 259 March '82

Way ahead of its time

No one is interested
Next updated in 2000

1983 World Commission on Environment and Development (WCED) formed,
to be an independent body to look at environment and development problems

1983 CompuServ offer world's first web-based 'Cloud' Computer server and storage space

1983 BBA Publications

Monthly information package published

Includes a newsletter covering:

Work in the European arena

information on Agreement organisations

changes in certificate status

catalogue of current certificates

'in the courts'

companies misusing BBA certificates in advertising

1983 Detailing and specification

AJ series 010683>

1983 EIRIS Founded

The Ethical Investment Research Services

founded to research companies' ethical behavior

1984 BBA Hotline set up

0800 *****

It is now easy to check details of agreement certificates currency over the phone

It is now easy to inform BBA if you think somebody is misusing the BBA logo

1984 Ethical Finance

1984 after 6 years of campaigning DoT approved in principle the Stewardship Unit Trust

After a further 5 years it is launched.

They set out only to invest in businesses and countries who have similar ethical goals

1984 'Acid-Rain'

Friends of the Earth launch campaign on 'Acid-rain'

Substantial damage is done to Scandinavian forests caused by acid in rain

Combustion products from UK power stations

are carried by prevailing winds across the North Sea and dropped in rainwater

1984 'Greenhouse effect'

Scientific Community warn of 'Greenhouse effect'.

CO₂ from burning of fossil fuels collects in the atmosphere and act like greenhouse or conservatory

Many people accept it

Governments resist believing it

Deforestation

Deforestation by lumber companies for the building industry and other uses

Forest clearing by fire by farmers

and acid-rain damage to forests

The planet's vegetation can not convert Carbon Dioxide CO₂ to Oxygen O₂ fast enough to maintain a balance

1984 Building Act limits fuel use and emissions:

First reference to testing, measuring and reduction

1985 Building Regulations

Radical new approach

Minimal Regulations termed in Performance Requirements

Introduces 'Approved Documents' replacing 'Deemed to Satisfy Provisions'

Part D deals with Toxic Substances

Separate volumes will allow simplified amendment of parts

1985 Building Regulations accepts BBA

DoE announces BBA Certificates to have

enhanced status under new Building Regulations

1985 Live Aid

raises money for the Ethiopian Famine following Band Aid's Christmas Single.

the people pay where Governments fail.

Red Nose day continues to the end of this Century and probably beyond

1985 Ionising Radiations Regulations

imposes duties on employers to minimise the risk of exposure to Radon,

a naturally occurring radio active gas,

which can seep from rocky ground into buildings,

protective measures are generally adopted in many developments where employees are not the only ones at risk.

1985 Ionising Radiations Regulations

The use of aluminium in damp proof membranes is a solution

BBA Agrément Certified products exist.

depending upon the level of gas release, passive or active ventilation below the membrane to the building exterior is also in use.

Wimlas Certified Products exist.

1985 Performance Specification

AJ series 170485>

1985 Using experience and publications in building design

BRE IP13/85

1985 Meeting building designer's needs for trade information

BRE IP14/85

1985 Housing defect prevention unit

BRE Defect Action Sheet 63 Aug '85

1986 BBA New format Certificates launched

BBA Board of Management set up

1986 European Community Regulations

- EEC 3626/86.

1986 Chernobyl, world's first nuclear disaster

Russian Nuclear reactor explosion and fire

sends nuclear reactive material fallout

all over Europe via prevailing winds

UK has grazing fields polluted

The consequences are long term

1986 Element Design Guide

AJ 020786>

1987 Achieving quality on building sites.

NEDO

1987 Montreal Protocol

an agreement on limiting use of Ozone Depleting Chemicals signed.

Ozone O₃ helps to protect us from the UV in Sunlight

ODC's are to be phased out

Too little to late?

too long to deadline

1987 Montreal Protocol

But USA seeks to swap credits with the underdeveloped countries

so it can continue to waste more than its fair share of fuel and resources

and destroy more ozone than anybody else.

Ozone Depleting Chemicals

Chlorine and Bromine are big problems

CFCs, HCFCs and HFAs used as a blowing agent in foamed plastics contain chlorine.

In insulation and joint filler boards and sealant backing rods

and in refrigerant systems

Ozone Depleting Chemicals

Chlorine and Bromine are a big problem

CFCs (Chlorofluorocarbons) used as a blowing agent in foamed plastics contain chlorine.

Used in insulation and joint filler boards and sealant backing rods

and in refrigerant systems

Ozone Depleting Chemicals

Blowing agents percolate out of the plastics and into the atmosphere

diminishing the performance of the board

Refrigerants may be released from systems

They are then free to attack Ozone in the Earth's protection layer.

Ozone Depleting Chemicals

HCFCs (HydroChloroFluoroCarbons or Hydrogenated CFC) have a lower ODP (Ozone Depletion Potential)

so are being dealt with less urgently,

but as less CFCs are around then the % of HCFCs increase and there effect over a long period is increased.

Ozone Depleting Chemicals

We can do our bit not to specify not permit the use of CFCs and HCFCs

HFAs (HydroFluoroAlkane) should also be avoided since they are a wider group containing HFCs and HCFCs

be persistent with manufacturers to determine what their boards contain

Ozone Depleting Chemicals

Halons (Halogenated Hydrocarbon) fire fighting agent

contain Bromine have a very high ODP

used in fire extinguishing systems

These need to be phased out.

Catalysts

Some act as catalysts (not part of the reaction but encourage others to react)

so have a greater potential to destroy even more Ozone.

1987 Co-ordinated Project Information (CPI)

Out line of principles

Drawing Manual

Specification Manual

Common Arrangement of Work sections (CAWS)

Quantity Surveying Manual/ SMM7

CCPI Committee for Co-ordinated Project Information.

1987 CPI

result of 10 years work

1987 World Commission on Environment and Development (WCED)

Gro Harlem Brundtland, chair of WCED's Report defined Sustainability:

"Sustainable development, that meets the needs of the present without compromising the ability of future generations to meet their own needs."

1987 Montreal Protocol agreed:

Global Agreement to restrict the use of CFCs (See 1974) and chemical damaging to the ozone layer

1987 Control of Asbestos at Work Regulations

designed to prevent occupational exposure to asbestos,

it was used in a variety of forms until 1980's

but still persists in some applications where a suitable alternative is still sought.

