

GBC GBE GBE Learning

<https://GreenBuildingEncyclopaedia.uk> <https://GreenBuildingEncyclopaedia.uk> <https://GBELearning.com>

Greening Your Own Office

UN SDG, Post-COVID, Behavioural Change, Biophilia, EAM, Ergonomics, Furniture, Agile, Transport, Energy: Source, Use, ICT, Equipment, Stationery & paper, Paperless Office & Knowledge Management, Kitchen & WCs, Waste, Accessibility, FM & PM MOBS

This Presentation on GBE:

- Find this file on GBE website at:
- <https://GreenBuildingEncyclopaedia.uk/?P=261>
- TGR version:
- <https://GreenBuildingEncyclopaedia.uk/?P=405>
- To be updated after this presentation
- with any additional feedback
- Go there for:
 - the latest update
 - versions presented to different audiences
 - the whole presentation all of the hidden slides
 - other file formats:
 - Handout, Show, PDF, PPTX
 - Links to other related GBE CPD and related GBE content

Related stuff: created preparing for today

- Greening Office Biophilia (Brian Dump)
- <https://GreenBuildingEncyclopaedia.uk/?p=39346>
- Greening Offices UN SDG (Brain Dump)
- <https://GreenBuildingEncyclopaedia.uk/?p=39342>
- Greening Offices Post-COVID (Brain Dump)
- <https://GreenBuildingEncyclopaedia.uk/?p=39335>
- Links from there to other pages
- Light Nutrition added to Greening Office Post-COVID and relates to Biophilia

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Created & Updates

- 2003 for CPD
 - Created for Exhibition/Interior designers
- Presented to:
 - TGR SBS day 2 workshops
 - Mixed audiences
 - Architects, Interior Designers & Change Management
- Continuous updating:
 - Updates: 722, Slides: 408
 - Updated: 2021 for TGR In-house CPD
- Slides cherry-picked for audiences

Previous & Future Audiences:

- This presentation is for:
- Facilities managers to help them maintain and improve what they have
- Practice managers to help them to improve the way they occupy and equip sustainably
- Occupants/staff to inhabit the building adopting sustainable habits
- Architects & Interior Designers enabling others to do better with theirs
- Change Managers enabling other's management to do better with theirs

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Scope and jumps

- ☒ UN Sustainable Development Goals
- ☒ Post-COVID
- ☒ Behavioural Change
- ☒ Biophilia
- ☒ Environmental/Health/Wellbeing: Assessment Methods
- ☒ Ergonomics, Furniture ☒ Agile working, ☒ Healthy & Green Furniture
- ☒ Transport
- ☒ Energy: ☒ Source, ☒ Use, ☒ ICT, ☒ Equipment, ☒ Lighting
- ☒ Stationery ☒ Paper
- ☒ Sick Building Syndrome
- ☒ Kitchen & WCs ☒ Water ☒ Food & Drink ☒ Sanitaryware
- ☒ Office Waste
- ☒ Accessibility
- ☒ Facilities Management & Property Management ☒ Information

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UN Sustainable Development Goals

UN Sustainable Development Goals

- Greening Offices UN SDG (Brain Dump)
- <https://GreenBuildingEncyclopaedia.uk/?p=39342>
- Links from here to other pages

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Sustainable World & UK?

- UN SDG United Nations 25th Sept 2015
 - 193 world leaders committed to 17 SDGs
 - 17 Sustainable Development Goals by 2030
- Climate and Biodiversity Emergency
 - UK Government Signed up 14 May 2019
- Greta Thunberg's behaviour change campaign
 - Global call to Adults to join
 - Architects Declare: Oct 2019
 - Construction Declare: Oct 2019
 - Education Declare: Oct 2019
 - Structural & Civil Engineers Declare: Oct 2019
 - Interior Design Declare: March 2021
- Dictatorship Boris:
 - 'Take back control of the borders' Refugees v Covid Incompetence
 - Hard Brexit/Border controls/Irish unrest/Riots, French and fishing limits
 - Diluting Human Rights
 - Ban all Protests no matter how bad he and his projects/actions get

UN SDG

- **United Nations**
 - 25th Sept 2015
 - 193 world leaders
 - committed to 17 SDGs
 - Sustainable Development Goals by 2030
- **Green Building Encyclopaedia**
 - <https://GreenBuildingEncyclopaedia.uk/?p=39342>
 - <https://GreenBuildingEncyclopaedia.uk/?p=39342>

SUS STATION

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Post COVID

Post COVID

- **Greening Offices Post-COVID (Brain Dump)**
- <https://GreenBuildingEncyclopaedia.uk/?p=39335>
- Links from there to other pages

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Behavioural Change

Behavioural Change

- Greening Office Biophilia (Brian Dump)
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Greening the Office

- This presentation:
- First created for a design office
- Interior and Exhibition Designer
- Aspiring to ISO 14001 needing guidance
- Added to for Architects
- Interior Designers and Graphics
- Latest update for Interior Designers
- But most is applicable to most offices and most businesses
- MCM Architecture Interiors Change Management 14/02/18 Lonely Hearts Club banned CPD

ISO 14001

Environmental Legal Compliance

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

Making changes

- There will always be excuses:
 - for status quo prevails
 - from those that dislike change
 - from them that cannot be asked
- We need to look for solutions and overcome the barriers
- There is an increasing urgency
- Government was investing £m s through agencies providing free advice
 - Envirowise, WRAP, NISP, London Remade, LSx

Sustainable Accommodation?

- **Occupy a building which has all the right environmental credentials**
- Commission your own building with all the right environmental credentials
- All the right Environmental Credentials for buildings and their services are the subject of separate presentations
- Green up what you have

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Sustainable Business

- Not the scope of this presentation
- **Sustainable Outputs**
- Learn from how you improve your office
- Enable your customers to do the same
- Brief Services Engineer to do the same

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Cut Your Carbon Board Game

<https://www.ech2o.co.uk/cut-your-carbon-the-boardgame>



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Making changes: false barriers

- **Example: Recycling paper**
- **Excuse: Security & Confidentiality?**
- **If you are not Gov, MI5, MoD or BoE**
- How good is putting it in the bin with other rubbish?
- When the black bag is on the pavement
 - Fox and Pigeons scavenge black bags
 - it can burst and drawings spill all over the street
 - I have seen it happen at Benoy's office
- Who is looking in your bin anyway?

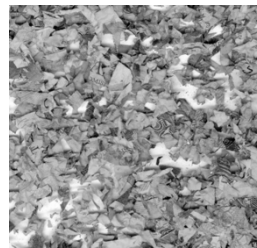
If its confidential shred it



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Confidential?

- **Avoid electric shredder, use manual shredder for the exercise**
- US Army Gulf war experience
- Shred it two directions
- Compost it?
- BofE notes and Smile Plastics
- BEN building board



Ambitions v Recession

- **Letting agents**
 - Major fit-outs ripped out many times
 - Fit-out waste mostly to landfill
- **1980s boom**
 - BCO considered standards
 - CAT A, B & C fit outs
- **Late 1980s & Early 1990s recession**
 - Standard forgotten about?
- **Coroner virus: time for change**
 - What will be left behind?

Biophilia

Feeling or being closer to nature
Visual, Touch, Audio, Smell, Taste
Or psychological trickery
Beneficial for workers in the workspace

UN SDG 3
Good Health & Wellbeing

3 GOOD HEALTH AND WELL-BEING



17/05/21 © GBE 2021 UN SDG Template 31

Biophilia

- Greening Office Biophilia (Brian Dump)
- <https://GreenBuildingEncyclopaedia.uk/?p=39346>
- Links from there to other pages


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Biophilic Design

- Daylighting and views out:
 - Outside Views: or
 - non-transient workstations within 7 m of internal biophilic features:
 - green walls, water features, or vegetative scenes, even plants
 - viewed from within 65 degrees rotation from the normal working position at those workstations; or
 - Access to natural daylight
 - Fresh air Ventilation
 - Low CO₂ levels
 - Low VOC levels
 - Lighting:
 - varying intensities of light and shade over time to create conditions that occur in nature.
 - Internal finishes, fittings and furniture:
 - utilize symbolic references to contoured, patterned, textured or numerical arrangements that persist in nature.
 - Refuge & Prospect:
 - work and break areas users sit with backs at 2m maximum from wall or low level screen
 - can view the point of entry and circulation into or through the space
 - Breakout space away from normal work station

Biophilic Plants & Blinds

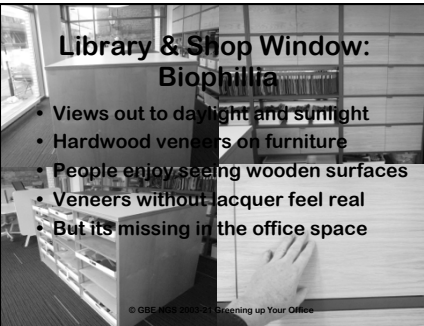
- Biophilia views of nature
- Encourage the use of plants of the correct species
- To clean air
- Fragrance
- To talk to
- Wood slat blinds



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Library & Shop Window: Biophilia


- Views out to daylight and sunlight
- Hardwood veneers on furniture
- People enjoy seeing wooden surfaces
- Veneers without lacquer feel real
- But its missing in the office space



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Hardwood on the stairs

- Avoid the lift to enjoy the stairs
- Absorbent timber in an acoustic noisy stairwell
- Texture untouched by hand
- Go barefoot to enjoy the timber!
- Temperature may be appreciated if bare footed
- But its missing in the office space



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Plant Based Resin

- Phenix Biocomposite desk
- Annually renewable, sustainable and recycled resource
- Recycled paper, soy bean resin and colour additive
- 1.5 times strength of oak
- Worked similarly to wood
- 5 – 15% lighter than wood
- Good moisture resistance
- Formaldehyde-free
- 70% less energy
- Biophilia: Feel of hardwood



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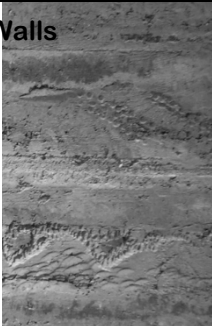

Office Reception Back wall

- Posh Show walls
- Venetian Polished Plaster
- Not local materials
- Not local Tradesmen
- Not very natural appearance
 - Some look like plastic
- Alternative: Rammed Earth?

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Rammed Earth Walls

- Abundant and Natural
- Recipe can be determined on site
- Thermal, Acoustic & Moisture mass
- Fire resistant
- Load-bearing (moisture movement)
- Absorbs radiation, smells and moisture
- Hygroscopic
- any shape
- many ingredients, colours & textures
- Sculptural & Artistic opportunities
- Recyclable & Reusable
- Needs temporary formwork
- Biophilia, Natural, Visual, Tactile, Smell? Taste!
- Waste disposal back to earth

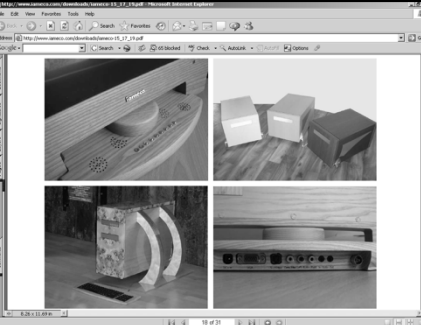
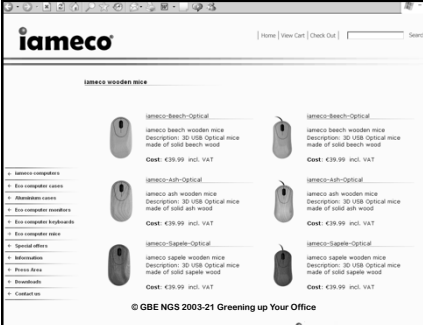
Green Personal Computers

IAMECO

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IAMECO I am Eco

- MicroPro PC manufacturer Ireland
- MicroPro X-PC
- Green PC aiming for 1st EcoLabelled PC
- MicroPro IAMECO PC
- Modular design, upgradeable for life
- Disassembly: 1.5 minutes, 1 person, every screw is the same
- Complies with:
 - WEEE 2002/96/EC Waste Electrical and Electronic Equipment
 - RoHS 2002/95/EC Reduction of Hazardous Substances
 - EuP 2005/32/EC Energy Use in Products
- Aiming for: Eco Label 2001/686/EC (AMD May 2004)
- Biophilia: Natural, Visual, Tactile
 - Timber casing: beautiful object desirable to keep forever

PC Eco Label 2001/686/EC (AMD May 2004)

- CPU System Unit:
 - 4 watts sleep
 - 2 watts off
 - Energy management by default
- Monitor:
 - 2 watts sleep
 - 1 watt off
 - Shut down 30 minutes default setting
- Modular design, upgradeable and dismountable
- Noise: 4 dB(A) and 4.5 dB(A) accessing hard disk
- Take back scheme



Environmental Assessment Methods

UN SDG 4 Quality Education



The logo for UN SDG 4 Quality Education is a dark gray square. Inside the square, the number '4' is large and white. To its right, the words 'QUALITY' and 'EDUCATION' are stacked vertically in a smaller, white, sans-serif font. Below the text, there is a white icon of an open book with a pencil standing upright to its right.


