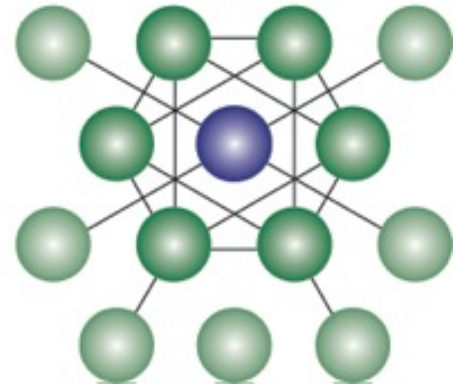


GBE Green Chronology

GBE



Sustainable Development A Chronology

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

This paper came about preparing to speak at the 1999 BD Conference "Green is the Colour"

For my own education I did an internet trawl to assemble a chronology of the Green Movement related to Construction.

And presented "legislation influencing the use of green materials".

At that time there was almost no legislation influencing designers but some influencing manufacturers.

Part 1 Regulations and 'Green' materials

You could be forgiven for thinking the title of that 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
- CAT Centre for alternative technology pages 19-25 of Clean Slate No.120 Summer 2021
- FCBStudios and the Climate Movement '23
- CobBauge Page turner '23
- DC9: Performance specification writing for building components.
- 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
- ITTO International Tropical Timber Organisation. Guidelines.
- European Construction Documents
- Knight
- European Standards Report
- BSRIA
- EH40:199x:Occupational Exposure Limits. (updated annually)
- numerous other bibliography

Brain Dump:

- A place to list any other topics to be researched and added

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)

(NGS BRM '99 - GBE BRM '23)

1900

1900 Traces of CO2 absorb heat:

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

(NGS BRM '99 - GBE BRM '23)

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)

(NGS BRM '99 - GBE BRM '23)

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)

(NGS BRM '99 - GBE BRM '23)

1914 First commercial passenger airline flight:

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

(NGS BRM '99 - GBE BRM '23)

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

(Autotrader '21)

(NGS BRM '99 - GBE BRM '23)

1939 Hottest 5 years recoded:

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

(NGS BRM '99 - GBE BRM '23)

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)

(NGS BRM '99 - GBE BRM '23)

1955 Building Regulations and Health

BRS Report BR 289

(NGS BRM '99 - GBE BRM '23)

1955 Building Regulations and Safety

BRS Report BR 290

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

1956 Sellafield, world's first commercial nuclear reactor,

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

(NGS BRM '99 - GBE BRM '23)

1957 Confirmed increase in Global Carbon:

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1958 Charles David Keeling proves CO2 Increase:

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

(NGS BRM '99 - GBE BRM '23)

1958 Campaign for Nuclear Disarmament (CND)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1961 Public Health Act

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

(NGS BRM '99 - GBE BRM '23)

1961 Amnesty International Founded

Founded to oppose political imprisonment, torture and executions

(NGS BRM '99 - GBE BRM '23)

1961 Construction (General Provisions) Regulations SI 1961/1580

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

Widely credited with launching the environmental movement by exposing the dangers of uncontrolled use of pesticides

(FCBStudios and the Climate Movement '23)

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

Consumer Movement. Detroit USA

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1967 Torrey Canyon Oil Slick

Serious ecological damage done by oil slick off Cornish coast

from the wrecked oil tanker

(NGS BRM '99 - GBE BRM '23)

1968 Construction (Working Places) Regulations

SI 1966/94

(NGS BRM '99 - GBE BRM '23)

1968 First Whole Earth Catalogue published.

Described later by Apple's Steve Jobs as "Google in paperback",

The cover photo from Apollo 4's 1967 mission showed Earth as a finite entity isolated in space.

(FCBStudios and the Climate Movement '23)

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)

(NGS BRM '99 - GBE BRM '23)

1969 Performance parameters & performance specification in architectural design.

BRS CP 23/69:

(NGS BRM '99 - GBE BRM '23)

1969 Performance specifications for building components.

BRS CP 37/69:

(NGS BRM '99 - GBE BRM '23)

1970 Power to the people

USA: First concerted shareholder action campaign on an ethical issue launched against General Motors.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1970s EV's blip in popularity

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

(Autotrader '21)

(NGS BRM '99 - GBE BRM '23)

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)

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1972 Agrément Board New Director

Tom Lant succeeds first Director, Tom Parker

(NGS BRM '99 - GBE BRM '23)

1972 Metric version of the Building Regulations

brings together all the past 7 amendments and 1965 Regulations

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1972 United Nations Environment Programme (UNEP) formed.

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

(NGS BRM '99 - GBE BRM '23)

1972 Limits of Growth: Published by the Club of Rome

(NGS BRM '99 - GBE BRM '23)

1972 Blueprint for Survival by the Ecologist magazine

(NGS BRM '99 - GBE BRM '23)

1973 Agrément Board Test unit set up.

Technical Development Manager appointed to promote Agrément idea

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1973 Social Audit

Public Interest Research Centre

publishes first Social Audit

(NGS BRM '99 - GBE BRM '23)

1973 CITES

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

(NGS BRM '99 - GBE BRM '23)

1973 BS 4949

Glossary of terms relating to Building Performance

(NGS BRM '99 - GBE BRM '23)

1973 First oil shock: precipitated by Yom Kippur War - petrol rationing in UK.

(FCBStudios and the Climate Movement '23)

1974 Powdered Milk & 3rd World

Campaigners target the marketing of powdered baby milk in the Third World by multinationals

(NGS BRM '99 - GBE BRM '23)

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

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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/

(NGS BRM '99 - GBE BRM '23)

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

(Autotrader '21)

(NGS BRM '99 - GBE BRM '23)

1975 Centre for Alternative Technology opens in Machynlleth, Mid Wales.

(FCBStudios and the Climate Movement '23)

1975 "Global Warming" first coined

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

(NGS BRM '99 - GBE BRM '23)

1975 Everyday details

AJ Series

(NGS BRM '99 - GBE BRM '23)

1975 AJ Specification series

100975>

(NGS BRM '99 - GBE BRM '23)

1975 AB First Certificates Roads and Bridges Certificates published

(NGS BRM '99 - GBE BRM '23)

1977 Agrément Board

moves to Garston

(NGS BRM '99 - GBE BRM '23)

1977 'An Alternative Energy Strategy for the UK'

CAT publishes the inspiration for the project, presenting copies to Tony Benn's Ministry of Energy.