Many more Acts and Regs. follow

1988 BBA New Director

Peter Hewlett succeeds Tom Lant as Director

1988 Substances for use at work: the provision of information

HS(G)27:1988: 2nd. edition

1988 LA invest in Stewardship

First UK Local Authority Pension Fund invests ethically with Stewardship

1988 Intergovernmental Panel of Climate Change formed to collate, analyse and share evidence on climate change

1988 James Hansen testified to the US Senate that "The greenhouse effect has been detected and it is changing our climate"

1989 The End of Nature: published by Bill McGibben

1989 BBA new EU role on ETAs

BBA is designated to issue European Technical Approvals

1989 COSHH in construction - a BEC guide

BEC S/89 1989.

1989 Exxon Valdez

11 million gallons of oil spilt

off the Alaskan Coast

in a sheltered natural harbour

1989 Electricity At Work Regulations

SI 1989/653

1989 The London Hazards Centre:

Toxic Treatments.

1989 CFCs and the Building Industry.

BRE Information Paper 23/89

1989 Building Design and Use: response to climate change

Neil Milbank

AJ 020889.

1989 The Control of Substances Hazardous to Health in the construction industry

HSE 1989

1989 Lausanne Conference

103 countries votes for ban on Ivory trading,

1989 Construction Products Directive 89/106/EEC

To be implementation by '1992' the beginning of the 'Single Market'.

Essential Requirements

EC Mark

ETA European Technical Approvals

National Agrément Certificates,

BSI Kitemark

1989 General Criteria for suppliers'

declaration of conformity

BS 7541 = EN 45014

Enable some control over what is actually delivered to site

helps control specification substitution

The Director of the manufacturer signs to say:

it is what it claims to be

and meets the specification

1989 Water Act

A code of practice for water conservation, access and recreation

1989 Amendments to Building Regulations

SI 1989/1119

A concerted effort to tackle energy issues amendments to Approved Documents:

F Ventilation

J Heat Producing Appliances

L Conservation of fuel and power

1989 BS 5589 Code of Practice for Preservation of Timber

1989 BS 5268 Structural Use of Timber

Part 5: Code of Practice for the preservative treatment of structural timber

Durability of species

1989 AECB Association of Environment Conscious Builders

Association of like minded individuals and companies

promote 'Green' methods and materials in building

later renamed AEC...Building to include design disciplines and others

1990 Building for a Future

Magazine published by AECB, First edition, still published 2003

1990 BBA Still growing

2000th Certificate issued 1990

Environmental Protection Act

Section 33 controls the disposal of controlled waste (E.g.. Commercial waste from building sites) except in accordance with a waste management licence.

It also controls the keeping and disposing of controlled waste in a manner likely to cause pollution of the environment or harm to human health.

1990

Environmental Protection Act

Section 34 imposes a duty of care on those that produce, transport, handle or dispose of controlled waste, and includes prevention of contravention by others, prevention of escape of waste, the use of authorised waste disposers, and introduction of paperwork to enable audit trails.

1990

Environmental Protection Act

Part 1 introduces IPC "Integrated Pollution Control" for industrial processes which have a significant potential for pollution.

The Secretary of State has the power to make regulations prescribing processes for which an authorisation is required.

but it only controls 'significant potential'

are there hundreds of little people doing a lot of harm?

1990 The Control of Substances Hazardous to Health (Amendment) Regulations

SI 1990/2026

1990 Man made mineral fibres

HSE EH46:1990

1990 Rosehaugh Guide (Buildings and Health).

C Curwell, C March and R Venables. Editors

RIBA Publications

1990 Review of Rosehaugh Guide

Pages 45-48 AJ 121290

1990 Environmental Protection Act

1990 A Real Wood Guide.

Forests Forever:

Statistical information on sources and UK uses.

1990s EV regulatory changes

Regulatory changes were introduced to tackle the worrying levels of CO2 which traditional fuels put into the atmosphere. (Autotrader '21)

1991 BBA Monthly Datafile scheme

replaces the Publications Monthly

1991 SA Apartheid ends

Last of South Africa's apartheid laws abolished

thanks to the efforts of many including

Nelson Mandela and

F W de Klerk

1991 BRE Digest 358

and many others, 02 91

1991 Green Architecture

Vale & Vale

Thames and Hudson

1991 Greening the Practice

AJ 271191

1991 BS 7373:Guide to the preparation of specifications

1991 Building Regulations

SI 1991/2768

Acknowledges:

CPD Construction Products Directive

Construction Products Regulations

Regulation 7 Materials and Workmanship

'proper materials'

1991 Building Regulations

Older parts still current

Approved Documents:

D Toxic Substances (1985)

F Ventilation (1990)

J Heat Producing Appliances (1990)

L Conservation of fuel and power (1990)

1991 Construction Products Regulations

In time for '1992' the beginning of the Single Market.

Implements the Construction Products Directive (89/106/EEC)

Reinforced by Building Regulations Approved Documents 7 Materials & Workmanship

Scottish Technical Standards Regulation 11

Jersey Bye-law 7

1991 Construction Products Regulations

Essential Requirements

EC Mark

ETA European Technical Approvals

National Agrément Certificates,

BSI Kitemark

1991 EC Urban Waste Water Treatment Directive

stops member states dumping sludge at sea by 1998.

Plenty of time to dump all the things you won't know how to deal with later.

1991 EC Directive on Hazardous Waste 91/689/EEC

requires monitoring of special waste from its creation to destruction

and the Environment Agency to be informed every time it is moved.

1991 The Water Resources Act Section 85.

controls the causing or knowingly permitting of any poisonous, noxious or polluting matter or any solid entering controlled water (lakes, ponds, rivers, estuaries, ground-water, and certain coastal waters)

1991 BRE Launches BREEAM

the 1st Method of assessing the environmental features of building and scoring them.

Initially for New offices,

subsequent issues over the following 4 years address similar issues on:

Existing Offices, new supermarkets and Superstores, new Industrial Units, new Housing

1991 BREEAM

Only a voluntary scheme

Approx. 30% of office developments are adopting the assessment

and use it as an aid to promote the buildings

and achieving high occupancy rates

Tel: 01923 664462

BREEAM@BRE.CO.UK

www.bre.co.uk

1991 How green is your office?

Environmental Quality.