17/05/21

4


UN SDG 11 Sustainable Cities & Communities




The logo for UN SDG 11 Sustainable Cities & Communities. It features a large white number '11' on a grey square background. To the right of the number, the text 'SUSTAINABLE CITIES AND COMMUNITIES' is written in white, uppercase letters. Below the text is a white icon representing a city skyline, consisting of a small house, a tall skyscraper, and a modern building with a slanted roof.



<https://www.gbc.nl/en/what-is-gbc>



<https://www.gbe.nl/en/what-is-gbe>







<https://www.gbelearning.nl/>

BREEAM

- **Building Research Establishment**
- **Environmental Assessment Method**
- **BREEAM for New buildings e.g. Offices**
 - **Building Fabric**
 - **Possible to get 'Outstanding' with 100% glazed 100% air conditioned building**
- **BREEAM Refurbishment for Existing Offices**
 - **For Fit-outs and Refits**
- **BREEAM Bespoke for permutations**
- **BREEAM In Use**
- **And a whole lot more: Civils, Community,**
- **Business as Usual with a Green tick**
 - Admin heavy
 - Number crunching heavy, recording what you did wrong
 - "If we did not have to follow BREEAM we could have made a greener building"
 - Fundamentally fails on Behavioural change





[illegible]



LEED

- American alternative to BREEAM
 - Made by Ex BRE people
- Some say easier to use
 - If you're American
- Possible to get Platinum for Fully glazed air conditioned building

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<http://www.greeningyourbusinessuk.com>
<http://www.greeningyourbusinessuk.com>
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GreenStar

- Australia
- More commercially minded
- Engages with money and expenditure
- Considers CAPEX v OPEX
- Commerce can engage with it readily


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RICS Ska Ratings


Office Fit - out
EAM
Sustainability Rating scheme

Office, Retail and now Higher Education schemes
Good Practice Measures


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GreenBook Consulting Ltd
<http://www.greenbookconsulting.co.uk>



Green Book Engineering
<http://www.greenbookengineering.co.uk>



Green Book Engineering Learning
<http://www.greenbooklearning.co.uk>

Ska

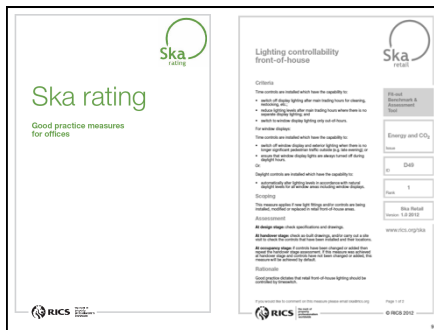
- Engages with real issue
 - *Not just a tick box exercise*
- Over 1000 issues Good Practice Measures (Not Best)
 - *Ranked in importance*
- Credits available for
 - *reuse of existing installations*
 - *use of generic materials in BRE GGTS,*
 - *Products from GreenBookLive or GreenSpec*
 - *Services from ECA: WTL, ETL,*
 - *Products with EPD (despite their violet content)*
- BrianSpecMan on Steering groups >5 years
 - *Helped develop Higher Education version*

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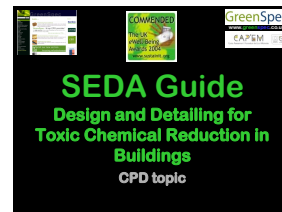
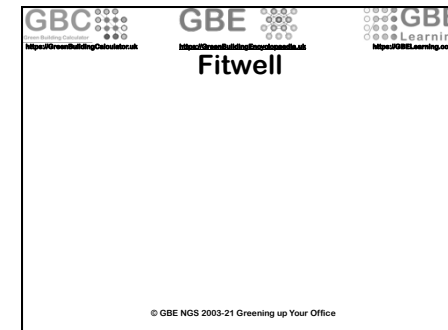


- Office, Retail and Higher Education
- Fit-out and refit or refurbishment
- Environmental, Health & Wellbeing
- Energy, Water,
- Waste, Resource Efficiency, etc.
- Good Practice Measures
- Low cost assessment,
- Addresses more than BREEAM

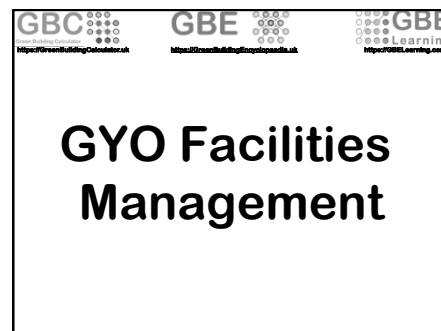
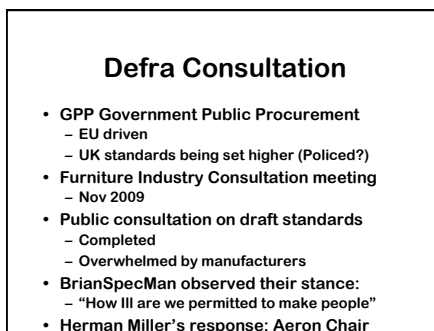


WELL

- Health and Wellbeing focus
- Greater range than BREEAM & Ska
- Design Assessment
- Construction and materials
- Interiors
- Very expensive assessments
- Follow the rules without accreditation



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Transport


And avoiding it in COVID

UN SDG 9 Industry, Innovation & Infrastructure & Transport




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UN SDG 11 Sustainable Cities & Communities & Transport



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GreenSpec




Sustainable Transport: People

Transport to and from home and Office, between Office and Site or meetings and within the Office

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GreenSpec



Sustainable Transport: Goods

CPD topic

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Transport

- London's streets are normally heavily polluted
 - Despite Clean and low pollution zones
 - COVID made a significant change to traffic and pollution
 - Buses and bikes could move more easily
 - But other vehicles are returning slowly
- Commuting: by Public Transport:
 - Electric trains, Hydrogen bus,
 - Dedicated bio fuel or green electric power,
 - All pump fuel has a small % of bio based fuel,
 - Crown Oil announced you can buy dedicated bio-fuel at special pumps May 2021
- Taxis for one-person rides do not make environmental gains,
 - idling taxis in queues or crawling traffic are bad news,
 - diesel taxis are bad, taxis in a hurry are bad
 - low emissions taxis might not be all that good
- Local commuting:
 - by bicycle avoiding congested routes, parking space demand
 - Bike and bus only routes significantly better, Southwark has one
 - More added during COVID hopefully not temporary but remain long after
- Bike Face masks with air filter technology
 - Some of the best technological developments coming out of this arena
 - Better than being a pedestrian
- Face masks during COVID, might continue long after

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COVID latest advice 07/05/21

- CDC (USA) did not accept aerosol transmission until October 2020
- WHO updated website without public announcement May 2021
 - From: Transmission by respiratory droplets - which are expelled from the mouth and fall to the ground - between people in close proximity
 - To: Transmission by respiratory droplets and aerosols that can float in air - in poorly ventilated and/or crowded indoor settings, aerosols can remain suspended or travel along air currents, further than 1 m and 2 m
- Potentially much safer outdoors
- Make sure indoor spaces are well ventilated with air filtration as necessary
 - No recirculating air, only heat recovery
- Open windows if practical (spring is here, followed by summer, and traffic)
- Avoid shouting, singing and high energy/impact sport in close proximity
- 2 m separation is probably not enough over longer periods indoors
- Wear masks all the time (ignoring distance rule) and pay more attention to fit
 - (confirmed by a database of cases)
 - Ireland recently reported 0.1% of cases traced to outdoor transmission
- Erecting hard barriers between people indoors may be ineffective
- <https://www-nidmex.com/cdn-images/project-articles/www.nytimes.com/2021/05/07/opinion/coronavirus-airborne-transmission-amp.html>

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COVID & Travel

- Buses, trains and underground:
 - Close proximity between passengers
 - ventilation will draw aerosols across passengers
 - mask good fit essential
- Cycling:
 - Passing through air that somebody else breathed first, diluted in open air
 - If they are coughing or spitting steer well clear, pull back or overtake
- Car interiors: shared, no coughers, masks on, ventilation on, not circulating
- Petrol station shops: Coughing in aisles aerosols can pass over shelves to next aisles

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Office Share Bikes and COVID

- Insurance promoted health & wellbeing
- Showers for cyclists, lockers for change
- Under-counter folded Brompton bikes
- In reception to inspire clients/visitors
- Clean all touch points before/after use
- Push bikes for health and fitness
- E bikes for less able & clocking miles
- Water flask and flask top up
- Masks for: (close fit essential in all cases)
 - Vehicle air pollution
 - COVID protection (outdoor air is safer)
- Marketing opportunity: Practice Livery

Conference Calls

- Avoid travelling: train or plane
- if you have broadband open lines:
 - at no extra cost
- Use Skype on Broadband no extra cost
- Skype in and Skype out
 - landlines to internet, & vv, Skype handsets
- Multi person/multi location meetings on the phone/computer
 - Video conference calls
- But beware not everybody engages well

Pandemic Webinars

- Skype multiple person calls: challenging
- Zoom or MS Teams
 - GoToWebinar, GoMeeting and others
- Webinars, Meetings, CPD, Video,
- Survey, Chat, Q&A & Break out Rooms
- Mic on/off
- Video on/off
- Ask the speaker
- Hand up
- Recording > YouTube & Vimeo
- Break out rooms get better engagement
- Room visits by speakers
- Upon arrival whilst waiting for others to arrive,
 - bump into break out rooms to break the ice, facilitated if needed
 - ensures working groups can start quicker
- Marketing Opportunity: Practice Livery as backdrop

Moving about in office

- Don't use lifts between adjacent and close floors, consider other tenants
- Walk up and down between floors
- Discourage use of lifts in all but taller buildings
- Lift up many floors,
- Walk down gravity assisted
- Avoid single person lift rides
- Use lifts if burdened with stuff
- Natural wood finishes
- Biophilia in the Lifts
- But heavy lacquer removes tactile opportunity



Energy Supply

Grid supply, Dispersed Generation and Renewables

UN SDG 7 Affordable & Clean Energy



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Energy Use



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Carbon Reduction Commitment

- Major driver for Big Business and Government
- Pay large sums of money for carbon usage
- Reduce use to claim it back again
- Fail to reduce and loose it
- Changed from an incentive to a tax
- Then Withdrawn
- EAC Public Inquiry Carbon & Climate
 - 15th May 2021
 - Reinstatate CRC equivalent?