(CAT CS 120 '21)

1978 Seal Culls

Greenpeace's Rainbow Warrior stops seal cull by fishermen competing for fish stocks

(NGS BRM '99 - GBE BRM '23)

1978 What has become of Performance Specification

AJ Study 9: 150278

(NGS BRM '99 - GBE BRM '23)

1978 Feilden Clegg Design first established in Bath.

(FCBStudios and the Climate Movement '23)

1979 Three Mile Island

USA's worst ever nuclear accident

(NGS BRM '99 - GBE BRM '23)

1979 DoT approves Stewardship

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

(NGS BRM '99 - GBE BRM '23)

1979 Second oil shock: precipitated by Iran/ Iraq war.

(FCBStudios and the Climate Movement '23)

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)

(NGS BRM '99 - GBE BRM '23)

1980 Recommendations for performance standards in building:

BS 6019

Contents and Presentation

(NGS BRM '99 - GBE BRM '23)

1981 Agreement Board

doing well

Annual total of Certificates issued passes 100

(NGS BRM '99 - GBE BRM '23)

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 UK business a head start on the road to QA and product quality.

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

1981 Quality control on building sites

BRE IP 28/81

(NGS BRM '99 - GBE BRM '23)

1982 AB becomes the BBA

William Courtney appointed Chairman, the Agreement Board becomes the British Board of Agreement and current logo is adopted

(NGS BRM '99 - GBE BRM '23)

1982 Traditional Housing:

A BRE study of quality

BRE IP18/82

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1983 World Commission on Environment and Development (WCED) formed,

An independent body to look at environment and development problems

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1983 BBA Publications

Monthly information package published

Includes a newsletter covering:

Work in the European arena

information on Agrément organisations

changes in certificate status

catalogue of current certificates

'in the courts'

companies miss using BBA certificates in advertising

(NGS BRM '99 - GBE BRM '23)

1983 Detailing and specification

AJ series 010683>

(NGS BRM '99 - GBE BRM '23)

1983 EIRIS Founded

The Ethical Investment Research Services

founded to research companies' ethical behavior

(NGS BRM '99 - GBE BRM '23)

1983 Cleveland Reach, Bath:

FCB Architect's self-financed development incorporating triple glazing, whole house ventilation with heat recovery and experimental Trombe walls.

(FCBStudios and the Climate Movement '23)

1984 BBA Hotline set up

0800 *****

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

It is now easy to inform BBA is you think somebody is miss using the BBA logo

(NGS BRM '99 - GBE BRM '23)

1984 Ethical Finance

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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 planets vegetation can not convert Carbon Dioxide CO₂ to Oxygen O₂ fast enough to maintain a balance

(NGS BRM '99 - GBE BRM '23)

1984 Building Act limits fuel use and emissions:

First reference to testing, measuring and reduction

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1985 Building Regulations accepts BBA

DoE announces BBA Certificates to have enhanced status under new Building Regulations

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1985 British Antarctic Survey identifies hole in ozone layer.

(FCBStudios and the Climate Movement '23)

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.

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.

(NGS BRM '99 - GBE BRM '23)

1985 Performance Specification

AJ series 170485>

(NGS BRM '99 - GBE BRM '23)

1985 Using experience and publications in building design

BRE IP13/85

(NGS BRM '99 - GBE BRM '23)

1985 Meeting building designer's needs for trade information

BRE IP14/85

(NGS BRM '99 - GBE BRM '23)

1985 Housing defect prevention unit

BRE Defect Action Sheet 63 Aug '85

(NGS BRM '99 - GBE BRM '23)

1985 UK Architects rediscover the brick

Shortage of quality bricklayers forces up costs

British Library brickwork package tender above cost plan

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

1986 BBA New format Certificates launched

BBA Board of Management set up

(NGS BRM '99 - GBE BRM '23)

1986 European Community Regulations

EEC 3626/86.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1986 Element Design Guide

AJ 020786>

(NGS BRM '99 - GBE BRM '23)

1986 2 Mile Ash, Milton Keynes: super insulated housing - heating demand is 80% lower than standard.

(FCBStudios and the Climate Movement '23)

1987 Achieving quality on building sites.

NEDO

(NGS BRM '99 - GBE BRM '23)

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?

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.

(NGS BRM '99 - GBE BRM '23)

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.

result of 10 years work

(NGS BRM '99 - GBE BRM '23)

1987 World Commission on Environment and Development (WCED)

Brundtland Report

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."

(NGS BRM '99 – GBE BRM '23)

1987 Bruntland Report: set out the fundamental definition of sustainable development.

(FCBStudios and the Climate Movement '23)

1987 Montreal Protocol agreed:

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1988 BBA New Director

Peter Hewlett succeeds Tom Lant as Director

(NGS BRM '99 - GBE BRM '23)

1988 Substances for use at work: the provision of information

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

(NGS BRM '99 - GBE BRM '23)

1988 LA invest in Stewardship

First UK Local Authority Pension Fund invests ethically with Stewardship

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1988 Solar Courtyard houses, Milton Keynes:

Quadruple glazed passive solar houses for the Energyworld exhibition opened by Margaret Thatcher!

(FCBStudios and the Climate Movement '23)

1989 The End of Nature: published by Bill McGibben

(NGS BRM '99 - GBE BRM '23)

1989 BBA new EU role on ETAs

BBA is designated to issue European Technical Approvals

(NGS BRM '99 - GBE BRM '23)

1989 COSHH in construction - a BEC guide

BEC S/89 1989.

(NGS BRM '99 - GBE BRM '23)

1989 Exxon Valdez

11 million gallons of oil spilt off the Alaskan Coast in a sheltered natural harbour

(NGS BRM '99 - GBE BRM '23)

1989 Electricity At Work Regulations

SI 1989/653

(NGS BRM '99 - GBE BRM '23)

1989 The London Hazards Centre:

Toxic Treatments.

(NGS BRM '99 - GBE BRM '23)

1989 CFCs and the Building Industry.

BRE Information Paper 23/89

(NGS BRM '99 - GBE BRM '23)

1989 Building Design and Use: response to climate change

Neil Milbank

AJ 020889.

(NGS BRM '99 - GBE BRM '23)

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

HSE 1989

(NGS BRM '99 - GBE BRM '23)

1989 Lausanne Conference

103 countries votes for ban on Ivory trading,

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1989 Water Act

A code of practice for water conservation, access and recreation

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1989 BS 5589 Code of Practice for Preservation of Timber

(NGS BRM '99 - GBE BRM '23)

1989 BS 5268 Structural Use of Timber

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

Durability of species

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1990 Building for a Future

Magazine published by AECB, First edition, still published 2003

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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.

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?

(NGS BRM '99 - GBE BRM '23)

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

SI 1990/2026

(NGS BRM '99 - GBE BRM '23)

1990 Man made mineral fibres

HSE EH46:1990

(NGS BRM '99 - GBE BRM '23)

1990 Rosehaugh Guide (Buildings and Health).

C Curwell, C March and R Venables. Editors

RIBA Publications

(NGS BRM '99 - GBE BRM '23)

1990 Review of Rosehaugh Guide

Pages 45-48 AJ 121290

(NGS BRM '99 - GBE BRM '23)

1990 Environmental Protection Act

(NGS BRM '99 - GBE BRM '23)

1990 A Real Wood Guide.

Forests Forever:

Statistical information on sources and UK uses.