Review of BREEAM

AJ 130391

1991 BREEAM 2/91 New Superstores and Supermarkets

1991 Environmental Protection Regulations

1992 Conference on Performance Specification

IofAAS York on 09 06 92

May 1992 Benoy Environmental

Teresa Martinez

Head of Environment Unit

Benoy Environmental

Set up to offer independent consultancy to Benoy Architectural and other practices

1992 Management of Health and Safety at work Regulations

SI 1992/

1992 Management of Health and Safety at work (Amendment) Regulations

SI 1992/2865:

1992 Personal Protective Equipment at Work Regulations (PPE)

SI 1992/2966

1992 Workplace (Health, Safety And Welfare) Regulations

SI 1992/3004:

1992 Personal Protective Equipment (EC Directive) Regulations

SI 1992/3139

1992 Manual Handling Operations Regulations- guidance on Regulations 1992

HSE L23

Limit of 20kg (40lbs) for one man operation

thereafter more men or lifting equipment

influences methods of building blockwork walls

and density of blocks manufactured

1992 Management of health and safety at work:

Interpretation and Guide to the Management of Health and Safety at Work Regulations 1992.

HSE L21

1992 HCFCs: Hidden CFCs.

Publication

Greenpeace International

1992 Woodmark

the Soil Association Certificate of Responsible Forestry.

Soil Association:

1992 Green specification

AJ 150492

1992 Rio Earth Summit

Placed sustainable development at the top of the international agenda.

Non-binding agreement signed limiting greenhouse gas emissions and more sustainable development

Nations signed up to new environment agenda for the next century: Agenda 21

1992 Agenda 21

Relies on local action, each council is to prepare its own strategy its Local Agenda 21 to achieve sustainable development

It acknowledges environmental problems and solutions are linked to social and economic problems.

It emphasises the importance of involving people, especially disadvantaged groups in seeking solutions

Individual projects can and do set their own Agenda 21 (See HHP)

1992 BS 7750 Environmental Management Systems

the first standard of its kind in Europe to assess and monitor companies environmental performance

helps to ensure companies comply with environmental legislation and regulations

helps to ensure products or services are produced, packaged delivered and disposed of in an environmentally friendly way.

1992 BS 7750 Environmental Management Systems

But just like BS 5750 which achieves consistency in manufacture through management and controls

but permits consistent production of inferior product

This does not seek to remove environmental impact

just to manage it, document it and keep it within legal limits.

31/12/1992 Europe Arrives

'The Single Market'

but status quo prevails

You can carry on specifying by BS until EN's arrive to replace them

Many European Directives follow

which in turn will be implemented by Regulations or Acts in each member state.

1992 Technical Barriers

You should no longer expect to see technical barriers placed by the Regulatory Policemen.

You should not create your own Technical Barriers in excluding materials from Europe.

1992 the "new approach" to technical harmonisation and standards

DTI Standards:

1992 Construction Products.

DTI Standards:

1993 Housing Design Handbook:

Energy and internal Layout

BR 235

BRE Publisher

1993 Simply build green

A technical guide to the ecological houses at Findhorn Foundation

Findhorn Foundation

John L Talbot

1993 Clean Air Act

controls atmospheric pollution from fires and furnaces.

controlling the quality of the Services Installation we install.

1993 Stewardship accepts SA

In the light of positive changes in the politics of South Africa

the Stewardship Committee of References

reverses its opposition to company activity in the country

1993 CE Marking of Construction Products

Directive 93/68/EEC

Rationalises the EC Marking procedures previously described in numerous EC Directives

1993 Noise and Statutory Nuisance Act

LA powers increased enabling them to take action against noise in the street, from equipment, machinery, loud-speakers, faulty alarms.

Consideration needed in the building fabric and services installations in building.

1993 Ecolabelling of Building materials and Building Products

BRE Information Paper 11/93

1993 BREEAM 1/93 New Offices

Scheme updated

1993 BREEAM 4/93 Existing Offices

1993 BREEAM 5/93 New Industrial Units

1993 The Green Construction Handbook

J T Design & Build & Arup

1993 The Green Construction handbook

AJ Review 070793 and 210793.

1993 Chemicals (Hazard Information and Packaging) Regulations

(CHIP).

SI 1993/ :

Useful in CDM Risk assessments

1993 Personal Protective Equipment

(EC Directive) (Amendments) Regulations

SI 1993/3074:

1994 BBA

Certificate 3000 issued

with colour photo on the front cover

in house DTP set up to speed up issue of certificates

1994 Personal Protective Equipment

(EC Directive) (Amendments) Regulations

SI 1994/2326:

1994 Southern Ocean Sanctuary

Sanctuary declared to protect wildlife around Antarctica.

July 1994 Best Practice

in the Specification of Offices

BCO British Council for Offices

Sets out to initiate a debate about office design and thus improve the design process

Addresses Design, floor plans, structure, indoor climate control, Services, Fire protection, security, materials and finishes, management manuals and training.

1994 Construction (Design & Management) Regulations

(CDM) SI 1994/3140:

Required consideration during the design stage and when choosing materials and methods of construction to avoid difficult or dangerous activities for building workforce and employees,

Designs should now be safe,

safety measures should be the last resort.

E.g. Parapets on roofs not safety lines,

1994 CDM

Requires risk assessments to be carried out throughout the whole procurement process including:

design, manufacture, construction, maintenance, refurbishment, change of use, demolition, recycling

1994 CDM

Must take into account:

material excavator/miner, - manufacturer,

supplier, - stockist,

fabricator, - contractor,

installer, - applicator,

1994 CDM

Must take into account:

building occupants, maintenance staff,

refurbishers, demolition contractor and recycle contractors.

1994 Control of Substances Hazardous to Health

(COSHH) SI 1994/3246:

Requires employers to identify hazards,

carry out risk assessments,

and provide the appropriate measures to reduce the risks to human health

1994 COSHH

Designers now need to think harder about the materials we specify.

Architect's responsibility to consider human friendly alternatives.

We have stopped using Asbestos because of legislation,

Ceramic Fibre products have all but disappeared from the market

1994 COSHH

Manufacturer's required to release product data sheets
describing the materials the ingredients,
risks in their use,
precautions to be adopted,
safe methods of disposal etc.

1994 Environmental Handbook for Building and Civil Engineering Projects.
Vol. 1 - Design and Specification.

Overview in checklist format with references to good practice.

CIRIA

1994 Energy and Global Warming

Impacts of not-in-kind and next generation CFC and HCFC alternatives.