Fuel Choices 2009

UK Carbon Content of Fuels	
	kg CO ₂ emitted per kWh
Business	0.200
Coal	0.23
Grid Electricity	0.507
LPG	0.184
Natural Gas	0.185
Oil (diesel)	0.282
Renewable	0.000
2009 Carbon Trust	

- Carbon factors: Natural Gas: 1.0 Electricity: 2.9 (Carbon Trust 2009)
- Avoid Grid electricity, unless green tariff,
- Use Grid natural gas
 - (but gas into buildings is not easy)
- Use PV or Wind (if good solar or wind access)
- Use Gas appliances in preference to electricity
- Including Gas Fridge (not easy to find)
- If stuck with electric use Class A++ appliances
- Use Class A++ appliances in all cases

Fuel Choices 2021

- Carbon factors: Natural Gas: 1.0 Electricity: 1.0 (Government 2020)
- Grid electricity now equal to Gas in terms of carbon emissions
- Small % of biogas in mains gas supply
- Offshore wind + onshore PV farms increased considerably
 - Driven by FIT payments, good investment, then shrunk
- Still choose 100% green tariff if you can
- Use of grid natural gas will be denied to new residential soon
 - (gas into buildings is not easy)
- Use on site PV or Wind (if good solar or wind access)
- Still choose Class A++ appliances in all cases

Electrical Energy Efficiency

Smart metering & Controls
Power, Lighting, Appliances,
Heating, Batteries, Computers,
Reduction in use, Limiting waste
Voltage Optimisation

Smart metering

Metering Monitoring & Controls

Whole building monitoring

- Electrisave
- <https://www.electrisave.co.uk/pages/order>
- 25% energy saving possible
- If you type in discount code of "ETHECO" on the order form, you will get a £5 discount
- Electrisave will pay Etheco a commission to help them maintain and improve their website.

Clip your electrisave onto the live cable which comes out of your meter into the fuse box.

Efergy

- Energy Saving Smart Meter
- <https://efergy.com/home/>

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Efergy

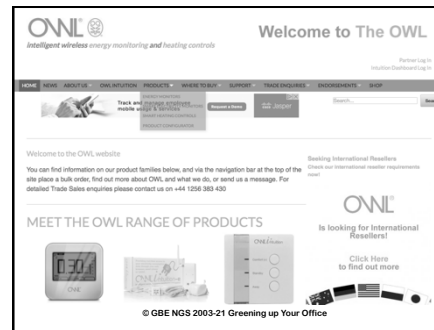
- Energy Saving Smart Meter
- <https://www.efergy.com/en/>
- <https://efergy.com/home/>
- £44.95
- £5.00 off
- Voucher Code: E1/00GY100
- Additional Sensor: £4.95

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Electricity Monitor Owl

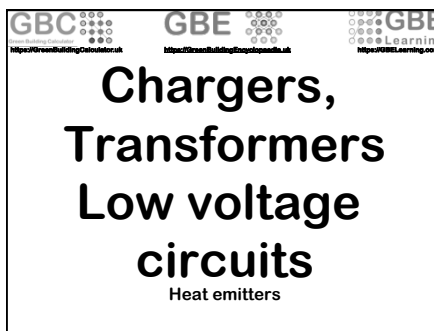
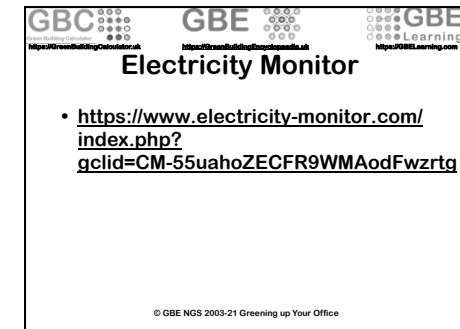
- www.electricity-monitor.com/
- <https://theowl.com>

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DIY Kyoto

- <https://smarthomeenergy.co.uk/goodbye-energy-no-diy-kyoto-wattson-0>
- Wattson 01
- Real time read-out of energy consumption of building
- Real time cost read-out too
- www.Diykyoto.com
- Recycled school furniture
- Hand made was £395.00
- Now into batch production RRP £149.50
- pre-orders now on-line at £125.00
- Quantity discounts available
- USB connection for community interface



SSO Switched Socket Outlets Transformers and Chargers

- Turn off transformers and chargers if nothing being charged to avoid :
 - Energy use & bigger bills
 - Heat gains in summer
 - Carbon dioxide added to atmosphere
- Always switch them off if not in use

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Railway Offices

Phone Chargers

"According to research by O2 only 5% of the energy used by the UK mobile phone chargers is actually used to charge phones. The rest is used when the charger is left plugged in but not switched off at the socket. Consequently this , causes 50,000 tonnes of CO2 to be released into the atmosphere Annually".

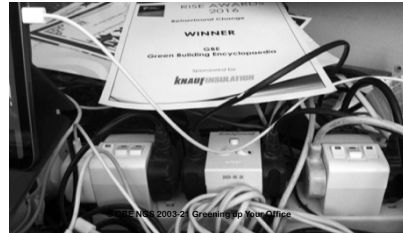
Turn them off

Low Voltage Circuits

- Add 9-12 volt circuit to avoid all the transformers that generate heat adding extra load to cooling & ventilation systems in summer
- If it's not switched off/unplugged its probably drawing energy
- Improve this arrangement with individually switched socket outlets (ISSO) (without lights?)
- For clients installs: instruct they are all switched off by installer until needed by user



Home made ISSO



Sustain IT

- <https://www.sustainit.org/index.php>
- Gone now
- Promoted low voltage circuit for kit
- Combine with PV before inverter
- Use as much indoors before giving to grid for the diminishing FIT payout
- Latest: lawyers chasing FIT reductions as miss-sold promises

Electrical Energy Efficiency

Appliances

Energy Efficiency

- ICT Kit
- Kitchen equipment
- Domestic Appliances
- White goods
- PriceExtra gone now
- Electric Supply Modulation
 - Voltage optimisation

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Energy Technology List



- Enhanced Capital Allowance (reduced Tax) for your customers now withdrawn
- Equipment chosen from the ETL Energy Technology Lists
- Hand dryers
- Water heaters
- Etc.

Energy Efficiency

- Microwave very Energy efficient compared with Cookers
- Short time for staff lunches
- Faster turn round
- Questionable nutritional/health value



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Energy Efficient Appliances

- Choose A++ rated energy, water and noise efficiency appliances,
 - Dishwasher,
 - Microwave,
 - Cooker,
 - Coffee making,
- Significant reduction in energy use over life of appliance and office
 - Fridge, (via Voltage Optimisation)
 - Freezer, (via VO)
 - Water-cooler/chiller, (via VO)
- Put spoons in there yourself



Domestic Appliances

- Overall Efficiency
- Energy Consumption
- Independent
- Best in range



White Goods Domestic Appliances

- A+, A, B, C, D, E, F & G labels
- Overall Efficiency
- Energy Consumption
- Capacity
- Water consumption
- Wash performance
- Spin performance
- Noise levels

White Goods Domestic Appliances

- **FRIDGE/FREEZER:**
 - Energy Efficiency to EN 153: Class A+
 - CFC and HCFC - free insulation and coolant.
- **DISHWASHER:**
 - Energy Efficiency to EN 50242: Class A+
- **WASHING MACHINE**
 - Energy Efficiency to BS EN 60456: Class A+ A++
- **DRYER:**
 - Energy Efficiency to BS EN 61121: Class A+

<https://www.pricextra.com>

Reduce Clothes Washing Soap Use

Voltage Optimisation

GBC: <https://greenbuildingcollaborative.uk>

GBE: <https://greenbuildingenergyacademy.uk>

GBE Learning: <https://gbelearning.com>

Voltage Optimisation

- Take the fluctuations out of the mains voltage (not the 50Hz cycle)
- If the kit needs 210 Volts don't permit peaks that exceed 210 V into the kit
 - Reduce consumption
- Important for
 - Fridges, Freezers, Air-conditioning, water chillers
- Available for
 - domestic, commercial, industrial,
 - whole supply or individual appliances

EPS 388 (Commercial)

- This gadget is plugged into a socket and it acts as a electricity modulator on your ring main.
- Basically it will stop peaks and thus smooth out your electricity flowing around the office.
- This makes your appliances work more efficiently.
- Estimates vary between 10% and 20% saving on electricity bills.
- You just plug it in and away it goes, saving you money all the time.
- Large versions are available for schools, offices etc.
- The EPS 388 (industrial applications) is £ 69 inc. VAT.
- <https://power-save.com/kit.html>

Fridge/Freezer/Appliance efficiency

- **Smooths out the** fluctuations in voltage
- By turning off the supply to the fridge during peaks and back on when it falls
- Savawatt's
- SavaPlug
- SavaControls

PowerSafer

- This is a handy gadget for people who have a tendency to switch the TV off using the remote only.
- Basically it acts on the remote signal and switches the TV off for you, thus saving you from paying for 'stand-by' time.
- You may know someone who might benefit from one of these.
- Cost £ 23.50 inc VAT.
- www.powersafer.de/en_EN/index

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GBC GBE GBE Learning
<https://greenbuildingencyclopedia.uk> <https://greenbuildingencyclopedia.uk> <https://greenbuildingencyclopedia.uk>

Electrical Energy Efficiency

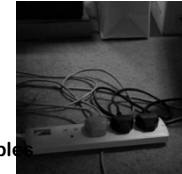
Heating

Heating Efficiency

- **Users and bad habits**
 - Electric heating was wrong its okay today
 - Renewable Electric heating is okay
 - 24/7/356 heating is a disaster
- **Access to Controls**
 - Accessible hierarchical controls
- **Appropriate Heating and Controls**
 - Internet of things
 - Smart phone remote control
 - Energy Savings to be had with joined up thinking

Energy: Heating

- Make sure heaters are on a separate circuit and switch it off in summer
- Avoid cable switches below table
- **Too much trouble!**
- **I am not paid enough to do that too!**



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Appropriate Heating & Controls

- To suit building fabric mass or lack of it
- Automatic Controls and human override with return to default after set time
- Accessible TRV at top of Radiators
- **Not set too high**
- **Not set to individual requirements**
 - Unless ownership of space
- Not Electric heating 2009
- **Electric heating 2020**

GBC GBE GBE Learning
<https://greenbuildingencyclopedia.uk> <https://greenbuildingencyclopedia.uk> <https://greenbuildingencyclopedia.uk>

Internet of tanks

- Internet of Things meets HW Cylinder
- Communicate with your Hot Water via your mobile
- Control heating of hot water: Mixergy
- <https://greenbuildingencyclopedia.uk/blog/products-blog/smart-hot-water-tank-blog/>

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GBC GBE GBE Learning
<https://greenbuildingencyclopedia.uk> <https://greenbuildingencyclopedia.uk> <https://greenbuildingencyclopedia.uk>

Ownership of Space

GBE Lectures
 LSBU 2016
 RIBA Part 1 Year 3

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<https://greenbuildingencyclopedia.uk>

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<https://greenbuildingencyclopedia.uk> <https://greenbuildingencyclopedia.uk> <https://greenbuildingencyclopedia.uk>

Lighting

Artificial Lighting

- Natural Light
- Lighting Adds Heat
- Energy Saving
- Lighting Controls
- Light bulbs and Lighting products
- Light bulbs off
- FM Cleaning Contracts
- External lighting & Design & Controls
- Light Pollution

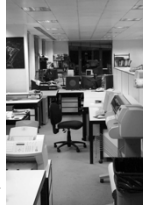
Energy: Lighting

- Don't leave lights and other equipment on if not needed
- Partners out looking for work
- No need for lights on all day



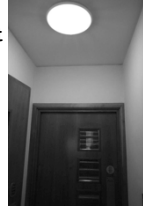
Energy: Lighting adds heat

- Experiment with turning lights off in summer to see if over-heating can be avoided
- Require the cleaners to turn off the lights as they leave the floor



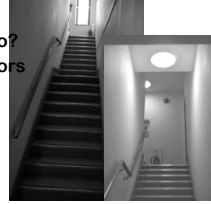
Energy Saving

- If Legislation does not require it
- why keep it on?
- Turn it on in the event of a fire
- PIR could turn it on if people present
- 1 m lobby with glazing does not need a light on