(NGS BRM '99 - GBE BRM '23)

1990s EV regulatory changes

Regulatory changes were introduced to tackle the worrying levels of CO₂ which traditional fuels put into the atmosphere.

(Autotrader '21)

(NGS BRM '99 - GBE BRM '23)

1990 BREEAM (Building Research Establishment Environmental Assessment Method) established.

(FCBStudios and the Climate Movement '23)

1990s Pacific Basin Economic Boom

Demand for hardwoods rises to unprecedented levels

(NGS BRM '99 - GBE BRM '23)

1990s Indonesia Forest Fires Rage

A area the size of the British Isles is destroyed

1991 BBA Monthly Datafile scheme

replaces the Publications Monthly

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1991 BRE Digest 358

and many others, 02 91

(NGS BRM '99 - GBE BRM '23)

1991 Green Architecture

Vale & Vale

Thames and Hudson

(NGS BRM '99 - GBE BRM '23)

1991 Greening the Practice

AJ 271191

(NGS BRM '99 - GBE BRM '23)

1991 BS 7373:Guide to the preparation of specifications

(NGS BRM '99 - GBE BRM '23)

1991 Building Regulations

SI 1991/2768

Acknowledges:

CPD Construction Products Directive

Construction Products Regulations

Regulation 7 Materials and Workmanship

'proper materials'

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)

(NGS BRM '99 - GBE BRM '23)

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-lay 7
Essential Requirements
EC Mark
ETA European Technical Approvals
National Agrément Certificates,
BSI Kitemark
(NGS BRM '99 - GBE BRM '23)

1991 Greenpeace Headquarters, London, conversion of vivisection lab to offices:

daylight and natural ventilation, exposed thermal mass, CHP.

(FCBStudios and the Climate Movement '23)

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.

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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)

(NGS BRM '99 - GBE BRM '23)

1991 BRE Launches BREEAM Building Research Association Environmental Assessment Method

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1991 BREEAM 2/91 New Superstores and Supermarkets

(NGS BRM '99 - GBE BRM '23)

1991 Environmental Protection Regulations

(NGS BRM '99 - GBE BRM '23)

1992 Conference on Performance Specification

lofAAS York on 09 06 92

May 1992 Benoy Environmental

Teresa Martinez

Head of Environment Unit

Questionable approach and statements

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

(NGS BRM '99 - GBE BRM '23)

1992 Management of Health and Safety at work Regulations

SI 1992/

(NGS BRM '99 - GBE BRM '23)

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

SI 1992/2865:

(NGS BRM '99 - GBE BRM '23)

1992 Personal Protective Equipment at Work Regulations (PPE)

SI 1992/2966

(NGS BRM '99 - GBE BRM '23)

1992 Workplace (Health, Safety And Welfare) Regulations

SI 1992/3004:

(NGS BRM '99 - GBE BRM '23)

1992 Personal Protective Equipment (EC Directive) Regulations

SI 1992/3139

(NGS BRM '99 - GBE BRM '23)

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
(NGS BRM '99 - GBE BRM '23)

1992 Management of health and safety at work:

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

HSE L21

(NGS BRM '99 - GBE BRM '23)

1992 HCFCs: Hidden CFCs.

Publication

Greenpeace International

(NGS BRM '99 - GBE BRM '23)

1992 Woodmark

The Soil Association Certificate of Responsible Forestry.

(NGS BRM '99 - GBE BRM '23)

1992 Green specification

AJ 150492

(NGS BRM '99 - GBE BRM '23)

1992 Green Guide to Specification published (GGtS)

Comparing overall environmental impacts of typical construction

(FCBStudios and the Climate Movement '23)

See Also: GBE Jargon Buster: Green Guide to Specification

See Also: GBE CPD: Critique of GGtS

(GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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)

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

1992 the "new approach" to technical harmonisation and standards

DTI Standards:

(NGS BRM '99 - GBE BRM '23)

1992 Construction Products.

DTI Standards:

(NGS BRM '99 - GBE BRM '23)

1993 Housing Design Handbook:

Energy and internal Layout

BR 235

BRE Publisher

(NGS BRM '99 - GBE BRM '23)

1993 Simply build green

A technical guide to the ecological houses at Findhorn Foundation

John L Talbot

(NGS BRM '99 - GBE BRM '23)

1993 Clean Air Act

controls atmospheric pollution from fires and furnaces.

controlling the quality of the Services Installation we install.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1993 CE Marking of Construction Products

Directive 93/68/EEC

Rationalises the EC Marking procedures previously described in numerous EC Directives

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

1993 Ecolabelling of Building materials and Building Products

BRE Information Paper 11/93

(NGS BRM '99 - GBE BRM '23)

1993 BREEAM 1/93 New Offices

Scheme updated

(NGS BRM '99 - GBE BRM '23)

1993 BREEAM 4/93 Existing Offices

(NGS BRM '99 - GBE BRM '23)

1993 BREEAM 5/93 New Industrial Units

(NGS BRM '99 - GBE BRM '23)

1993 The Green Construction Handbook

J T Design & Build & Arup

(NGS BRM '99 - GBE BRM '23)

1993 The Green Construction handbook

AJ Review 070793 and 210793.

(NGS BRM '99 - GBE BRM '23)

1993 Chemicals (Hazard Information and Packaging) Regulations (CHIP).

SI 1993/ :

Useful in CDM Risk assessments

(NGS BRM '99 - GBE BRM '23)

1993 Personal Protective Equipment

(EC Directive) (Amendments) Regulations SI 1993/3074:

(NGS BRM '99 - GBE BRM '23)

1994 BBA

Certificate 3000 issued with colour photo on the front cover in house DTP set up to speed up issue of certificates

(NGS BRM '99 - GBE BRM '23)

1994 Personal Protective Equipment

(EC Directive) (Amendments) Regulations

SI 1994/2326:

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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,

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

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

Must take into account:

material excavator/miner, - manufacturer,

supplier, - stockist,

fabricator,
installer,

- contractor,
- applicator,

Must take into account: building occupants, maintenance staff, refurbishers, demolition contractor and recycle contractors.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

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.

(NGS BRM '99 - GBE BRM '23)

1994 Environmental Handbook for Building and Civil Engineering Projects.

Vol. 1 - Design and Specification.

Overview in checklist format with references to good practice.