US Dept of Energy:

1994 Building Regulations (amendment) Regulations

SI 1994/1850

1994 Managing Construction for health and safety

Construction (Design and Management) Regulations

HSE L54 1994

1994 Embodied Energy and Carbon Dioxide Emissions for Building materials.

BRE PD 109/94

1994 Amendment to Building Regulations

SI 1994/1850

Amendment to:

L1 Conservation of Fuel

Regulation 14

Energy rating for new dwellings

1994 Latham Report

'Constructing the Team'

Called for:

30% reduction in real costs over a 6 year period

move towards TQM Total Quality Management

right first-time, every-time (Zero Defects)

not much about 'Green' here but the above are steps in the right direction

1994 PPG 9 Planning Policy Guidance: Nature Conservation

Sets out Government Objectives for nature conservation

describes the role of Planning Authorities

advises on nature conservation issues

states development control criteria

Jan 1994 Benoy Corporate Environmental Policy

Launched to promote the activity of its Environment Consultancy

Written in terms that suggest dependence on economical viability

Benoy can get away with doing nothing.

The person who ran the department is no longer with the practice

We are not aware of any efforts on this issue.

1995 World Business Council for Sustainable Development (WBCSD) formed.

200 companies working towards a sustainable world

1995 BBA Director becomes President of EOTA

Peter Hewlett elected President of the EOTA

European Organisation for Technical Approvals

1995 Control of substances hazardous to health (COSHH)

General Approved Code of Practice, HSE 2nd. edition 1995.

1995 Brent Spar Oil Rig

After mounting international pressure

and loss of sales at the petrol pumps

Shell Oil decides not to dump the now redundant Brent Spar Oil Rig at sea

instead deciding to dismantle and recycle much of the materials

1995 Green Building Tool created:

Certification for buildings that meet green criteria

1995 BREEAM 3/95 New Housing: The Environmental Standard Award

1995 Environmental Standard: Homes for a Greener World

BR 278

1995 Environmental Impact Assessment: a Comparative Review. By Spon.

1995 Ecological Footprint concept created: Mathis Wackernagel and William Rees, sustainability advocates, invent way to measure human demand on nature

1995 Building Regulations (amendment) Regulations

SI 1995/1356 Updated Approved Document L (Energy Consumption, Insulation)

1995 Environmental Policy and Information for RIBA members

1995 Environment Act Chapter 25

1995 Ethical investment: Stewardship breaks £500m barrier only 6 years after its launch
 1995 The Environment comes home
 Herberger Centre for Design Excellence
 David K Pijawka & Kim Shetter
 April 1996 Handbook of sustainable building
 An environmental preference method for selection of materials in use in construction and refurbishment
 David Anink et al, Publisher: James & James
 1996 Taking back our stolen Future: Hormone disruption & PVC plastic, Greenpeace
 April 1996
 1996 Environmental Design:
 An introduction for Architects & Engineers
 R Thomas Editor
 E & F N Spon
 1996 BBA New Chairman
 Tony Jackson appointed Chairman
 1996 BS EN ISO 14000 Series
 Combined Quality Management system and Environmental Management System launched
 Replaces BS 7750
 Still fails to significantly reduce Environmental Impact
 1996 Road Protesters
 Road protesters disrupt Britain's road building programme and bring their concerns to the public attention
 1996 Lung Cancer
 First legal challenges by lung cancer victims
 against tobacco companies in USA
 1996 The Special Waste Regulations
 implements EC Directive 91/689/EEC
 5 more years worth of sludge discharged whilst it was in the making
 still plenty of time to dump some more before end of 1998.
 1996 Construction Resources established
 sets out to research a Green approach, the availability of product which are:
 "high quality products that combine
 the highest possible levels of comfort and performance
 in the buildings that people live and work in
 with the lowest possible impact on the environment".
 1996 Construction (Health, Safety and Welfare) Regulations
 SI 1996/1592:
 1996 Personal Protective Equipment (EC Directive) (Amendments) Regulations
 SI 1996/3039: 1996
 1996 Specifying for Greener Building
 Stephen Curwell.
 AJ 110196
 1996 Building for Sustainability
 Barrie Evens
 AJ 180196
 1996 Making London Sustainable
 Herbert Girardet
 AJ 290296

1997 Toyota Prius

Toyota introduced a hybrid car, carbon-fuelled with energy recovery to battery when slowing and breaking combined with electric drive, extending mileage considerably.
 Toyota Prius made EV commercially attainable on a worldwide scale.
 This was the first time in recent history a leading manufacturer had cornered the market like this.
 Toyota Prius proved very popular with celebrities, making it an alluring option for drivers.
 (Autotrader '21)

1997 Energy in Inverness, RIAS Convention
 AJ 150597
 1997 Water as a planning constraint: Brian Waters
 AJ 290597
 1997 Material Gains: reviews Good Practice in the selection of construction materials.
 Addresses blacklisting
 AJ 290597
 1997 Ethical Finance Threshold
 Over \$1 trillion now invested in ethically screened or activist funds in the USA
 1997 A material difference
 Sustainable Engineering:
 Materials and Methods:

Brian Sims

Building Services Journal: 000797

1997 Futures: Time to make a difference

Mike Evamy

Design Week 040797

1997 Missing the Green

Andy Cook

Building: Technical: Environment: 180797

1997 The Future is Green

Jonathon Porritt (FotE)

Design: Summer 97

Dec 1997 Kyoto Climate Summit

Kyoto Protocol: 13 years after the scientific community warns about the 'Greenhouse effect'

Summit agrees targets for reducing 'Greenhouse gas' (GHG) emissions by 5.2%

The goal is to reduce our CO₂ requirements by the year 2010 by 20% off the 1990 levels

Legally binding on the developed world

Dec 1997 Kyoto Climate Summit

two contentious elements of the protocol were not detailed

they will be developed at Conference of the Parties (COP)

Emissions trading and Clean Development Mechanism (CDM)

See COP4 Nov 1998

1997 BBA Certificates and CDM

Certificates now include information for

Construction Design and Management Regulations purposes

1998 Brownfield Site Movement

The Government announces plans to relax restrictions on the London Greenbelt and other Greenfield sites to free up land to make room for the many thousands of houses needed for the growing population

In reaction a group of eminent members of the Construction Industry promote the use of all derelict land before wasting the Greenbelt and other sites

1998 Design guide for naturally ventilated daylight offices

BRE

1998 Sir John Egan Report 'Rethinking Construction'

Client-led task force critical of Construction Industry calls for "a radical change in the way we build" not much in this for the drive to 'Green' solutions a little on reduction in waste in materials but aims to cut costs will discourage the use of 'Green' materials.