Use of Natural light to avoid artificial light

- If naturally lit
- Why artificially too?
- Light level detectors can turn lights on
- Lights left on 24 hours every day and night
- Time controls turn them off
- Indoors and out



Lighting

- Don't use Tungsten light bulbs
- Illegal to sell after 2011 UK, 2010 Aus
 - But re-emerged into market as antique
 - Steampunk look
- Use fluorescent lamps (poor CRI)
- Use Low-energy long-life bulbs (Poor CRI)
- Use LED spot lights (intelligently) (Bad CRI)
- Don't need to compromise on light quality to save energy
- Make Light Matter: Webinars Light Nutrition
 - CRI 90 and above Colour Rendering Index
- Choose efficient fittings and lamps but do not compromise on human perception of light quality

Light Nutrition

- Different light technologies
- Different light emission spectrum
- Not all are wholesome for humans
 - CRI 90 and above okay
- Eyes have additional functions over sight
 - health and wellbeing:
 - rods and cons in retina
 - 2 decades ago discovered their uses
- Conferences on the subject
- UK specialists via MaD community

Control Systems

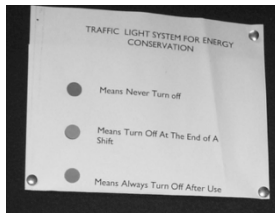
RIBA Part 1 Year 3 Lecture
LSBU 2016/17

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

Lighting Automatic Controls


- Control lights so not on if not required
- Zone lights so those closest to windows are off in day and on after dark
- Room, space or place ownership suggests type of controls
- PIR detectors turn lights on if people present
- External lights should be off by default and on only when people present
- External lights not 24 hours
- Controls with attitude

Railway Offices Manual Controls



TRAFFIC LIGHT SYSTEM FOR ENERGY CONSERVATION

- Means Never Turn off
- Means Turn Off At The End of A Shift
- Means Always Turn Off After Use



Luminaries

Light bulbs

- 10-20% of electricity bill is lighting
- Traditional light bulbs: 75% of energy as heat
- Switch to energy saving alternatives
- energy-saving bulbs cost more to buy
- last 15 times longer than traditional bulb
- saving around £70 over longer life

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Light bulbs off

- If UK households replaced 1 100 W bulb with an energy-saving alternative
- equivalent to Sizewell B nuclear power station turned off
- government agonises over future power supply
- Fails to address energy efficiency

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Light bulb products

- energy-saving bulbs have dramatically improved
- many quality options are available
- offer bright light
- wide range of colours
- fittings to suit passion for stylish lighting
- www.lightbulbs-direct.com
- huge selection
- handy energy saving calculator
- money saved by switching to low watt alternatives

FM Cleaning contracts

- Staff are sometimes trained to turn lights off if last out of building
- Cleaners turn them back on
- But are they required to turn them off?
- Lights left on all night?
- Check the FM specification


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15 times life expectancy of tungsten bulb

5 times more energy efficient
A rating

Don't use on dimmer switches

But some specials are compatible now
Can't buy the old type now
But are you still using them?



15 times life expectancy of tungsten bulb

5 times more energy efficient
A rating

Specials for use on dimmer switches



LED Light Emitting Diode

- LED save energy
- 1 watt instead of 100 watt
- So we use 100 LEDs instead of 1 No. 100 watt bulb
- Did we save any energy?

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LED are not equivalent

- LED is a stopgap solution in many cases
- LED is a spotlight
- The lamps they replace were not all spotlights
- Spotlights do not deliver diffused light
- Replacement Fluorescent LED lights fail to deliver diffused light
- Spotlights on the kitchen floor do not deliver light to worktops
- So add 5 more light fittings to do that

LED avoid heat build up

- Manufacturer have concentrated on:
 - making 1-10 watt retro-fit LEDs
 - to replace 75 watt tungsten halogen reflector lamps
 - a purely commercial exercise, given the millions upon millions of downlights and spotlights out there
 - Removes a problematic heat source in summer
 - Removes a beneficial heat in winter
 - Peterborough Coop used tungsten lighting as heating but overheats in summer

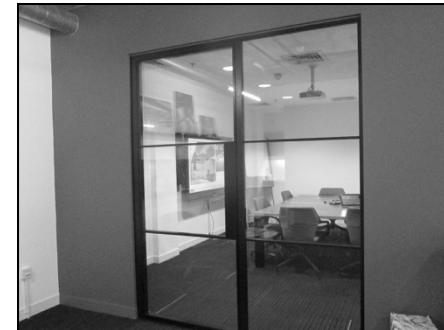
Zhaga Compliance

- www.zhagastandard.org
- Zhaga: new standard for LED light engines,
 - interchangeable between luminaires
 - like a conventional lamp within a standard lampholder
- Embedding LEDs into fixtures is fundamentally non-sustainable
 - chuck the whole thing away if the LED fails
 - or making retro-fit LEDs to replace tungsten halogen reflector lamps
 - a purely commercial exercise, given the millions upon millions of downlights and spotlights out there

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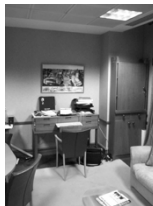
When you level the room

- If you are the last out
- Turn off the projector
- Turn off the conference call/Laptop display/Server access?
- Switch off the lights
- Turn off the monitors, especially weekends and christmas (prize giving?)
- Turn off the empty SSO with indicator lights on
- Cleaners need to be joined in too by contract



Energy: Lighting

- Don't leave lights and other equipment on if not needed
- Agile working may help here
- Partners out looking for work
- No need for lights on all day
- Stage set rooms near reception



Energy: Lighting adds heat

- Experiment with turning lights off in summer to see if over-heating can be avoided
- Turn off when you leave
- Require the cleaners to turn off the lights as they leave the floor
- Especially if you have exposed brick or concrete soffits



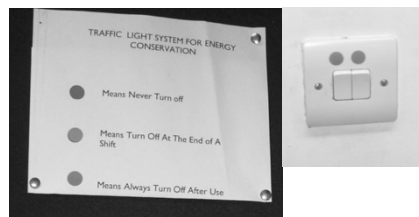
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- But are they required to turn them off?
- Lights left on all night?
- Check the FM specification

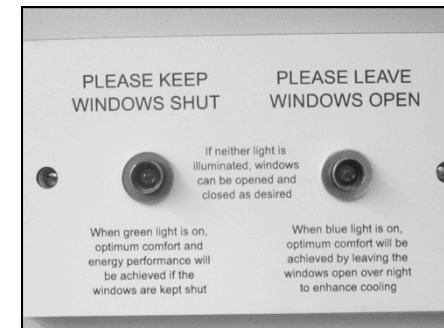
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Railway Offices

Help people to do the right thing



UEA Enterprise Building Passive vents and windows



Light bulbs



- 10-20% of electricity bill is lighting
- Traditional light bulbs: 75% of energy as heat
- Switch to energy saving alternatives
- energy-saving bulbs cost more to buy
- last 15 times longer than traditional bulb
- saving around £70 over longer life

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- many quality options are available
- offer bright light
- wide range of colours
- fittings to suit passion for stylish lighting
- www.lightbulbs-direct.com
- huge selection
- ~~handy energy-saving calculator~~
- money saved by switching to low watt alternatives
- Strangely they sell illegal incandescent light bulbs

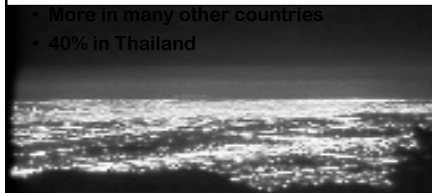
External Lighting

- Light from building windows and glazed facades
- Escape stair lighting
- Path lighting
- Façade uplighting
- Signage lighting
- Porch lighting
- Bike rack and car park lighting
- Area Flood lighting

Lighting



- UK lighting consumes 20% of electricity demand
- More in many other countries
- 40% in Thailand



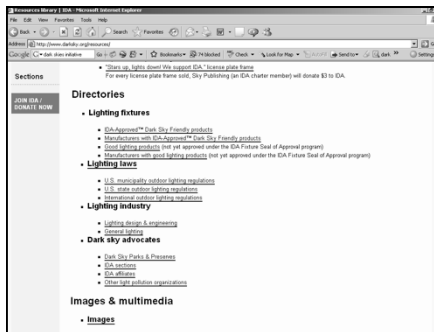
Light Pollution



Light Pollution

- Clean Neighbourhoods and Environment Act
- Can be used to control light pollution
- To protect wild life and neighbours
- Avoid interrupting wild life sleep patterns
- Avoid glare and orange skies for astronomers
- <https://www.darksky.org/>
- International Dark-Sky Association





External Lighting Design

- Avoid Lighting Pollution
- Control direction
- Control light spread
- Avoid globes and uplighters
- Avoid glare
- Avoid lighting of the night sky
- Avoid unnecessarily bright lights

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External Lighting Controls

- Turn off by default
- Turn lights on only if dark and people present
- Control temptation to add lights that are not required
- Add time delay switch for manual use
- Add PIR to turn on if people present
- Avoid lights on in the day under all circumstances

Green Light

- EST
- Mayor of London
- British Gas Business
- Give your lights time off
- Make it your business use less light
- www.greenlight-uk.org

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Electrical Energy Efficiency

ICT

IT energy Efficiency

- Turn them all off when not in use
- Excuses:
 - Overnight back up or rendering
 - Fast start next day
- Servers never off for remote access
- Energy demand when not in use
 - 90% consumption in sleep mode
 - Always ready for quick start
- Red and green lights give them away

IT

- Don't leave computers, copiers, printers or monitors on overnight
- unless scheduled backups or updates are due to occur
 - Computer only on the night in question,
- or overnight processing is to occur
 - e.g. rendering or 3D printing
- Ownership is an issue
- Last wo/man out take responsibility

IT

- Don't leave computers, monitors on overnight
- Don't turn monitors off leaving the computers running, turn both off
- Turn Monitors off too
- Energy saving mode uses 90% of the normal energy demand when on



Clues things are on

- Light on Keyboards
- Light on Monitor



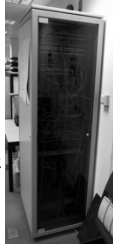
Clues things are still on

- Infra-red mouse
 - Or red light mouse
- Wireless routers
- Leave them visible as a reminder, hide the wires
- Switch them off
- Extension leads in switching hierarchy

IT

- Consider if Servers need to be left on 24 hours a day
- In summer turning computers off when not used helps to avoid over-heating
- Turn off at Christmas break?



Agile Working IT

- Uncluttered floor without Pedestal units
- Good wire management
- Hidden but accessible cable trays
- 4 gang switched socket outlet extension leads with spare capacity for laptops
- 2 in use and default all 4 switched on just in case
- Electromagnetic radiation on 24/7/356
- Power demand from all computers even when turned off
- 2 redundant SSO lights and computers need another power station running 24/7/356
- Agile working gives me a chance to turn off redundant SSO one work station at a time one day at a time
- Some cannot be turned off

Office Waste

Stationery, Kitchens and Washrooms

UN SDG 9 Industry, Innovation & Infrastructure




17/05/21 © GBE 2021 UN SDG Template 179

UN SDG 11 Sustainable Cities & Communities



17/05/21 © GBE 2021 UN SDG Template 180

UN SDG 12 Responsible Consumption



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Waste from buildings in Use

Waste output from Domestic, Commercial & Other Building occupation

Another one of GBE's 1000 CPD/Lecture files to download <https://greenbuildingencyclopedia.uk>

Waste

- Paper towels
- Plastic cups
- Kitchen waste
- Printing and Plotting over order waste
- Batteries: Toxic in landfill
- WEEE Regulations and electrical waste
- WEEE Computers when upgrading

Mixed Waste

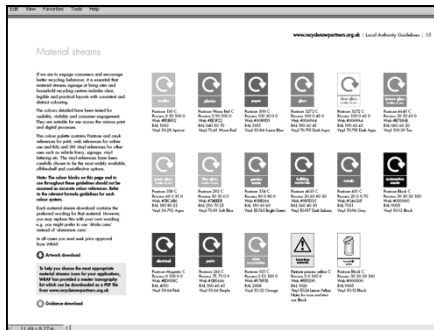
- Mixed waste in South London
 - Incinerated because its easy
 - City Engineer's can do that
 - One Technology One action and repeat
- 'Build it and waste will come'
- Incineration temperatures fluctuate
 - Chemicals will try to escape
 - Plastics are toxic, PVC > dioxins (extremely toxic)
 - Crane drivers mix to avoid peak concentrations (same total)
- Flue filtration is expensive
 - £1m filters
 - Do not get replaced as frequently as they should, if at all
 - Dioxins escape.....