CIRIA

(NGS BRM '99 - GBE BRM '23)

1994 Energy and Global Warming

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

US Dept. of Energy:

(NGS BRM '99 - GBE BRM '23)

1994 Building Regulations (amendment) Regulations

SI 1994/1850

(NGS BRM '99 - GBE BRM '23)

1994 Managing Construction for health and safety

Construction (Design and Management) Regulations

HSE L54 1994

(NGS BRM '99 - GBE BRM '23)

1994 Embodied Energy and Carbon Dioxide Emissions for Building materials.

BRE PD 109/94

(NGS BRM '99 - GBE BRM '23)

1994 Amendment to Building Regulations

SI 1994/1850

Amendment to:

L1 Conservation of Fuel

Regulation 14

Energy rating for new dwellings

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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

200 companies working towards a sustainable world

(NGS BRM '99 - GBE BRM '23)

1995 BBA Director becomes President of EOTA

Peter Hewlett elected President of the EOTA

European Organisation for Technical Approvals

(NGS BRM '99 - GBE BRM '23)

1995 Control of substances hazardous to health (COSHH)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1995 Green Building Tool created:

Certification for buildings that meet green criteria

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1995 Environmental Standard: Homes for a Greener World

BR 278

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1995 Ecological Footprint concept created:

Mathis Wackernagel and William Rees, sustainability advocates, invent way to measure human demand on nature

(NGS BRM '99 - GBE BRM '23)

1995 Building Regulations (amendment) Regulations

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

(NGS BRM '99 - GBE BRM '23)

1995 Environmental Policy and Information for RIBA members

(NGS BRM '99 - GBE BRM '23)

1995 Environment Act Chapter 25

(NGS BRM '99 - GBE BRM '23)

1995 Ethical investment: Stewardship breaks £500m barrier only 6 years after its launch

(NGS BRM '99 - GBE BRM '23)

1995 The Environment comes home

Herberger Centre for Design Excellence

David K Pijawka & Kim Shetter

1995 How Buildings Learn; What Happens After They're Built.

Brand, S. Viking Press

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

(NGS BRM '99 - GBE BRM '23)

1996 Taking back our stolen Future: Hormone disruption & PVC plastic, Greenpeace

April 1996

(NGS BRM '99 - GBE BRM '23)

1996 Environmental Design:

An introduction for Architects & Engineers

R Thomas Editor

E & F N Spon

(NGS BRM '99 - GBE BRM '23)

1996 BBA New Chairman

Tony Jackson appointed Chairman

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1996 Road Protesters

Road protesters disrupt Britain's road building programme and bring their concerns to the public attention

(NGS BRM '99 - GBE BRM '23)

1996 Lung Cancer

First legal challenges by lung cancer victims against tobacco companies in USA

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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”.

(NGS BRM '99 - GBE BRM '23)

1996 Construction (Health, Safety and Welfare) Regulations

SI 1996/1592:

(NGS BRM '99 - GBE BRM '23)

1996 Personal Protective Equipment (EC Directive) (Amendments) Regulations

SI 1996/3039: 1996

(NGS BRM '99 - GBE BRM '23)

1996 Specifying for Greener Building

Stephen Curwell.

AJ 110196

(NGS BRM '99 - GBE BRM '23)

1996 Building for Sustainability

Barrie Evens

AJ 180196

(NGS BRM '99 - GBE BRM '23)

1996 Making London Sustainable

Herbert Girardet

AJ 290296

(NGS BRM '99 - GBE BRM '23)

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)

(NGS BRM '99 - GBE BRM '23)

1997 Energy in Inverness, RIAS Convention

AJ 150597

(NGS BRM '99 - GBE BRM '23)

1997 Water as a planning constraint: Brian Waters

AJ 290597

(NGS BRM '99 - GBE BRM '23)

1997 Material Gains: reviews Good Practice in the selection of construction materials.

Addresses blacklisting

AJ 290597

(NGS BRM '99 - GBE BRM '23)

1997 Ethical Finance Threshold

Over \$1 trillion now invested in ethically screened or activist funds in the USA

(NGS BRM '99 - GBE BRM '23)

1997 A material difference

Sustainable Engineering:

Materials and Methods:

Brian Sims

Building Services Journal: 000797

(NGS BRM '99 - GBE BRM '23)

1997 Futures: Time to make a difference

Mike Evamy

Design Week 040797

(NGS BRM '99 - GBE BRM '23)

1997 Missing the Green

Andy Cook

Building: Technical: Environment: 180797

(NGS BRM '99 - GBE BRM '23)

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 two contentious elements of the protocol were not detailed they will be developed at Conference of the Parties (COP) to be held annually

Emissions trading and Clean Development Mechanism (CDM)

See Also: COP4 Nov 1998

(NGS BRM '99 - GBE BRM '23)

1997 Kyoto Protocol negotiated.

(FCB Studios and the Climate Movement '23)

1997 BBA Certificates and CDM

Certificates now include information for
Construction Design and Management Regulations purposes

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

1998 Design guide for naturally ventilated daylit offices

BRE

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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 be then be acceptable in those pre-agreed UEAtc member country as a pre-agreed confirmation.

(NGS BRM '99 - GBE BRM '23)

1998 First ETA awarded in UK

9 years after the Construction Products Directive issued the European Technical Approval for Hilti GmbH for 2 of it's anchor products

Rawlplug are hot on their heels and awarded first ETA to a UK company

Structural sealant glazing systems were also awarded ETA

(NGS BRM '99 - GBE BRM '23)

1998 General Criteria for suppliers' declaration of conformity

BS EN 45014 (Formerly BS 7514)

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

1998 The New Environmental Office, Building Research Establishment:

Naturally ventilated, low energy, external glass louvres, borehole cooling, first UK installation of T5 lighting and vertical thin film silicone PV array.

(FCB Studios and the Climate Movement '23)

1998 Services for Housing

Implementation of Agenda 21.

Building Services Journal: 00 02 98

(NGS BRM '99 - GBE BRM '23)

1998 The Muck Stops Here

Environmental Liability

By Tim Smithers and Nic Seal.

Estates Gazette 100198

(NGS BRM '99 - GBE BRM '23)

1998 From design to dustbin

Life Cycle Assessment

Garath Gardner

Building 030498

(NGS BRM '99 - GBE BRM '23)

1998 Life Cycle Assessment

Technical Notes

Nigel Howard and Suzy Edwards

AJ 110698

(NGS BRM '99 - GBE BRM '23)

1998 Keener to be Greener

Ruth Slavid

AJ 230798

(NGS BRM '99 - GBE BRM '23)

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)

(NGS BRM '99 - GBE BRM '23)

1998 UK Ethical investment market passes £2bn.

(NGS BRM '99 - GBE BRM '23)

1998 Green Building Challenge Conference held:

First international Conference on Green buildings.