Year-on-year target:

- 10% cut in construction costs and time

- 10% profit and increase in turnover

- 10% improvement in productivity

Worker conditions to change: - 20% reduction in injuries, - improved working conditions

Construction should change:

- integration of design and construction

- increased standardization

- Use of lean construction techniques

- end to competitive tendering

- phase out formal contracts

Ideas for implementation

- £500m of demonstration projects

Nick Raynsford to chair steering committee to take reforms forward

New Forum for best practice in housing

1998 Sir John Egan Report 'Rethinking Construction'

Roger Humber CEO of House Builder's Federation says:

Planning system needs a shake up to allow sustainable development and integrated transport systems.

Egan failed to address sustainability

Egan fails to address small projects which are the bulk of the £58 bn-a-year industry

1998 Construction Best Practice Programme

Following the Egan Report Rethinking Construction

Identifies, publicises and supports the use of improved business and management practices for the Construction Industry

Funded by DETR and is steered jointly by Government and the CIB Construction Industry Board

1998 Euro-Agrément agreed by UEAtc

This will allow any materials producer to seek an Agrément Certificate for their product in their own country

At the same time have the product assessed for any other pre-agreed European state where it wishes to promote the product.

1998 Euro-Agrément

The certificate will have:

- a front cover indicating the initiating and co-operating institutions

- an annex covering national provisions and regulated requirements

1998 Euro-Agrément

Each pre-agreed state will take a minimalist approach and accept the overlapping areas already carried out by the initiating Institute. It will then be acceptable in those pre-agreed UEA member countries as a pre-agreed confirmation.

1998 First ETA awarded in UK

9 years after the Construction Products Directive issued, the European Technical Approval for Hilti GmbH for 2 of its anchor products Rawlplug are hot on their heels and awarded first ETA to a UK company. Structural sealant glazing systems were also awarded ETA.

1998 General Criteria for suppliers' declaration of conformity

BS EN 45014 (Formerly BS 7514)

1998 Hockerton Housing Project (HHP)

implements its own Local Agenda 21

11 years after the initial idea suggested and

6 years after the Rio Earth Summit

The first UK public demonstration of a Local Agenda 21 makes the press.

reviewed in Building Services Journal Feb. 98.

1998 Services for Housing

Implementation of Agenda 21.

Building Services Journal: 00 02 98

1998 The Muck Stops Here

Environmental Liability

By Tim Smithers and Nic Seal.

Estates Gazette 100198

1998 From design to dustbin

Life Cycle Assessment

Garath Gardner

Building 030498

1998 Life Cycle Assessment

Technical Notes

Nigel Howard and Suzy Edwards

AJ 110698

1998 Keener to be Greener

Ruth Slavid

AJ 230798

1998 Stewardship reaches £1bn of ethical assets in 9 years doubling in value in 3 years.

This policy has consistently outperformed FTSE All-share index and the UK Equity General Pension Fund Sector.

(Source: Reuters Hindsight)

1998 UK Ethical investment market passes £2bn.

1998 Green Building Challenge Conference held:

First international Conference on Green buildings.

1998 Ecological Building Centre: In the third year since its establishment Construction Resources launches the new EBC in Southwark, London to:

Promote, Exhibit, Educate in appropriate application of, Train in the use of, and sell 'Green' materials and services.

Lucy Pedler Architect & Product Specialist

Exhibits include: tools, materials, methods of construction, finishes, furniture

1:1 scale 3D cutaways of traditional, modern and alternative construction and acoustic methods

Nov 1998 Environment & Energy Helpline launched

Freephone 0800 585794

Jointly funded by DTI & DETR

Combines the best of BRE's Energy Efficiency Best Practice Programme & Environmental Technology Best Practice Programme

www.etsu.com/etbpp

www.environment.detr.gov.uk/bpp/helpline.htm

Nov 1998 4th Conference of the Parties (COP4)

Implementation of the Kyoto Protocol (Dec 1997)

UN Framework Convention on Climate Change (UNFCCC)

GHG Emissions Trading or Carbon Trading was added to the Kyoto Protocol at the last minute largely to ensure the continuing participation of USA which required some "flexibility" in the way it was to achieve its GHG emissions reduction target

GHG Emissions Trading or Carbon Trading

Carbon trading allows industrialised countries trying to achieve their legally-binding emissions reductions targets to trade carbon [dioxide] on newly-created international commodities markets

Countries whose emissions are below their legal reduction limit would be entitled to sell the "unused" portions to countries who are experiencing difficulty or lack commitment to meeting targets.

GHG Emissions Trading or Carbon Trading

A well run trading system would keep overall emissions within agreed global level whilst allowing countries to pursue more cost-effective means of achieving targets by trading emission reductions preferably as a supplement to domestic actions and clean technology programmes

Clean Development Mechanism (CDM) (See 2001)

Involve partnership projects to reduce GHG emissions through the use of:

clean technology,

environmental best practice

afforestation and reforestation projects

developed countries sponsor projects in developing-world host countries for a share of the certified GHG emission reductions generated in each project

Now that there is money to be made many countries previously opposed to the Kyoto Protocol are beginning to take a positive interest and adopting a positive stance in this new economic imperative

1999 Principles of element design

3rd edition

Peter Rich & Yvonne Dean

Invaluable guide for designers starting from first principles

1999 UK Green Foreign Policy

UK Government Programme

for the transfer of clean technology to the developing world

what about getting out act together first?

BRECSU Design Advice Service launched

Telephone: 01923 664258 Fax: 664787

Backed by DETR

Part of Energy Efficiency Best Practice Programme

For New build and Refurbishment of minimum 500m²

WWW.bre.co.uk/breclu

breclu@bre.co.uk

1999 Greening Commercial Property BCO Conference

The issues are being taken seriously by owners, developers, and users of commercial buildings

British Council for Offices hosted conference

Reported in AJ 25 Feb 99

Includes 2 building studies

1999 British Board of Agrément

promote the ETAG and EC Mark

British Board of Agrément seek UK market input

work starts on European Technical Approval Guidelines

17 ETAG are already in development

ETAG for partition kits is accepted by the EC

1999 ETAG

ETAG for 9 different building elements required including:

prefabricated wood-based load-bearing stressed skin panels

sandwich panels

connectors for timber trussed rafters, etc.

vetures (insulated cassette panels)

fire stopping materials

civil engineering movement joints

1999 DETR Reviews the Building Regulations

The need to improve energy efficiency and reduce greenhouse gas emissions, leads to a review of Part L

CO₂ being a primary contributor from energy production.