Segregation is for everybody everywhere

- Everybody does it at home (mostly?)
 - Or they won't empty your bins
- Some leave their brain and morals at home
- Segregation Notices are confusing
 - WRAP solved that for you Graphic Labels
- They do not pay me to segregate my waste
- Could not be seen rinsing food packaging,
 - oh the shame of it all
 - I can't be asked/bothered
- No WEEE bin so I put it in general recycling



Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>



Segregation for next stage

- Recover: Nutrient value
 - Biodegradable Compostable
 - Food waste (minus packaging)
 - Paper waste (food contaminated)
- Recyclable (not lost, employment)
 - Food & Drink packaging (rinsed first)
 - Paper & Cardboard (clean)
 - Plastics: (rinsed if food contaminated)

Recycling Missed Opportunity

- In a world of growing population
 - And diminishing resources
- One planet living is essential
 - UK lives a 3 planet lifestyle
 - 1976 (1986?) was a one planet lifestyle
- Need to segregate and recycle all our waste
 - Especially the one-use throw-away stuff
 - Drinking cups, straws, food packaging, shopping bags, coffee pods
- Turn it into new stuff
 - Employ people in segregation and recycling
- Do not burn it and make ash and toxins

Waste

- Paper towels
- Kitchen waste
- Printing and Plotting waste
- WEEE Regulations and electrical waste
- Batteries
- Computers when upgrading

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Paper Towels

- Hand towels and toilet paper
- Use FSC (Forest Stewardship Council) accredited paper
- Use recycled paper sponsoring WWF etc.
- Use recycled paper



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Recycled/Recyclable Paper towels

- Recycled content is good
- Recycled content which is recyclable is better
- All paper is recyclable but its about who is doing it.
- Its also about segregation (or keeping it segregated and not adding to a single bin of mixed waste)
- And its about finding a service that is taking back its own paper.

Take back for recycling?

- paper towel manufacturers
- who if any are taking back and recycling?
- My suspicion is there wont be any.
- White paper recyclers may have contacts with non white paper recycling.

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London Office Paper Recycling

- https://www.bioregional.com/news%20page/news_stories/laundry/laundry_251104.htm
- <https://www.ethicalmedia.com/stories/laundrypressrelease/>
- <https://www.london-recycling.co.uk/about/initiatives/laundry.php>
- <https://www.wasteonline.org.uk/resources/information sheets/officerecyclinginlondon.htm>
- https://www.londonremade.com/download_files/Recycling%20services.pdf

Manchester Office Paper Recycling

- <https://www.emergemanchester.co.uk/commercial.htm>
- <https://bury.ufindus.com/Recycling>
- <https://www.gmwaste.co.uk/kerbside.asp>
- <https://www.recycledir.com/Recycle2/>
- <https://www.paper.org.uk/recoveredsector/members/region.asp?region=North%20West>

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Compostable?

- The Green/Blue paper towels may be compostable
- Do planted internal planter suppliers offer composting opportunities?

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Reusable Cloth is even better

- Cloth towel dispenser and washing service
- Resource efficiency: paper cloth electricity
- but an environmental profile may be called for
- landfill is no longer an acceptable option
- Incineration certainly is not
- Cycle collect and return service announced yesterday on LinkedIn

Waste Segregation

- **Segregate waste at point of generation:**
- Multiple bins or multiple compartment
- Segregate:
 - Food waste and polluted packaging
 - Clean packaging to add to recyclables
 - reusable and recyclables
 - Coffee Aluminium capsules
 - London collections
 - compostable if you have a garden
 - Coffee grounds for fuel
 - London collections
 - General waste gets burned in Southwark
 - What happens in Islington?
 - Where you are?



Segregation: Recycleables

- Plastics: plastic bottles, yoghurt tubs
- Cans: food and drink (remove labels)
- Cardboard: Boxes
- Paper:
- Glass: Bottles and Jars



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Segregation: Compostables

- Vegetable and Fruit, skin and core
- Teabags, Eggshell, nut husks
- Flowers and Plants
- Not Plate scrapings
- Not animal produce or meat or fish
- Compost: in composters or wormaries,
- To feed planters and roof gardens

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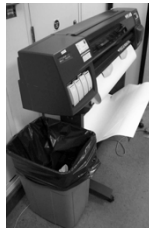
Segregation: Not Compostable

- Plate scrapings
- Animal produce
- Poultry, meat or fish
- All suitable for Anaerobic Digestion
- Composites difficult to separate

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Plotter Waste

- How often does a plot sit there all day and the owner not turn up to collect it
- Probably sent it to a plotter on the wrong floor then another on the right floor
- Default settings and printers help
- Take responsibility for yours
- Printer queues help



Waste

- Segregate recyclable paper
- Segregate waste at point of generation
- Provide dedicated bins labelled
- don't misuse them,
- Manage paper: don't misuse
- Reuse waste photocopy scraps for drafts and notes



Segregating Waste At Source



Two bins, one to segregate



A4 Scraps stored for reuse



GBE Green Building Calculator
<https://greenbuildingcalculator.co.uk>

GBE Green Building Expertise
<https://greenbuildingexpertise.co.uk>

GBE Learning
<https://gbelarning.com>

WEEE & Hazardous Waste

IT

WEEE & RoHS

Waste from Electrical & Electronic Equipment
& Restriction of Hazardous Substances

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

WEEE Regulations

- Waste Electronic and Electrical Equipment
- Not permitted to Landfill 1st July 2007
- Toxic parts
- Requires recycling of valuable component and materials
- Reuse is often possible
- Charities set up recycling companies

Hazardous Waste: fluorescent



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Battery Recycling

- <https://www.moreeco.co.uk/news/battery-recycling/>
- 30,000 tonnes of portable batteries enter the UK market each year.
- New EU rules have come into force that require some stores selling batteries to provide in-store recycling bins.
- Anyone selling more than 32 kg a year
 - equivalent to one pack of four AA batteries a day
 - must comply as part of targets on cutting landfill

Batteries

- Should be avoided if at all possible
- Use more energy to create than they provide
- Toxic in landfill
- Now being segregated
- Most often a small proportion of the charge is used and then discarded



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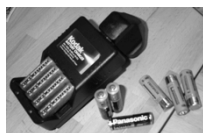
Batteries

- Dead Camera batteries will still turn Walkman
- Dead Walkman batteries will still turn clocks for years
- Dead walkman batteries will run an old radio (not DAB radios) for months
- Dead batteries will light LED bike lamps
- DAB radios & batteries are an environmental disaster



Rechargeable Batteries

- If you have to use batteries
- Use rechargeable
- New types
- 15 minute charge possible
- Office bike
- Survey torches
- Site walky-talky



Alkaline Battery 'Rechargers'

- Rather than wasting batteries or going to the expense of buying a rechargeable, you can now 'recharge' normal batteries.
- Each 'recharge' costs 1p per battery and they can be recharged to 95% of their original capacity for approx. 100 times.
- This could save a host of batteries and their associated toxins ending up in landfill.
- Cost will be £ 20.50 inc. VAT
- www.souvenir-cranwell.com/battery_regen.htm

LED lamps

- Red and green indicator lamps on computers
- Now full colour range available
- LED use very little energy
- LED bike lamp batteries last for a very long time
- Use LED in lighting display advertising & emergency signage
- Remember they are spotlights
- Don't blind other cyclist point at road



Hazardous Waste: Batteries

Let staff bring them from home



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Batteries


- Use rechargeable batteries
- Use solar charged lights
- Use solar recharged batteries
- USB charged lamp



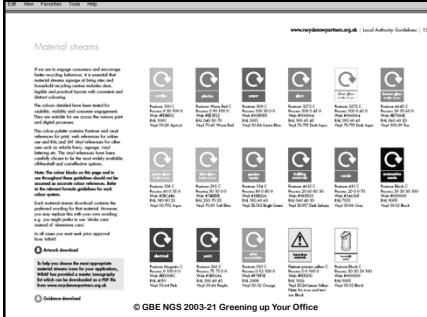
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Refuse Room

- Segregate Waste, bag and label
- Use Recycled plastic 2 and 4 wheel bins with lockable lids, shaped holes
- Colour code, graphic, words and notice
 - Educational opportunity
- Store waste for LA kerbside collection
- Improve on LA waste strategy in readiness for improvement



Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>



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Recycle Now

- https://www.wrap.org.uk/downloads/Recycle_guidelines_v4-2_25040404.pdf

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Westminster Website

- Waste Guide
- the definitive guide
- <https://www.westminster.gov.uk/environment/rubbishwasteandrecycling/rubbishandwaste/>

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When you upgrade don't dump

- WEEE regulations apply to IT and White goods
- GreenWorks and GreenStandards and others will take your stuff, refurbish and resell or gift to charity, schools and hospitals
- School in a box
- NGS GBE website Specification Appendix
 - Furniture Fittings Equipment & IT: APP FFEI
 - Material Exchange Websites: APP MEW
- Freecycle: www.freecycle.org

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Kitchens & Toilets

UN SDG 6 Clean Water & Sanitation



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UN SDG 7 Affordable & Clean Energy



17/05/21 © GBE 2021 UN SDG Template 227

UN SDG 14 Life Below Water



17/05/21 © GBE 2021 UN SDG Template 228

Kitchen and Toilets

- Hot water drinks
- Cleaning Fluids
- Paper
- Drinking Water
- Food & Drink
- Utensils, Cutlery and Crockery
- Fairtrade
- Waste segregation
- Equipment



Eco Kettle

- **Never boil the same water twice**
 - Healthy water is cold or boiled once
- EcoKettle helps to boil just enough water once
- Any kettle and person can do that
- Also helps older generation who think kettle must be full and water must thunder before using
- Traditionalists think tea must use boiled

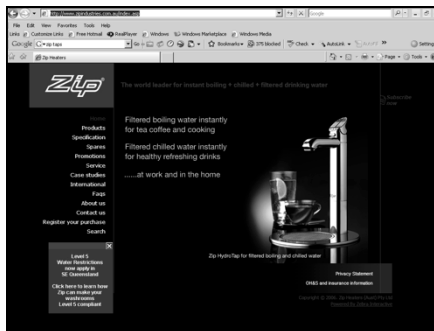
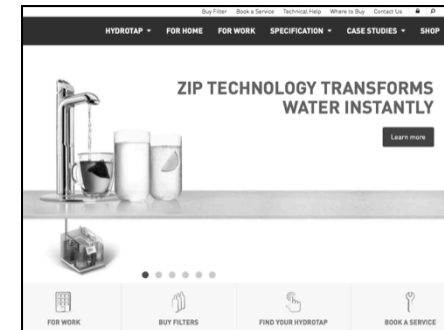
Hot water

- if sufficient staff numbers
- Use boiling water dispenser rather than kettle
- **Kettle in preference to saucepan**
 - Yes it happens
 - Especially with non-indigenous staff



Zip Taps

- Not dissimilar to umbilical multi-supply taps behind bar in wine bars and pubs
- These will dispense boiling water, cold water and filtered chilled water
- E sales@zipheaters.co.uk
- T 03456 005 005
- Zip Heaters UK Ltd.
- W <https://www.zipwater.co.uk>
- W <https://www.zipwater.com>