(NGS BRM '99 - GBE BRM '23)

1998 Ecological Building Centre:

In the third year since it's 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

(NGS BRM '99 - GBE BRM '23)

1999 Principles of element design

3rd edition

Peter Rich & Yvonne Dean

Invaluable guide for designers starting from first principles

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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.

(NGS BRM '99 - GBE BRM '23)

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

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

(NGS BRM '99 - GBE BRM '23)

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'

(NGS BRM '99 - GBE BRM '23)

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'

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

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

Brazilian Government estimates 17,000 square kilometres of forest was lost in 1998 (the size of East Anglia)

Nepstad 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

See Also: GBE CPD Green Chronology

See Also: GBE CPD Green or Violet

(NGS BRM '99 – GBE BRM '23)

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

(NGS BRM '99 - GBE BRM '23)

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

1999 Earth Centre, Doncaster:

Exhibition space cooled by labyrinth,

Largest UK PV array supported on distorted Scottish larch space frame.

(FCBStudios and the Climate Movement '23)

Architects Journal did their best to destroy Earth Centre as a visitors venue, on the basis of uninteresting architecture rather than concentrate of the educational opportunity.

See Also GBE CPD Earth Centre

(GBE BRM '23)

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)

Exhibitor also address:

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

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

2000

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

(NGS BRM '00 - GBE BRM '23)

2000 Millennium Development Goals (MDGs) set

(See 2012 SDGs)

(NGS BRM '00 - GBE BRM '23)

2000 UK Sustainable Development Commission

set up to advise government on sustainable development (See 2011)

(NGS BRM '00 - GBE BRM '23)

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.

(NGS BRM '00 - GBE BRM '23)

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.

(NGS BRM '01 - GBE BRM '23)

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

(NGS BRM '01 - GBE BRM '23)

2001 Carbon Trust formed

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

21st November 2001: NGS National Green Specification launched

at Construction Resources premises

(NGS BRM '02 - GBE BRM '23)

2002

2002 World Green Building Council (WGBC) founded

(NGS BRM '02 - GBE BRM '23)

2002 Cradle to Cradle Book Published

(NGS BRM '03 - GBE BRM '23)

2002 EPBD Energy Performance of Buildings Directive 2002/91/EC

The first version of the EPBD, directive 2002/91/EC, was approved on 16 December 2002 and entered into force on 4 January 2003.

EU Member States (MS) had to comply with the Directive within three years of the inception date (4 January 2006), by bringing into force necessary laws, regulations and administrative provisions.

In the case of lack of qualified and/or accredited experts, the directive allowed for a further extension in implementation by 4 January 2006.

The Directive required that the MS strengthen their building regulations and introduce energy performance certification of buildings.

More specifically, it required member states to comply with Article 7 (Energy Performance Certificates), Article 8 (Inspection of boilers) and Article 9 (Inspection of air conditioning systems)

(Wikipedia '23)

See Also: Wikipedia: [air conditioning systems](#), [boilers](#), [Energy Performance Certificates](#)

See Also: EPBD 2011, EPBD 2018, EPBD 2021

(GBE BRM '11 – GBE BRM '23)

2002 UK Government Energy Review:

set a target of 60% reduction in CO₂ emissions by 2050.

(FCBStudios and the Climate Movement '23)

2003 FCBS the first architectural practice to win a Queen's Award for Sustainable Development.

(FCBStudios and the Climate Movement '23)

2003 Record UK summer temperature (38.5°C)

10 of the planet's hottest years have occurred since 1990.

(FCBStudios and the Climate Movement '23)

2003

(NGS BRM '03 - GBE BRM '23)

2003 April www.GreenSpec.co.uk Website

Founded and funded by BrianSpecMan

Edited by Sandy Patience

Launched at RIBA Sustainable Futures Committee

(NGS BRM '03 - GBE BRM '23)

2003 London Congestions Charge Introduced

(NGS BRM '03 - GBE BRM '23)

2003

2004

2005 Avoiding Dangerous Climate Change:

international symposium suggests a significant reduction of the "safe" maximum concentration figure for greenhouse gases.

(FCBStudios and the Climate Movement '23)

2005 The National Trust Headquarters:

integrated roof design avoids the need for artificial lighting for 80% of working hours, provides natural ventilation and a significant proportion of the building's energy.

(FCBStudios and the Climate Movement '23)

2005 Millennium Ecosystems Assessment published

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

(NGS BRM '05 - GBE BRM '23)

2005 EU Emissions Trading Scheme introduced

(NGS BRM '06 - GBE BRM '23)

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

(NGS BRM '06 - GBE BRM '23)

2006 Stern Review of the Economics of Climate Change

Climate Change as the biggest market failure ever.

(FCBStudios and the Climate Movement '23)

Commissioned by Government then ignored by Government

(NGS BRM '06 - GBE BRM '23)

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)

2006 An Inconvenient Truth:

Al Gore's Oscar-winning documentary on climate change 2050 The 2008 act commits the UK to reducing emissions by at least 80% in 2050 from 1990

(FCBStudios and the Climate Movement '23)

2006 CAT & ZCB

Conversations between CAT staff and students explore the major environmental challenges of the 21st century, and the Zero Carbon Britain project was born.

(CAT CS 120 '21)

2007

2007 Planning and Climate Change

Planning Policy Statement supplement to PPS1

(NGS BRM '07 - GBE BRM '23)

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.

(NGS BRM '07 - GBE BRM '23)

2007 EMV Social Housing:

selected as an example of good practice and a model for increasing energy efficiency and sustainability through the use of innovative material and systems on an experimental basis.

(FCBStudios and the Climate Movement '23)

2007 Feilden Clegg Bradley- The Environmental Handbook published:

the practice's work plus a sustainability primer.

(FCBStudios and the Climate Movement '23)

2007 CAT's first Zero Carbon Britain report published,

Exploring how we can power down energy demand and scale up renewable energy production.

The report is launched with the All Party Parliamentary Climate Change Group in Westminster.

(CAT CS 120 '21)

2008

2008 Committee on Climate Change (CCC) established

(NGS BRM '08 - GBE BRM '23)

2008 Climate Change Act

All new buildings to be Zero carbon by 2019

(NGS BRM '08 - GBE BRM '23)

2008 Zero Carbon Hub (ZCH) established

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

(NGS BRM '09 - GBE BRM '23)

2009

2009 Copenhagen Climate Change Summit

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

(NGS BRM '09 - GBE BRM '23)

2009 Prosperity without Growth published written by Tim Jackson

(NGS BRM '09 - GBE BRM '23)

2009 One Brighton

a high density mixed-use development adjacent to Brighton Rail Station is completed.

The scheme is the first 'One Planet Living Community' – based on ten guiding principles of

2014 Most recently, we have set new records with our Meixi Lake Eco City project which was awarded China's first ever BREEAM outstanding.