1999 DETR Reviews the Building Regulations

Possible outcome will be:

substantial increasing fabric insulation standards

new efficiency requirements of AC, ventilation and lighting systems

requirement for airtightness testing & services commissioning

1999 DETR Reviews the Building Regulations

Use of whole building CO₂ performance indices to show compliance

embracing maintenance, repair and refurbishment into areas for consideration

this might help to deal with existing housing stock

1999 Building Regulation 7

18 years after the 1981 government white paper on quality and competitiveness

Revised guidance from DETR is issued to ensure 'proper materials' are used

Even the building regulations policemen don't seem to demand 'quality products'

1999 UK Tax incentive for donations to charity
 Did the Labour Party wait until after Red Nose Day to launch the incentive?
 March 1999 HAPM Conference Forum
 'A Recipe for Greenhousing'
 Housing Association Property Mutual
 Publishers of the Component Life Manual
 HAPM want to add a 'Environmental Ingredient' to the manual to allow designers to choose materials for their buildings for their 'Greenness'
 March 1999 HAPM Conference Forum
 Invited 4 organisations to describe their methods of evaluating the 'Greenness' of materials and how they are used by practitioners
 Evaluation included: embodied energy, recyclability, scarcity, socio/economic issues and many other factors
 They included computer databases and evaluation tool-kits to score the buildings
 March 1999 HAPM Conference Forum
 After the presentations there was time to question the speakers further
 The Forum was completed by a non-binding vote
 The audience was invited to vote on their preferred method
 HAPM went away to evaluate them and develop the 'Environmental Ingredient'
 March 1999 Public & Media opposition to GM Food:
 Public gets to grips with Genetically Modified Food
 Clearer labelling demanded,
 large numbers of Retailers ban most GMF from their shelves until further investigation.
 after the recent Beef fiasco can government investigation and statements be trusted?
 April 1999 Rain Forest destruction
 Nature Magazine reports
 Daniel Nepstad an ecologist at the Woods Hole Research Centre Massachusetts
 Carries out field tests in Brazil to find far greater destruction of forests is occurring
 than can be detected by Landsat Environmental satellite image based deforestation mapping programme
 April 1999 Rain Forest destruction
 Brazillian Government estimates 17,000 square kilometres of forrest was lost in 1998 (the size of East Anglia)
 Napstad puts the figure closer to 60,000 sq km
 April 1999 RIBA CPD Green is the Colour Conference
 A practical guide to sustainable development
 DETR Government Policy
 EBC on Green materials available in the UK
 Regulations and Specification
 4 Case studies
 BED ZED scheme
 National Trust Policy & Case studies
 April 1999 BS EN ISO 14000 Certificates
 Combined Quality Management system and Environmental Management System.
 Published in 1996
 at end of 1996 1,491 certificates awarded in 45 countries
 at end of 1997 5,017 certificates awarded in 55 countries
 survey results are posted www.iso.ch
 BSI Business Standards April 1999
 1998 BBA 1st European Technical Approvals
 April 1999 BBA do ETA
 British Board of Agreement has now been designated by Government
 to carry out product conformity certification
 of Metal anchors for use in concrete
 leading to European Technical Approvals
 to meet the Construction Products Directive
 enabling CE marked anchors to be sold
 in signatory countries of the European Economic Area Agreement
 April 1999 CEED launched
 Council for Energy Efficiency Development
 A one-stop-shop for marketing energy efficiency products and services for the building fabric
 Organises CEED conferences & exhibitions
 CEED Members include:
 External Wall Insulation Association,
 National Home Energy Rating
 National Cavity Insulation Association
 Draught Proofing Advisory Association
 National Association of Loft Insulation Contractors
 And what of the Future?
 May 1999 Greening our Heritage
 May 1999

June 1999 Environmental Technology Show

ET '99 at NEC June 8-10

CBI Conference: Profiting from the Environment

Addresses: Pollution Control, waste management, water treatment, efficient use of energy and comprehensive management of environmental responsibilities to BS EN ISO 14001 (EMS)

June 1999 Environmental Technology Show

Exhibitor also address:

Environmental IT, Health & Safety, industrial effluent and contaminated land

European Eco-Management and Audit Scheme (EMAS) are especially featured

I acknowledge:

Friends Provident's Literature

"Stewardship Ethical Investment, Acting on your Principles"

for the idea and some of the content of this Chronology.

and numerous other bibliography

Also

Estates Gazette 10 Jan 98 Environmental Liability The Muck Stops Here

By Tim Smithers and Nic Seal.

Performance specification writing for building components.

DC9:

MPBW

'Greener Building':

Products and Services Directory

Keith Hall & Peter Warm

3rd edition 1995

4th edition 1998

Good Wood Manual

Specifying Alternatives to Non-renewable Tropical Hardwoods

Friends of the Earth

1985-90 UK discovers AWO

Conscious of the concern for unnecessary use of Tropical Hardwoods

UK market turns to USA temperate hardwoods

American White Oak stocks are pushed to the limits

1985 UK Architects rediscover the brick

Shortage of quality bricklayers forces up costs

British Library brickwork package tender above cost plan

ITTO

International Tropical Timber Organisation. Guidelines.

European Construction Documents

Knight

European Standards Report

BSRIA

EH40:199x:Occupational Exposure Limits.

(updated annually)

1990s Pacific Basin Economic Boom

Demand for hardwoods rises to unprecedented levels

1990s Indonesia Forest Fires Rage

A area the size of the British Isles is destroyed

Italy 1 Ireland 0

Italian tenderer denied contract on Irish drain laying project

Irish claimed the Italian pipes did not meet Irish standards

Italy took Ireland to court on basis of infringement of the 1957 Treaty of Rome

Italy won case

Iraq invades Kuwait

UN forces bannish Iraqi troops

Iraqi troop set the Kuwait Oil Fields alight

and discharge millions of gallons into the Gulf

French Nuclear Testing in Pacific ocean

BRECSU Internet site

www.bre.co.uk/bre/otherprg/eebp/default.html

CIIG Freelance Group

Kim Randall Ex ECD

Talk on Environmental Issues

Green Building Digest

ACTAC

Technical Aid Network

HAPM Component Life Manual

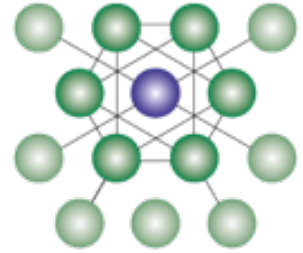
Housing Association Property Mutual

Insurance providers attempting to reduce the risk in insuring Housing Association properties.
Components evaluated and categorised in bands of life expectancy
30 years plus, 25, 20, 15, 10, 5, uninsurable
with maintenance regimes
Kitemarked and BBA certified are generally in the highest bands
E & F Spon Publishers