UN SDG 6 Clean Water & Sanitation



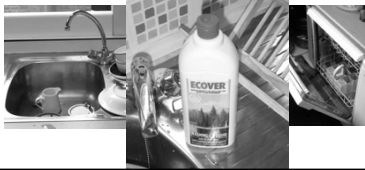
17/05/21

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Cleaning Fluids

- Use bio-based biodegradable cleaning fluids, at kitchen sink, basins and toilet



OUR FRAGRANCES PRODUCTS ABOUT US **ecover** HEALTHY HOME FAQ Q

Clean Plastic
FROM BEACH TO BOTTLE

Healthy Home
IS A HAPPY HOME


Clean & Caring
NEW LAUNDRY RANGE

Look out for our *Mammecol rated* *Tri-Bio Laundry Detergent*

MAMMECOL RATED

With 99.9% biodegradability for all cleaning

Explore Products >



ecover Power of Nature

ecover Professional

ecover Baby

ecover Green

ecover Natural

ecover Sensitive

ecover Zero

ecover Zero+

ecover Zero+2

ecover Zero+3

ecover Zero+4

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ecover Zero+6

ecover Zero+7

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ecover Zero+100

- Plant and Mineral based
- Health and Wellbeing at heart
 - Long ingredient checklist
 - Skin irritation, eye irritation, aquatic toxicity
- Clean Green Factory
- 25% Recycled plastic and
- 75% bio plastic
- Refillable (in France EcoShops at least)
- No Animal testing
- Founder of B Corporation = Fair Trade
- Partner with WaterAid

ecover GREENSPEED[®]
engineered by ecover

- Domestic:
 - Ecover
 - <https://www.ecover.com/about-us/>
- Commercial:
 - GreenSpeed range
 - <https://www.ecover-professional.com/>

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Ecover launches partnership with WaterAid

- Water is fundamental to Ecover. They respect the water used when making their products.
- Their products have minimum impact on the aquatic environment,
- The water cycle is global, so what we do here in the UK has a wider effect around the globe.
- 3 year partnership with WaterAid to enable communities in Ethiopia to access clean water
- To provide effective, sustainable solutions for the hygienic needs of people around the world, and it is this common interest that has led to the formation of the partnership.
- Hintalo Wajerat in the Tigray region of Ethiopia
- 22% of the population currently has access to safe water
- 6% have access to adequate sanitation
- 17 out of every 100 children will die before they reach their 5th birthday.
- 14,750 people across eleven villages in the region will have access to safe water and effective sanitation.
- WaterAid
- <https://tr1.mpo06.net/r/5.aspx?GV1=ZOJH02J001YB0002EB0003EP700020KAE>

GBC GBE GBE Learning

<https://www.gbc.org.uk> <https://www.gbe.org.uk> <https://www.gbelearning.com>

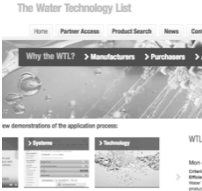
Water Consumption

UN SDG 6 Clean Water & Sanitation




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Water Technology List



- Enhanced Capital Allowance withdrawn
- Reduced Tax for your customers
- Equipment chosen from the WTL Water Technology Lists
- Sanitaryware
- Taps, valves, Etc.

Drinking Water




Sustainable Transport: Goods

CPD topic

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

Drinking Water

- Bottled water is not sustainable
- Food miles
 - Transport Fuel
 - Transport emissions
 - Transport congestions
- Embodied water
- is not uncommon
- It is desired by staff




Corporate Greed

- Nestle are suing a city hall in USA
- for trying to ensure its own people get enough water
- to drink and for agriculture
- Nestle extracts millions of gallons
- Pays next to nothing for water supply
- Exports globally (Embodied water)
- Probably pays no tax

Drinking Water

- Chilled bottled water is desired by staff but is not sustainable
- Ambient filtered water is better and can be on tap
- Chilled filtered water is desired by staff and can be on tap



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Zip Taps

- Not dissimilar to umbilical multi-supply taps behind bar in wine bars and pubs
- These will dispense boiling water, cold water and filtered chilled water
- E sales@zipheaters.co.uk
- T 03456 005 005
- Zip Heaters UK Ltd.
- W <https://www.zipwater.co.uk>
- W <https://www.zipwater.com>

Bottled Water 'Could Be Toxic'

- Toxic threat: Bottled water may contain potentially toxic substances, research warns
- Potentially toxic substances found in plastic could be seeping into bottled water, new research shows.
- Scientists in Germany discovered heavy metal traces in 15 brands of bottled water from Canada and 48 from Europe
- They found "unambiguous" evidence of the potentially toxic heavy metal Antimony (known as Sb) leaching into water from their containers
- The researchers, led by Professor William Shotyk of the University of Heidelberg, also looked at Sb levels in three German brands of water available in both glass and plastic bottles

PET Polyethylene terephthalate

- They found that levels of Sb in the plastic bottles made from polyethylene terephthalate (PET) were up to 30 times higher
- Further research compared Sb levels in pristine groundwater from rural Canada with 12 brands of water from Canada sold in plastic bottles and three brands of deionised water from Canada, also sold in plastic bottles
- This study indicated that all the waters bottled in PET containers had been contaminated with Sb.
- Antimony is a metallic element used as an alloy in manufacturing

Glass Bottles too

- The research, published in the Journal of Environmental Monitoring, also found evidence of some leaching of Sb from glass bottles into water.
- Contamination from PET bottles is probably "far greater" than from glass
- But the extent of Sb leaching from glass containers is unknown because the research only looked at three glass bottles compared to 48 brands of water in PET bottles.

The report concludes:

- "The data presented here leaves little doubt that bottled waters stored in PET are contaminated with Sb from their containers."
- It adds that all the water tested contained Sb levels which were well below the WHO's recommended guidelines for drinking water.

- "However, given that there appears to be a continual release of Sb from the containers to the fluids, and that the Sb concentrations in the waters mainly reflect the duration of storage, systematic studies of the extent and intensity of contamination are warranted," the report concludes.
- Recently developed methods of measuring Sb levels in polar snow and ice were used to test its presence in the bottled water.

Corn starch bioplastics

- Belu
- Commercially Biodegradable bottle (closed vessel)
- Social Sustainability:
- Profits go to clean water projects world wide via wateraid
- www.belu.org
- Seen in glass bottles recently



Cup & Utensil Cleaning

Utensils, Cutlery and Crockery

- Small offices:
 - use china/ceramic mugs and cups
 - clean them manually
- Medium offices:
 - clean them overnight with dishwasher,
 - using biodegradable cleaning fluids



Utensils, Cutlery and Crockery

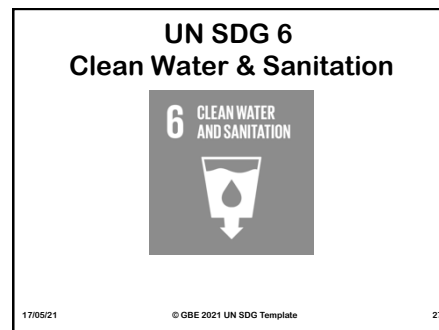
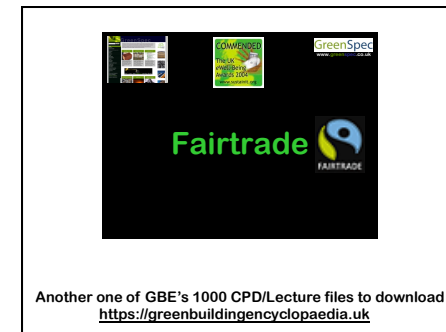
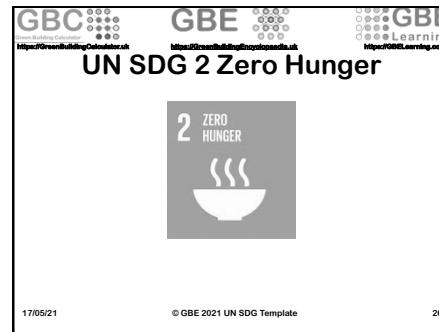
- Intermediate offices:
 - use paper cups and segregate waste
- Big offices:
 - use plastic cups with special bins and a plastic cup recycling service



Plastic cup recycling

- There are nation-wide drinks dispenser plastic Beca collection services that comes with a special Beca bin
- They produce recycled plastic stationery items







Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

Sanitaryware

- Water saving Taps and Appliances
- Sanitaryware Female Issues & Services (including female urinals)
- Office crèche
- Hand Cleaning soap
- Cleaning Appliances
- Hot water supply & Insulation
- Showers
- Hand drying
- Toilet paper
- Covid Considerations

SE England

- Water shortages,
- drought over recent years
- Recent rains solves one year's problems
- Flooding causes pollution does not solve shortages
- Code for Sustainable Homes addresses water
 - but its theory was flawed
 - But that has been dropped
- BREEAM helps
- BRAD G failed to deliver

All Appliances

- All appliances and fittings on isolation/flow regulating valves
- set low by default.
- All water using appliances to be A+ rated for water use.
- All new as set out below below,
- Existing to be modified towards these
- Fit water-escape protection
 - Shuts valve after a period of mains water flow
 - Washing machines, mains water coolers

Urinals

- In past:
 - Automatic flush
 - 24 hours a day
 - Fitted night time miser
- Now:
 - Fit proximity detectors to flush after you leave
 - Waterless Urinals
 - Still need waste pipes for urine!
 - Vent system to take smells away



GBE Green Building Encyclopedia

UN SDG 5 Gender Equality

5 GENDER EQUALITY

17/05/21 © GBE 2021 UN SDG Template 279

Female Urinal (in cubicles)

- Promoted as faster turn around time than WC
- Reduce need for toilet wipes and paper seat covers
- Less gymnastics at WC or Squat WC
- Back to urinal and tilt forwards pee backwards
- Some accuracy necessary or splash back
- But nobody specified them
- Disappeared from market? No.

Wir haben es für Sie: Lady P. von Sphinx.

Das erste Frauen-Urinal

Lady P.

Eine effiziente, komfortable und vor allem hygienische Lösung als herkömmliche WC's: wenn es der 'Nase' beschneit ist, sind Damen jetzt gleichberechtigt. Wir haben es für Sie: das erste Damenurinal Lady P. Lesen Sie weiter.

Die psychologischen Erfahrungen

Die ergonomische Lösung

Die Gebrauchshaltung

Die räumliche Lösung

Die ökonomische Lösung

Die psychologische Lösung

Ein Bild.

Die Firma Buruse Haustechnik aus Leipzig installiert auch bei Ihnen das Sondermöbel von 'Späthaus' traditionell ist Ihre Meinung geteilt - nur Sie an sich und vielleicht auch Ihre eigene Erfahrung betreffend, die Sie so.

Paarsoforten Leipzig mit Lady P. gesammelt haben? Über eine Kontaktanfrage freuen wir uns - nutzen Sie bitte unser Kontaktformular! Wie vermerken wir diesen 'Stille Ihre Vorlieben'.

Buruse HAUSTECHNIK

Sphinx

The Female Urinal of Casinotheater

This female urinal may be found at the Casinotheater, which kills itself as a "comic theater". It is located in the town of Winterthur, Switzerland.

The picture was not a by itself. It was "It is a rare female urinal, called 'Lady P', produced in the 1970s."