(FCBStudios and the Climate Movement '23)

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)

(NGS BRM '10 - GBE BRM '23)

2010

2010 Ellen MacArthur Foundation is launched

(NGS BRM '10 - GBE BRM '23)

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)

(NGS BRM '11 - GBE BRM '23)

2010 'Zero Carbon Britain 2030' published.

This report increased our exploration of major changes in the food, agriculture and land-use systems in order to provide the required negative emissions, and offered more detail on policy and economics.

Catherine Martin, Co-ordinator of the All Party Parliamentary Climate Change Group, 2008-2011, said: "Zero Carbon Britain has allowed us to open up crucial conversations with government, Parliament, and the business world about Britain's energy future." people around the world who have developed visions of possible futures.

(CAT CS 120 '21)

2010 FCBS' Woodland Trust HQ completes.

Its cross-laminated timber will save almost 400 tonnes of carbon dioxide.

(FCBStudios and the Climate Movement '23)

2011 The Neo-Natal Intensive Care Unit at Bath's Royal United Hospital

has created a "Space to Grow" with sustainability at its heart through a dedicated new building and the refurbishment of

(FCBStudios and the Climate Movement '23)

2011 EPBD Energy Performance of Buildings Directive 2010/31/EU

Directive 2002/91/EC was later on replaced by the so-called "EPBD recast", which was approved on 19 May 2010 and entered into force on 18 June 2010.

This broadened its focus on Nearly Zero-energy buildings, cost optimal levels of minimum energy performance requirements as well as improved policies.

According to the recast:

- for buildings offered for sale or rent, the energy performance certificates shall be stated in the advertisements
- Member States shall lay down the necessary measures to establish inspection schemes for heating and air-conditioning systems or take measures with equivalent impact
- all new buildings shall be nearly zero energy buildings by 31 December 2020; the same applies to all new public buildings after 31 December 2018.
- Member States shall set minimum energy performance requirements for new buildings, for buildings subject to major renovation, as well as for the replacement or retrofit of building elements

- Member States shall draw up lists of national financial measures and instruments to improve the energy efficiency of buildings.

(Wikipedia '23)

See Also: Nearly [Zero-energy buildings](#)

See Also: EPBD 2002, EPBD 2018, EPBD 2021

(GBE BRM '11 – GBE BRM '23)

2011 Green Construction Board formed

(NGS BRM '11 - GBE BRM '23)

2011 Natural Capital Committee formed

(NGS BRM '11 - GBE BRM '23)

2011 Sustainable Development Commission closed after 11 years

(NGS BRM '12 - GBE BRM '23)

2012

2012 The Hive, Worcester

will reduce CO2 emissions by 50% and is designed to address climate change to 2050.

Aiming to obtain BREEAM

(FCBStudios and the Climate Movement '23)

See also; GBE Image Library

2012 Rio+20 UN Conference

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

(NGS BRM '12 - GBE BRM '23)

2012 Practically no EVs on UK roads

(Autotrader '21)

(NGS BRM '12 - GBE BRM '23)

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

(NGS BRM '13 - GBE BRM '23)

2012 ENERGY EFFICIENCY DIRECTIVE 2012/27/EU (EED) and 2018 update

EU Directive 2012/27/EU as amended in 2018 sets rules and obligations for achieving the EU's 2020 and 2030 energy efficiency targets.

With the European Green Deal (not UK's GreenDeal), the EU is increasing its climate ambition and aims at becoming the first climate-neutral continent by 2050.

The European Commission (EC) has therefore revised the Energy Efficiency Directive, together with other EU energy and climate rules, to ensure that the new 2030 target of reducing greenhouse gas emission by at least 55% (compared to 1990) can be met.

(EC website '22)

(https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive_en)

EC are driving a reduction in-use energy of buildings; needing a radical response in levels of conductivity thermal insulation to achieve it.

When thermal insulation levels increase across the board and reduce building in-use energy demands considerably; then the embodied energy in the materials used to build them, grows proportionately, hence choice of building materials and methods needs to be targeted

Low energy, Low carbon, Low chemistry and Low water materials including subsoil, earth-based, bio-based and timber materials become very relevant in this quest.

2013

2013 April 27: First public announcement of NGS website:

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

(NGS BRM '13 - GBE BRM '23)

2013 June 12: NGS website 1000th page created

(NGS BRM '13 - GBE BRM '23)

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

(NGS BRM '13 - GBE BRM '23)

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

(NGS BRM '13 - GBE BRM '23)

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

(NGS BRM '13 - GBE BRM '23)

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.

(NGS BRM '13 - GBE BRM '23)

2013 Construction Leadership Council (CLC) formed

Set Key targets for Construction 2025

(NGS BRM '13 - GBE BRM '23)

2013 RIBA Plan of Work 2013

Royal Institute of British Architects

<https://www.ribaplanofwork.com>

(NGS BRM '13 - GBE BRM '23)

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>

(NGS BRM '14 - GBE BRM '23)

2013 'Zero Carbon Britain Rethinking the Future'

report delves into the detail on managing variability in supply and demand of a 100% renewable energy system, and on balancing our land use to provide a healthy diet.

Joan Walley, former MP and Chair of the All Party Parliamentary Climate Change Group said: "Zero Carbon Britain shows that the solutions to our problems do exist... Not only is this essential for a sustainable future but vital for our sense of wellbeing."

(CAT CS 120 '21)

2014

2014 The bold Public Realm Plan

will see Church Street and Paddington Green set new standards in the UK as a retrofitted climate

(FCBStudios and the Climate Movement '23)

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>

(NGS BRM '14 - GBE BRM '23)

2014 EV Model Choice

There were over 20 pure electric and 35 electric-hybrid models available to choose from.

(Autotrader '21)

(NGS BRM '15 - GBE BRM '23)

2014 'People, Plate and Planet' published,

detailing the impact of various dietary choices on health, emissions and the area of land required.

(CAT CS 120 '21)

2015

2015 The Paris Agreement

to set a goal of limiting global warming to less than 2 °C compared to pre-industrial levels, agreed by 55 countries representing 55% of the world

(FCBStudios and the Climate Movement '23)

2015 March GreenBuildingEncyclopaedia

Marketing Strategy and new Website commissioned

(NGS BRM '15 - GBE BRM '23)

2015 Rethinking finance in a circular economy.

ING

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

(NGS BRM '15 - GBE BRM '23)

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>

(NGS BRM '15 - GBE BRM '23)

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.

(NGS BRM '15 - GBE BRM '23)

2015 National Infrastructure Commission established

(NGS BRM '15 - GBE BRM '23)

2015 Code for Sustainable Homes withdrawn

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

(NGS BRM '15 - GBE BRM '23)

2015 September 8th GreenBuildingEncyclopaedia

GBE goes live to Google, other webbots and spiders.