1995 Brand, S. How Buildings Learn; What Happens After They're Built. Viking Press

GBE Green Chronology

GBE



2000 to date

2000 Global Population: 6.1 billion, Atmospheric CO2: 369 ppm, Temperature Rise: 0.53 degrees C

2000 Millennium Development Goals (MDGs) set
(See 2012 SDGs)

2000 UK Sustainable Development Commission
set up to advise government on sustainable development (See 2011)

2000 November

- GPG 304 The Purchaser's guide to energy efficient buildings for industry
 - Helps the development of the Client's Brief with the questions that need to be asked to the design team.
 - Energy efficiency best practice programme
 - Read with GPG 303 December 2000
- This only addresses a small segment of the Green issues: Energy, but they are a good approach for many other issues
- And it was published before our mainstream industry learned much about competent buildings, airtightness, appropriate materials for application, etc. if they have learned since then.

2000 December

- GPG 303 The Designer's guide to energy efficient buildings for industry
 - Helps drive the design team by answering how to satisfy the questions in the Design Brief
 - Energy efficiency best practice programme
 - Read with GPG 304 November 2000
- This only addresses a small segment of the Green issues: Energy, but they are a good approach for many other issues
- And it was published before our mainstream industry learned much about competent buildings, airtightness, appropriate materials for application, etc. if they have learned since then.

2001

2001 Clean Development Mechanism (CDM) (See 1997)

Involve partnership projects to reduce GHG emissions through the use of:

- clean technology,
- environmental best practice
- afforestation and reforestation projects
- developed countries sponsor projects in developing-world host countries for a share of the certified GHG emission reductions generated in each project

Now that there is money to be made many countries previously opposed to the Kyoto Protocol are beginning to take a positive interest and adopting a positive stance in this new economic imperative

2001 Carbon Trust formed

Like Energy Saving Trust for Houses, Carbon Trust is an advisory body to support industry and big business

21st November: NGS National Green Specification launched
at Construction Resources premises

2002

2002 World Green Building Council (WGBC) founded

2002 Cradle to Cradle Book Published

2003

2003 April www.GreenSpec.co.uk Website

Founded and funded by BrianSpecMan

Edited by Sandy Patience

Launched at RIBA Sustainable Futures Committee

2003 London Congestions Charge Introduced

2003

2004

2005 Millennium Ecosystems Assessment published

Report Highlighted human strain on ecosystems and the need to reverse the degradation

2005 EU Emissions Trading Scheme introduced

2006

2006 Code for Sustainable Homes (CSH) established

Government commitment that all new homes would be zero carbon by 2016.

CSH was drawn up, operational from 2007 and temporarily mandatory from 2008, withdrawn 2015

2006 Stern Review of the Economics of Climate Change

Commissioned by Government then ignored by Government

2006 Tesla proposed a radical new approach to battery technology.

Rapid charging of batteries is now possible

Their early success in the field served as inspiration for other manufacturers.

Other leading manufacturers looking to them for guidance.

Their high performance sporty cars were aimed at the affluent.

Tesla is now a household name.

(Autotrader '21)

2007

2007 Planning and Climate Change

Planning Policy Statement supplement to PPS1

2007 Building Regulations Approved Document L tightened: to achieve 2016 goal

25% reduction by 2010, 44% reduction by 2013

Creating more new homes that need energy refurbishments throughout life.

2008

2008 Committee on Climate Change (CCC) established

2008 Climate Change Act

All new buildings to be Zero carbon by 2019

2008 Zero Carbon Hub (ZCH) established

A non-profit organization formed to achieve UK Government target of Zero Carbon Homes

2009

2009 Copenhagen Climate Change Summit

Limits temperature rise to 2 degrees centigrade above pre-industrial levels and possibly 1.5 degrees centigrade.

2009 Prosperity without Growth published written by Tim Jackson

2009-2013 Battery prices for electric cars dropped by 50% in just a four-year period.

This made electric cars more affordable and attainable than ever before.

(Autotrader '21)

2010

2010 Ellen MacArthur Foundation is launched

2010 Nissan Leaf all-electric car was launched.

This was the first all-electric car to be commonly seen on roads across the world.

It has zero emissions from its tailpipe, making it very popular with drivers with a more eco-friendly mindset.

(Autotrader '21)

2011

2011 Green Construction Board formed

2011 Natural Capital Committee formed

2011 Sustainable Development Commission closed after 11 years

2012

2012 Rio+20 UN Conference

Member states decided to launch a process to develop a set of Sustainable Development Goals (SDGs) which will build on the Millennium Development Goals (MDGs) and converge with the post 2015 development agenda.

2012 Practically no EVs on UK roads

(Autotrader '21)

2012 November 24: First page of NGS National Green Specification Website created

2013

2013 April 27: First public announcement of NGS website:

- (via twitter, linkedIn, facebook)
- Future Events page

2013 June 12: NGS website 1000th page created

2013 July 18: LEED announced inclusion of C2C principles into its EAM

2013 September 30: Deadline for London Stock Exchange listed Companies to adopt [mandatory GHG Reporting](#).

2013 September 31: This website 7723 new pages or updates to existing pages

2013 November 8: Typhoon Haiyan ripped through the Philippines,

- Record breaking wind speeds
- 11 million people have had their lives torn apart.
- 800,000 people are displaced
- at least 10,000 are dead
- Homes are flattened and bridges are gone.
- It'll take two months to restore electricity to the coastal city of Tacloban.
- *"In Tacloban everything is flattened. Bodies litter the street, many, many of which are children. From what I saw, two out of every five bodies was that of a child."*
- Lynette Lim, part of Save the Children's team in Tacloban City
- The millions of children and adults urgently need food, water and shelter.