Female Solutions

- P-mate Hand-held (outdoor use)
- <https://www.pmate.co.uk/>
- The Whiz Hand-held (outdoor use)
- <https://www.whizaway.com/?OVRAW=female%20urinal&OVKEY=female%20urinal&OVMTc=standard>
- Lady P Fixed Urinal (indoor use)
- <https://www.bunsehaustechnik.de/lady.htm>

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Female Facilities



- Sanitary Towels, Tampons, Liners
- Avoid using the Sewers as a waste disposal route
 - block up the sewer filters or combined sewer overflows to rivers and dispose on the beaches
- Collection services with dedicated bins
- WEN Women's Environment Network
 - Offer no-waste alternatives
 - <https://www.wen.org.uk>
- <https://www.wen.org.uk/enviroenmenstrual/>

Office Crèche

- Avoid silica gel absorbent in core
- Avoid landfill
- Avoid Pampers, etc.
- Use Natural cloth washable nappies
- Local authorities are developing wash services
- Inner lining to remove solids to WC
- Use compostable nappies
- <https://www.wen.org.uk>
- https://www.naturalchild.co.uk/ShopHome/index.html?target=dept_44.html
- <https://www.totsbots.com/reusable-nappies.htm>

WC Flush

- Was:
 - 9 litre flush
- Now:
 - < or = 6 litres
- Could be:
 - dual flush 6/4 litre
- Better: (should be normal)
 - 4/2.5 litre
- Best:
 - 1 litre vacuum flush
 - Recycled rainwater flush water not potable water



WC Ideal

- All appliances and fittings on isolation/flow regulating valves
- Dual and low flush cistern/toilet 4/2.5 litres flush.
- Low capacity cistern means quicker refill
 - Faster turn around
 - No more waiting for second flush to remove your deposit
 - Shorter queues?
 - Depends upon other activity time
 - Tissues on toilet seat?
 - With children?

Existing Buildings: WC

- Introduce isolating valve to pipework
- Retrofit low water demand flushes to existing WC cistern
- Retrofit water saving devices in existing cisterns
 - Save-a-flush
 - Hippo

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Save Money, Water & Environment



- UK water use increased by 70% since 1970
- Toilets: 90% of water use for an office
- A device can be fitted to a siphon toilet (with handle on front),
- saving average UK household 500 litres/week
- If on a water meter, over £100/year
- Interflush from Varyflush
- www.interflush.co.uk
- Flush or new toilet on WTL & ECA

WC Cleaning

- Use a brush in preference to chemicals
 - Or Coca Cola for calcium build ups
- Use natural cleaning liquids if you must
 - Ecover
- Non-stick coatings: ToTo @ 17CHS
- Use biological anti-bacteria coated
 - Lives on the bowl surface
 - not washed away
 - Eats skid marks for breakfast

Natural Cleaning

- On GBE website
- Natural ingredients
 - Lemon, Vinegar, Bicarbonate of Soda, etc.
- Recipes
 - Stains <> Recipes

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Basins and Taps

- Fast wasteful taps aim into bowl
- Slow flowing tap drips onto surfaces
- Stop designing them so 25% of water ends up on work surface or floor
- Sanitaryware by manufacturers work
- Architect designed sanitaryware usually fails
- FMs hate them

Tap cleaning

- Dripping on surfaces,
- Soap residues require cleaning
- Cleaning requires chemicals or detergents
- Avoid touching with soapy hands
- Proximity taps avoid it all
- Covid Opportunities

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Percussion taps

- Shut too fast to get to the water
- Or too slow turning off
- No control over the flow rate
- Jam on, Jam part way
- Chrome damaged by soap, rings and keys in hands
- Can be sprinkler
- Put on isolation/flow regulator and set low by default

Taps

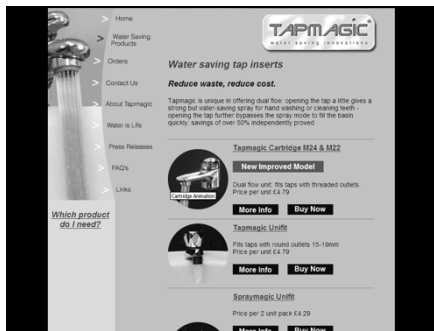
- Slow flow to save water
- Proximity taps stop & start on their own
- Spray taps reduce water demand
- Aerators feel like lots of water
- Sinks and Baths want to be filled quickly
- avoid water cooling by aerators/sprinkler
- Two stage taps, slow flow and fast fill

Taps

- Hot and cold water taps on isolator/flow regulator valve
- 4 litres/minute maximum
- proximity actuated taps
- aerators or spray heads
- safe temperature blending
- not pressurized, not percussion taps
- Pumped on circulating pipe if remote storage
- Solar Thermal heating
- Anti-bacterial coatings
- Covid Opportunities

Existing Buildings: Taps

- Retrofit water aerators/sprinklers on existing taps
- Tap Magic
- <https://www.tapmagic.co.uk/>
- Save 70% water and energy in hot water
- Sprinkler and full flow or sprinkler only
- Or replace existing with proximity taps with low flow and aerators



Sinks

- Hot and cold water taps
- Need quick sink fill to avoid heat loss
- And sprinkler/aerator low flow to wash hands and some teeth brushing and face washing
- Isolation valve but regulator less important
- Elbow/level taps, easy on/off
- Sinks fitted with two stage taps: sprinkler and full flow
- Some wash dishes with running tap
- 6 litre/minute maximum

Sinks

- Hot and cold water taps
- Need quick sink fill to avoid heat loss
- And sprinkler/aerator low flow
 - for hands face washing & teeth brushing
- Isolation valve and balancing system
 - but regulating flow less important
- Elbow/level taps, easy on/off
- Sinks fitted with two stage taps:
 - sprinkler and full flow
- Some wash dishes with running tap
- Some café chains insist on running tap 24 hours
- 6 litre/minute maximum

Catering kitchen sinks:

- Catering sinks want fast flow to fill
- Avoid aerators on fast fill tap
- Hand washing should be in separate bowl with two stage tap with aerator/sprinkler
- All taps on isolation/flow regulator valve

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Existing Buildings: Appliances and Sanitaryware

- Retrofit isolation/flow regulating valves on all taps and supply pipes
- Set low by default

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Cyclist Showers

- 8 litre/minute maximum low flow shower
- Narrow spouts give pressure jet effect
- Good spread of water jets impression of lots of water
- good water head ideal
- not power shower
- Try to avoid retrofit power-shower
- Changing facility and lockers
- SHRU Shower Waste Heat Recovery Unit
 - Significant energy savings to be had
 - Hot waste pre-warms incoming cold water

Pipes & Insulation

- Fully insulate hot and cold pipes along whole length
- Inspect everywhere and confirm
- Avoid labour intensive wrapping, it wont happen
- Encase with split tube or Fill whole void
- If DHW is on a circulating pipe, then well insulated everywhere
- Avoid dead legs, avoid long dead legs
- Bathrooms over/near kitchens: compact plumbing
- Domestic: Many ensuite bathrooms usually means excess plumbing and energy wasted

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Pipes & Insulation

- Fully insulated hot and cold pipes along whole length
 - Inspections and sign off
 - Inspect everywhere and confirm
- Use Tubular insulation
 - Avoid wrapping insulation, labour intensive, it wont happen
 - Fill whole void, its easier than wrapping pipes
- If DHW is on a circulating pipe,
 - then its vital to well insulated
- Avoid long dead legs
- Make efficient floor plans to keep plumbing compact
- Once buildings are well insulated hot water becomes major demand

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Existing buildings

- Every plumber and electrician needs to carry insulation
- Every time they open up a void
- They should insulate the void before closing up
- Or the opening up has to happen twice in order to insulate the voids of a building

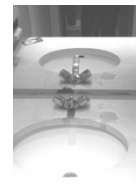
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Services Repairs

- British Gas Engineer's on repairs and maintenance contracts
- They are required to insulate pipes close to insulated replacement cylinders
 - But not beyond say 1 meter
- They think pipe insulation is a waste of time
 - They are very wrong
- Because BG engineers tell the public
 - trust BG Engineers
 - every other engineer is a cowboy
- So much TV marketing to fix their bad reputation

Basins & Soap Recess

- Soap Recess don't drain
- Especially if Architect designed
- Soap bar dissolves
- Wasteful of soap
- Check the reflection in the mirror



Hand cleaning soaps

- Bars of soap are messy
- drying shrinkage cracks harbour bacteria
- Use Biodegradable soaps
- Liquid soaps destroy rain forests for oil plantations
- avoid excess soap
 - 1 squirt is enough
- Use foaming dispenser avoid excess soap



Hand Drying

- Paper v
- fabric v
- hot air v
- air v
- Shake and backs of trousers

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Hand Drying

- Fabric towels
- No waste
- Do need cleaning but carried out on a commercial scale
- Don't locate hot air blowers over radiators because they will rust away

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Hand Drying Towel

- Cleaned by service
 - Carried out on a commercial scale
- Reused not wasted
- unlike paper towels
- Unless segregated or recycling



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Hand drying paper towels

- Wasted
- Unless segregated for recycling

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Hand Drying

- Fabric towels use less energy than hot blown air which are not very effective
- Only use electric if no other method possible (2009)
- Do use electric (2020)
- Don't locate hot air blowers over radiators because they will rust away

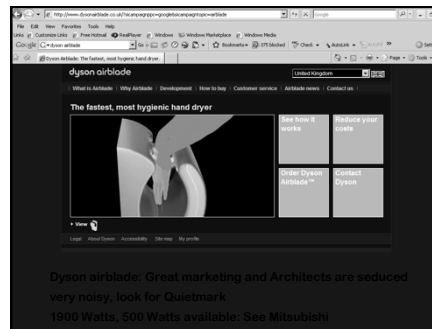
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Warm Air Hand dryers

- Electrically warmed air
- Inefficiently created and distributed but lower carbon grid electricity
- Inefficient hand dryers 500-2500 watts
- Long wait to get dry (10 seconds?)
- Impatience means hands not dried despite expended heat
- Avoid over radiators or they rust

Cold Air Hand dryers

- Wet hands in, proximity detection, withdraw hands slowly,
- 400 mile/hour blast of air removes water
- No heat added, just air and some residual heat from motor
- 10 seconds compared with 27 to 40+
- 1900 watts to blast air
- Mistaken for urinals




Efficient cold air hand dryers

- No heat added, residual heat from motor
- Air driven through tight gap air feels warmer
- Concentrated vortex downward air flow
- Hot air rises and is drawn back in via concentric openings
- Heated air recycled and cleaned
- <600 watts

Peace and Quiet

- You can now choose equipment and systems to avoid adding to the din of open plan offices
- >80dB hand dryers are not uncommon




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Cold Air Hand dryers

- Wet hands in, Proximity detection, withdraw hands,
- blast of air removes water
- 400 mile per hour wind
- No heat added, just air and some residual heat from motor
- 10 seconds compared with 27 to 40+
- Dyson Marketing is very Effective
- 1900 watts is not Effective (500 watts is)
- >80 dB is not Effective (disturbing adjacent)

Toilet Paper

**UN SDG 12
Responsible Consumption**



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Toilet Paper

- 15 years ago
- "Everyday about 270,000 trees are effectively flushed down the toilet," Andrew Lee, director of campaigns at WWF
- "This is occurring at a time when some of the world's most important forests are under serious threat.
- Manufacturers must use more recycled fibres in their products."

Campaigns work

- 20% companies made FSC toilet paper
- After a very brief WWF campaign 10 years ago
- Now most toilet paper manufacturers provide FSC certified paper
- Or have recycled content paper
- Or both
- Choose it if you don't already

Toilet Paper

- Very little recycled paper available
- 23% compared to 88% in commercial / business paper
- Only 21% FSC-certified sourced pulp
- Only one company taken measure to exclude illegal sourced timber

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Toilet Paper

- Andrex ranked bottom of tissue manufacturers
- Kimberly-Clark emerges poorly from a WWF survey of the environmental performance of European tissue manufacturers.
- None of Europe's leading tissue companies are "offering enough recycled content" in their products, according to WWF.
- Kimberly-Clark was ranked bottom of the survey, which looked at timber sourcing policies and the use of recycled paper amongst a range of other environmental indicators.

Toilet Paper

- Procter and Gamble, Georgia Pacific, Metsä Tissue and SCA were the other companies surveyed.
- Kimberly-Clark's consumer products contain only 23% recycled paper, although its business products contain 88%.
- Only 21% of pulp used by the company in Europe comes from FSC-certified sources.