(NGS BRM '15 - GBE BRM '23)

2015 Paris Agreement

Non-binding agreements signed limiting greenhouse gas emissions.

(NGS BRM '15 - GBE BRM '23)

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.

(NGS BRM '16 - GBE BRM '23)

2015 - 'Who's Getting Ready for Zero?'

In the run-up to the UN Paris negotiations CAT assembled a team to produce an overview of international scenarios. It collected and highlighted the work of hundreds of people around the world who have developed visions of possible futures.

CAT were excited to be asked to share it in a side-event at the Paris climate negotiations.

(CAT CS 120 '21)

2016

2016 Pea Soup House

aims to 'construct communities' by bringing them together through food whilst creating awareness of air pollution in cities, specifically London.

(FCBStudios and the Climate Movement '23)

2016 FCBS support Bioregional in developing online platform for One Planet Living.

(FCBStudios and the Climate Movement '23)

2016 UK vote to leave the EU.

Leaving the EU renders the status of the UK's 2020 renewable energy targets uncertain.

The Government must recommit to the 2020 targets or, if necessary, set replacement

(FCBStudios and the Climate Movement '23)

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

(NGS BRM '16 - GBE BRM '23)

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>

(NGS BRM '16 - GBE BRM '23)

2016 UN 2030 Agenda for Sustainable Development in effect

(NGS BRM '16 - GBE BRM '23)

2016 Zero Carbon Hub closed

Government cut funding, but documents still available.

(NGS BRM '17 - GBE BRM '23)

2017

(NGS BRM '17 - GBE BRM '23)

2017 Donut Economics published

(NGS BRM '17 - GBE BRM '23)

2017 Clean Growth Strategy

(NGS BRM '17 - GBE BRM '23)

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

(NGS BRM '18 - GBE BRM '23)

2017 'Zero Carbon Britain: Making it Happen'.

This report explored how we can overcome barriers in innovative ways, bringing together thinking from psychology, sociology, political science and economics, as well as faith and spiritual practice, arts and culture.

(CAT CS 120 '21)

2018

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

(NGS BRM '18 - GBE BRM '23)

2018 IPPC Sets temperature Increase limit

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

(NGS BRM '18 - GBE BRM '23)

2018 Greta Thunberg began School Strike for Climate

(NGS BRM '18 - GBE BRM '23)

2018 Extinction Rebellion founded

(NGS BRM '18 - GBE BRM '23)

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

(NGS BRM '18 - GBE BRM '23)

2018 UK Government Approves Fracking

Despite popular public protest, particularly at drilling sites

(GBE BRM '18 – '23)

(NGS BRM '18 - GBE BRM '23)

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

(NGS BRM '18 - GBE BRM '23)

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-yearenvironment-plan.pdf

(NGS BRM '18 - GBE BRM '23)

2018 Monthly Statistics of Building Materials and Components.

BEIS

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

(NGS BRM '18 - GBE BRM '23)

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>

(NGS BRM '19 - GBE BRM '23)

2018 'Raising Ambition'.

This update of the 2015 international report brought together a range of scenarios exploring climate-stable futures at global, regional, national and sub-national scales.

(CAT CS 120 '21)

2018 ENERGY EFFICIENCY DIRECTIVE 2012/27/EU (EED) 2018 update

2018 ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE (EPBD) 2018/844/EU

On 30 November 2016, the European Commission published the "Clean Energy For All Europeans", a package of measures boosting the clean [energy transition](#) in line with its commitment to cut CO₂ emissions by at least 40% by 2030, modernise the economy and create conditions for sustainable jobs and growth.

The proposal for a revised directive on the EPBD (COM/2016/0765) puts energy efficiency first and supports cost-effective building renovation. The proposal updated the EPBD through:

- The incorporation of long-term building renovation strategies (Article of 4 Energy Efficiency Directive), the support to mobilise finance and a clear vision for the decarbonisation of buildings by 2050
- The encouragement of the use of information communication and smart technologies to ensure the efficient operation of buildings
- Streamlined provisions in the case of delivery failure of the expected results
- introduces building automation and control (BAC) systems as an alternative to physical inspections
- encourages the roll-out of the required infrastructure for e-mobility and introduces a "smartness indicator"
- strengthens the links between public funding for building renovation and energy performance certificates and
- incentivises tackling [energy poverty](#) through building renovation.

On 11 October 2017, the European Parliament's Committee on Industry, Research and Energy (ITRE) voted positively on a draft report led by Danish MEP [Bendt Bendtsen](#).

The Committee *"approved rules to channel the focus towards energy-efficiency and cost-effectiveness of building renovations in the EU, updating the EPBD as part of the "Clean Energy for All Europeans" package".*

[Bendt Bendtsen](#), member of ITRE and rapporteur of the EPBD review dossier said: *"It is vital that Member States show a clear commitment and take concrete actions in their long-term planning. This includes facilitating access to financial tools, showing investors that energy efficiency renovations are prioritised, and enabling public authorities to invest in well-performing buildings".*

The proposal was finally approved by the Council and the European Parliament in May 2018.

EU Directive 2012/27/EU as amended in 2018 sets rules and obligations for achieving the EU's 2020 and 2030 energy efficiency targets.

With the European Green Deal (not UK's GreenDeal), the EU is increasing its climate ambition and aims at becoming the first climate-neutral continent by 2050.

The European Commission (EC) has therefore revised the Energy Efficiency Directive, together with other EU energy and climate rules, to ensure that the new 2030 target of reducing greenhouse gas emission by at least 55% (compared to 1990) can be met.

(EC website '22)

(https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-directive_en)

See Also: EPBD 2002, EPBD 2010, EPBD 2021, EPBD 2023

(GBE BRM '18 – GBE BRM '23)

2019

2019 Climate Change Act amended

UK Government requires 100% Net Zero Carbon by 2050

(NGS BRM '19 - GBE BRM '23)

2019 UK Declares Climate Emergency:

Legally bound to deliver Net Zero Carbon Britain by 2050

(NGS BRM '19 - GBE BRM '23)

2019 FCBStudios Architects signed the Architects Declare

open letter, declaring a climate and biodiversity emergency and committing to making changes to ensure our industry has a more positive impact on

(FCBStudios and the Climate Movement '23)

2019 Trinity E3

represents the creation of new curricula in engineering and the sciences, developed to address the global challenge of sustainable technological development.

(FCBStudios and the Climate Movement '23)

2019 RIBA 2030 Climate Challenge

Set out Embodied Carbon targets

See Also: Green Building Calculator, Green Retrofit Calculator,

See Also: <https://GreenBuildingCalculator.uk>

(NGS BRM '19 - GBE BRM '23)

2019 COVID pandemic begins

(NGS BRM '19 - GBE BRM '23)

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.