2013 Construction Leadership Council (CLC) formed

Set Key targets for Construction 2025

2013 RIBA Plan of Work 2013

Royal Institute of British Architects

<https://www.ribaplanofwork.com>

2013 Global Waste on Pace to Triple by 2100

The World Bank

<http://www.worldbank.org/en/news/feature/2013/10/30/global-waste-onpace-to-triple>

2014

2014 Workplace trends in office space: implications for future office demand.

University of San Diego

<https://www.emeraldinsight.com/doi/abs/10.1108/JCRE-07-2013-0016>

2014 EV Model Choice

There were over 20 pure electric and 35 electric-hybrid models available to choose from.
(Autotrader '21)

2015

2015 March GreenBuildingEncyclopaedia

- Marketing Strategy and new Website commissioned

2015 Rethinking finance in a circular economy.

ING

https://www.ing.nl/media/ING_EZB_Financing-the-CircularEconomy_tcm162-84762.pdf

2015 Europe's circular economy opportunity.

McKinsey Center for Business and Environment

<https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/Europes%20circular%20economy%20opportunity/Europes%20circulareconomy%20opportunity.ashx>

2015 UN Sustainable Development Goals (See 2012)

A blueprint to achieve a better more sustainable future for all.

It addresses global challenges including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice; with a target to achieve all Goals by 2030.

2015 National Infrastructure Commission established

2015 Code for Sustainable Homes withdrawn

Made non-mandatory unless required in a local authority's local plan

2015 September 8th GreenBuildingEncyclopaedia

- GBE goes live to Google, other webbots and spiders.

2015 Paris Agreement

Non-binding agreements signed limiting greenhouse gas emissions.

2015 December 12th

- COP21 almost 200 countries came to an historic agreement to limit global warming to less than 2 degrees with a target of 1.5 degrees.
- There will be 5 yearly check-ups on progress and new targets to enable the goal to be met.
- But we have to remember that is a group of politician, who by their own track record cannot be trusted with publicly accepted moral standards, telling the truth or keeping their word.
- The UK Government has a blatant disregard for people over business and profits.
- So we must hold them accountable at every stage from now onwards.

2016

2016 From waste to resource productivity Report.

By Government Office for Science

Report of the Government Chief Scientific Adviser.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/667476/fromwaste-to-resource-productivity-finalreport.pdf

2016 UN Environment Programme (UNEP)

World Wide Extraction of Materials Triples in Four Decades, Intensifying Climate Change and Air Pollution.

<https://www.unenvironment.org/news-and-stories/press-release/worldwide-extractionmaterials-triples-four-decadesintensifying>

2016 UN 2030 Agenda for Sustainable Development in effect

2016 Zero Carbon Hub closed

Government cut funding, but documents still available.

2017

2017 Donut Economics published

2017 Clean Growth Strategy

2017 Industrial Strategy: Building a Britain fit for the future

UK HM Government

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrialstrategy-white-paper-web-ready-version.pdf

2018

2018 Global Population: 7.7 billion, Atmospheric CO2: 411 ppm, Temperature Rise: +1.00 degrees C

2018 IPPC Sets temperature Increase limit

Report recommending a maximum 1.5 degrees C increase in temperature over pre-industrial levels

2018 Greta Thunberg began School Strike for Climate

2018 Extinction Rebellion founded

2018 Global Climate Action Summit

National governments called to join forces to step up climate action ahead of 2020 – the year when global greenhouse gasses need to peak and fall sharply, to therefore avoid the worst impacts of climate change

2018 UK Government Approves Fracking

2018 Industrial Strategy: Construction Sector Deal.

UK HM Government

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/731871/construction-sectordeal-print-single.pdf

2018 A Green Future: Our 25 Year Plan to Improve the Environment

UK HM Government

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

2018 Monthly Statistics of Building Materials and Components.

BEIS

<https://data.gov.uk/dataset/75ee36ed-21f7-4d7b-9e7cf5bf4546145d/monthly-statistics-ofbuilding-materials-and-components>

2018 Circular Economy: What we want to know and can measure.

Potting J., Hanemaaijer A., Delahaye R., Ganzevles J., Hoekstra R. and Lijzen J.

<https://circulareconomy.europa.eu/platform/sites/default/files/pbl-2018-circular-economy-what-wewant-to-know-and-can-measure-3216.pdf>

2019

2019 Climate Change Act amended

UK Government requires 100% Net Zero Carbon by 2050

2019 UK Declares Climate Emergency:

Legally bound to deliver Net Zero Carbon Britain by 2050

2019 RIBA 2030 Climate Challenge

2019 COVID pandemic begins

2019 UN Climate Summit

The latest analysis shows that, if we act now, we can reduce carbon emissions within 12 years and hold the increase in global average temperature to well below 2 degrees C and even, as advised by the latest science, to 1.5 degrees C above pre-industrial levels.

2019 IPBES Report on Biodiversity decline published

2019 Fracking Moratorium UK Government announcement

2019 Circular Economy: Implementation of the Circular Economy Action Plan.

European Commission

http://ec.europa.eu/environment/circular-economy/index_en.htm

2019 The Circular Gap Report 2019.

<https://ciwmjournal.co.uk/wordpress/wp-content/uploads/2019/01/The-CircularityGap-Report-2019-Final-Text-Draft.pdf>

2019 UK Statistics on Waste.

Defra and Government Statistical Service

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/784263/UK_Statistics_on_Waste_statistical_notice_March_2019_rev_FINAL.pdf

2019 Circular Economy Policy and Advocacy.

UKGBC

<https://www.ukgbc.org/uncategorised/circular-economy-policy-and-advocacy/>

2019 Park 20|20

Delta Development Group

<http://www.deltadevelopment.eu/en/projectdevelopment/projectdevelopment/park-2020/>

2020

2020 Need to retrofit 1000 properties per day until 2050 to meet 2050 NZC targets

2021

2021 UK Environment Bill

Biodiversity increase by 10%

2030 All new Buildings must be Net Zero Carbon

2050 All existing building stock to be Net Zero Carbon

2021 COP26 Glasgow Global Climate Change Summit

Last chance for Global Leaders to wake up, and get on with their job, fund our way out of this mess

2021 over 515,000 electric cars registered in the UK

This is a staggering increase from 2012, when there were practically none.

(Autotrader '21)

2021 Ofgem recent study:

6.5m people (24% of consumers) plan on owning an electric car by 2026.

<https://www.ofgem.gov.uk/publications-and-updates/one-four-consumers-plan-buy-electric-car-next-five-years-according-ofgem-research>

(Autotrader '21)

2030 EV Projections:

Ofgem go on to estimate that as many as 18 million electric cars could be on British roads by the time of the ban on internal combustion engines in 2030.

(Autotrader '21)

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