(NGS BRM '19 - GBE BRM '23)

2019 IPBES Report on Biodiversity decline published

(NGS BRM '19 - GBE BRM '23)

2019 Fracking Moratorium UK Government announcement

(NGS BRM '19 - GBE BRM '23)

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

European Commission

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

(NGS BRM '19 - GBE BRM '23)

2019 The Circular Gap Report 2019.

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

(NGS BRM '19 - GBE BRM '23)

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

(NGS BRM '19 - GBE BRM '23)

2019 Circular Economy Policy and Advocacy.

UKGBC

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

(NGS BRM '19 - GBE BRM '23)

2019 Park 20|20

Delta Development Group

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

(NGS BRM '20 - GBE BRM '23)

2019 'Rising to the Climate Emergency'.

As awareness of the emergency increased, this report incorporated the very latest developments in science and technology, aiming to stimulate debate and catalyse action across all areas of society.

(CAT CS 120 '21)

2020

2020 Chetwood Architects launch Thrive

(NGS BRM '20 - GBE BRM '23)

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

(NGS BRM '21- GBE BRM '23)

2020 CAT's new Zero Carbon Britain Hub and Innovation Lab launched,

thanks to a generous donation from the Moondance Foundation.

(CAT CS 120 '21)

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

(NGS BRM '21- GBE BRM '23)

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

(NGS BRM '21- GBE BRM '23)

2021 over 515,000 electric cars registered in the UK

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

(Autotrader '21)

(NGS BRM '21- GBE BRM '23)

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)

2021 The UK Emissions Trading Scheme (UK ETS) went live on 1 January

(FCBStudios and the Climate Movement '23)

2021 replacing the UK's participation in the EU ETS.

Under the Ireland/Northern Ireland Protocol, electricity generators in Northern Ireland remained within the EU ETS.

(FCBStudios and the Climate Movement '23)

2021 Paradise Project will transform a neglected and disused site

into 60,000sqft of net carbon zero work and maker space.

(FCBStudios and the Climate Movement '23)

2021 Energy Performance of Buildings Directive (EPBD): Proposed revision

In 2021, the European Commission, under the leadership of Estonian Commissioner Kadri Simson proposed a new revision of the Directive, in the context of the "Fit for 55" legislative package.

The commission's proposal is currently being discussed and negotiated in the council and at the European Parliament.

The chief negotiator for the file in the European Parliament is Green MEP Ciaran Cuffe

The Parliament is expected to vote on the proposal by December 2022.

See Also: EPBD 2002, EPBD 2010, EPBD 2018, EPBD 2023

(GBE BRM '21 – GBE BRM '23)

14/03/2023 Energy Performance of Buildings Directive (EPBD):

Introduced the "Fit for 55" legislative package.

The proposal includes the following priorities:

- Obligation for all member states to establish National building renovation plans
- Establishment of minimum energy performance standards (MEPS), requiring the worst energy performance (non-residential) buildings to reach at least class F by 2030 and class E by 2033.
- Promotion of technical assistance, including one-stop-shops and renovation passports
- Introduction of new financial mechanisms to incentivize banks and mortgage holders to promote energy efficient renovation (mortgage portfolio standard)

Following the outbreak of the war in Ukraine, the Commission issued additional proposals, such as the obligation to ensure new buildings are solar ready and to install solar energy installations on buildings.

(Wikipedia '23)

The EPBD recast represents a comprehensive action plan to renovate the EU's buildings, bring down energy consumption, reduce building-related emissions and reach a climate neutral European building stock by 2050.

Embodied carbon is estimated to account for 10-25% of the total carbon footprint of buildings.

RICS Report Redefining Zero: EC today accounts for 20-60% but as energy in use if reduced by well insulated buildings they rises to >95%

EC are driving a reduction in-use energy of buildings; needing a radical response in levels of conductivity thermal insulation to achieve it.

An especially welcome aspect of this EPBD recast is that it addresses embodied carbon and whole life greenhouse gas emissions (that is, both embodied and operational emissions).

Until now, embodied carbon has remained largely ignored in the EU and the building sector's efforts to reduce its carbon footprint. With this EPBD recast, this is set to change.

This EPBD vote ensures several positive steps forward for decarbonising buildings, of which two are especially welcome to us: It will establish a harmonised framework for addressing and measuring whole-life carbon, and it will set targets for embodied carbon reduction.

The EPBD recast represents a real opportunity to accelerate the emissions reduction trajectory for embodied carbon, and we expect to see the level of action that the Parliament has now called for maintained throughout trilogies.

A strong EPBD is critical to reaching climate targets

According to the European Commission, buildings account for approximately 40% of the EU's total energy consumption and 36% of its CO2 emissions. Meanwhile, three out of four buildings in the EU are still energy inefficient. The EPBD recast represents a comprehensive action plan to renovate the EU's buildings, bring down energy consumption, reduce building-related emissions and reach a climate neutral European building stock by 2050.

Embodied carbon is estimated to account for 10-25% of the total carbon footprint of buildings.

Heavy industries such as cement and steel production account for a large portion of these emissions associated with the construction, renovation, and demolition of buildings.

What the EPBD says about embodied carbon

The EPBD recast sets out a requirement to both calculate and establish targets to reduce building related emissions throughout the building's life-cycle.

The European Parliament position on the EPBD that was voted on today, calls for an EU-wide framework for calculating life-cycle Global Warming Potential (GWP), and for Member States to publish roadmaps that introduce limit values and targets on life-cycle GWP.

Each Member State has to develop national building renovation plans, including renovation targets suited to each country's building stock and needs, and illustrate how these national targets are to be met.

By calling for this, the EU is ensuring that high quality data on embodied carbon will be widely available to the myriad of actors in the buildings sector.

Coupled with the clear signals provided by targets, this information could help trigger a scale-up of the production and use of low-carbon construction materials.

In this sense, it is also important for the EPBD to be aligned with the ongoing recast of the Construction Products Regulation (CPR).

(Bellona Europe '23)

When thermal insulation levels increase across the board and reduce building in-use energy demands considerably; then the embodied energy in the materials used to build them, grows proportionately, hence choice of building materials and methods needs to be targeted.

Low energy, Low carbon, Low chemistry and Low water materials including subsoil, earth-based, bio-based and timber materials become very relevant in this quest.

See Also: EPBD 2002, EPBD 2010, EPBD 2018, EPBD 2021

(GBE BRM '21 – GBE BRM '23)

2023 Croft Gardens targets a 100-year design life,

the scheme uses high-quality materials which emanate a sense of permanence.

(FCBStudios and the Climate Movement '23)

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)

2030 All new Buildings must be Net Zero Carbon

2032 Ministers are expected to announce that the UK will cut carbon emissions

(FCBStudios and the Climate Movement '23)

2050 All existing building stock to be Net Zero Carbon

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