Toilet paper

- Kimberly-Clark reacted with "surprise" and "disappointment" to the survey.
- "We find it strange that WWF has put us at the bottom of the ranking when Dow Jones has just named us as a leader in the personal products sector of its sustainability index,"
- spokesman Joanna Lund.
- "That's a much more authoritative survey."
- Dow Jones, however, only invited the world's 2006 largest companies to participate in its latest index.
- SCA, Metsä and Georgia Pacific – the top three companies in WWF's survey – were too small to be included.
- SCA is the only company to have "taken effective measures to exclude illegal or controversial timber" from its products, according to WWF

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https://GreenBuildingCloud.co.uk https://GreenBuildingCloud.co.uk https://GBELearning.com

Office Equipment & Expendables

Computers, Paper, Furniture, Finishes

UN SDG 12 Responsible Consumption



17/05/21

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330

Office Expendables

- Ink cartridges
- Printing paper
- Reducing paper use
 - Word processing and printing
- Recycled Stationery Suppliers
- Green Stationery

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Ink Cartridges

- Recycling of ink cartridges
- Under public pressure manufacturers now offer recycling



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Ink Cartridges

- Companies offer reuse by refilling
- Sell at lower costs
- Postage page empties return
- Recharge them
- Resell them



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All paper use

- In 2006 the UK used about 12.4 million tonnes of paper
- of which only 32% was recycled
- UK Businesses use 2 million tonnes of paper each year

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Paper

- Use FSC (Forest Stewardship Council) accredited paper
- Use recycled paper sponsoring WWF etc.
- Use recycled paper
- Post consumer recycled
- FSC now covers Recycled



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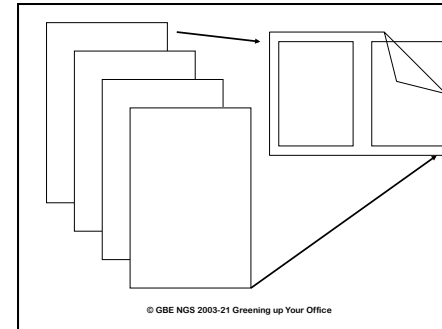
Word Processing

- Work hard at fitting the last paragraph onto page one
- Use Page Set up and Paragraph Settings to auto-fit in one page
- Adjust margins to use more of the page
- Specifications: too thick?
- Reduce margins, reduce font and print double sided

Photocopying and printing

- Set printers and copiers to default:
- double sided, 2 No. A4 reduced to A4 landscape
- i.e. 4 pages to a sheet
- Proof-read and spell-check on screen before printing,
- test print before multiple printing,

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Saving Paper

- London-wide switch to duplex printing
- could save 17.5 billion sheets of A4 paper every year!
- That's enough paper to wrap around the earth four times!

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Copiers

- Set default to print double sided
- 2 A4 side by side shrunk to fit A4 landscape i.e. 4 pages per A4 sheet
- Reuse waste
- Recycle waste



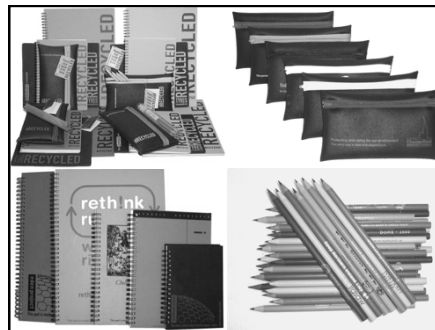
Green Office Supplies

- Government Approved suppliers and supplies list available
- "Quick wins"

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Recycled Office Supplies


- <https://remarkable.co.uk>
- Remarkable (Pencils) Ltd. The Old Stables Hansfield, GL19 4LG
- T 01452 780 795
- E edm@remarkable.co.uk
- Recycled tyres: Mousemats, pencil cases,
- Recycled plastics: Rulers, Pencils
- Recycled paper: Books, Pads, Paper
- Recycled rubber and paper avoiding plastics



Green Stationery

- <https://www.greenstat.co.uk/>
- Studio One, 114 Walcot Street, Bath, UK, BA1 5BG
- T 01225 480 556
- F 01225 481 211
- E sales@greenstat.co.uk

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- www.firstimpressionslastlonger.com
- Victory House, 89B Gloucester Rd, Croydon, CR0 2DN
- T 0208 665 4080
- F 0208 665 4092
- E adam@yhcholdings.com

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- Carbon neutral environmentally responsibly printer cartridges and stationary
- offer very competitive prices and customer service, whilst cutting your carbon emissions and making your business as green as It can be.
- visit your business and show you how to reduce your wastage and save you money.








Performance

- 90% of our products are made in the UK
- Support local UK manufacturing
- 95% of the products we supply are recycled and we will help increase your recycling percentage
- Our deliveries will arrive to you via our green fleet
- in 100% recycled packaging
- Our products cost less and have a longer life span
- We won't bombard you with heavy brochures
- 12,000 customers
- saved 28 tones in waste

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Sick Building Syndrome




Furniture Fittings IT Equipment

UN SDG 3

Good Health & Wellbeing



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Sick Building Syndrome

Furniture Fittings IT Equipment

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<https://greenbuildingdevelopmentmedia.uk>




Sick Building Syndrome

- VOCs from plastics
- Carpets and sheet flooring
- Plants and Humidity
- Paints and lacquers
- Wall papers
- Furniture off gassing
- Binders in Library and Filing
- Ergonomics
- Monitors and printers and outlets
- Wireless computing
- Graphics department

Sick Building Syndrome:

- Avoid use of materials which are contributing factors:
- Off-gassing from flooring, carpets, furniture, wall and ceiling decoration
- IT problems PVC cabling
- Illegal to Smoke in office 1st July 2007
- Mech Ventilation with recycling of germs

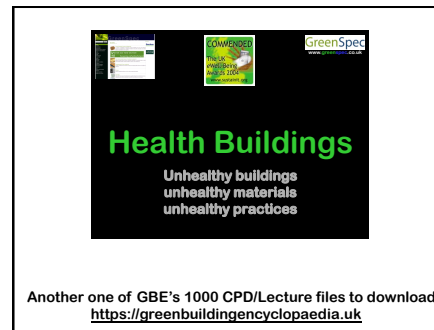
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SEDA Guides

<http://www.seda2.org>
<http://www.seda2.org/guides/index.htm>

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingdevelopmentmedia.uk>



Indoor Air Quality


- We spend a lot of time indoors
 - Often the air inside is worse than outdoors
- Off-gassing from Carpets, paints and furniture
 - High VOC finishes
 - Adhesives & Treatments
- If you can smell new carpets or paint then there are problems

Defra Consultation

- GPP Government Public Procurement
 - EU driven
- UK standards being set higher
 - But Nordic aren't seen as too high
 - EU eco-label standard set but certificate not required
 - Mandatory for Central Government
 - Voluntary for Local Government
- Furniture Industry Consultation meeting
 - 16 Nov 2009
 - They want consistency across all requirements even if set high
- Public consultation on draft standards
 - imminent
- Manufacturers comfortable with low ambitions in some areas
- Some reluctance to embrace all issues


High plastic content flooring

- Vinyl (PVC) flooring
- Static electricity build up
- Carpet:
 - Vinyl backed
 - Sheep's wool with nerve toxins from dipping (Woolmark included)
 - Petrol-chemical based carpet



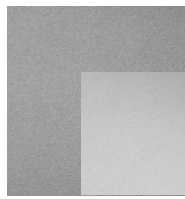
Other Issues

- Sick Building Syndrome
- Encourage the use of plants to condition air
- Encourage use of water, minimise static electricity
- Banned smoking (indoors) moved to front door
- Encourage fitness with bike to work schemes



Paints and lacquers:

- Synthetic plastics and solvent based paints with VOC (Volatile Organic content)
- Avoid all synthetic paints
- 2012 EU Directive controlled VOC in paints
- Avoid low VOC paints
- Lots more chemicals to act like previous paints
- Avoid Vinyl paints,
- Avoid Vinyl wall paper
 - Smoke hazard
- Avoid Solvent paints,
- Plastics attract dust, need cleaning




Office Furniture

- Chairs
- Tables
- Ergonomics Dynamic furniture
- Avoiding plastics
- Avoiding chemistry
- Avoiding off gassing
- Reducing materials

Plastics, PVC in particular

- Plastic laminate in furniture (formaldehyde)
- Formaldehyde and VOCs in adhesives in timber based boards in furniture, MDF, Chipboard and Plywood



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Library (if you still have one)

- Binders many of PVC
- Off-gassing to internal air
- Phthalates (plasticiser)
- Unhealthy
- Toxins Dioxin released in fires



Office Project Filing (if you still do that)

- Binders many of PVC
- Off-gassing to internal air
- Same issues as previous



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Ergonomics: Sitting at Monitors

- Avoid glare in monitors
- Keep face 28" away from CRT screen (they are in in WEE Waste recycling by now)
- Check ergonomics of table, chair and computer parts and user



LCD Monitor

- Minimum radiation from front and back
- Minimum heat generated
- Need less room
- Furniture down sizing



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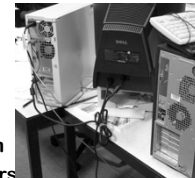
Copiers

- Keep photocopiers away from people, in closed rooms, with ventilation
- O₃ Ozone generated
- Take care with laser toner: Carcinogenic
- Wash hands thoroughly
- Latest laser toner ground even smaller
- New solid wax inks minimise packaging

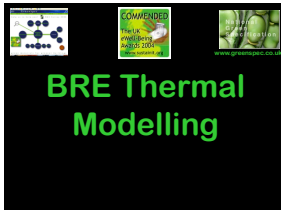


Rear of Computers

- Radiation from all ports that are not in use
- Lead caps are available
- Nobody uses them
- You irradiate others
- Visa versa



BRE Thermal Modelling



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<https://greenbuildingencyclopaedia.uk>

SSO Switched Socket Outlets

- Electromagnetic radiation
- Radiation emanates if switched on with no plug in socket
- Always switch them off if not in use
- Contracts: leave switched off
- Especially if indicator lights included

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Infrared and Wireless Networks

- Stick to wires
- Don't go wireless
- Avoid Radio or Infrared
- Don't irradiate your staff
- Infrared Mouse too
- Bluetooth?



Graphics Department

- Solvents
- Past: CFC propellants
- Ozone Depletion Potential
- Alternatives available now
- Hazardous waste
- Some domestic waste segregation
- Not segregated yet
- Avoid staff abuse
- Extract away from occupants do not recirculate
- Humidity tolerance?



Green Graphics
green to the core

Green Display wall

- Green Graphics
- Exhibition Displays, Murals, Pictures
- Cardboard with Honeycomb core
- 10 mm thick lightweight and strong
- 2.5 x 1 m printed £100 (2010)
- Cut for concertina folding easy delivery

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GBE
Green Building Encyclopedia
<https://greenbuildingencyclopedia.uk>

GBE
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Ergonomics

Sick Building Syndrome, Defra Furniture Consultation, Dematerialisation, RSI Repetitive Strain Injuries, CTS Carpels Tunnel Syndrome, ULD Upper Limb Disorders
Health & Safety v Ergonomics Chair & Desk design

UN SDG 3 Good Health & Wellbeing



17/05/21

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Furniture Design
Approaches to Furniture Design

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Ergonomics & Wellbeing

- Manual handling: weight and reach
- Calculators and Computers
 - RSI Repetitive Strain Injuries,
 - Repetitive activity (keyboards/mice + bad sitting and posture)
 - CTS Carpels Tunnel Syndrome, typing needed wrist support
 - ULD Upper Limb Disorders embraces above and more
- Ergonomics Chair & Desk design
- Sick Building Syndrome
 - Many contributing factors, none pinpointed by H&SE
 - VOC in paint, formaldehyde in timber furniture adhesives and binders
- Green Furniture Procurement
 - Defra Furniture Stakeholder Consultation (chemicals in upholstery)
 - Office Chair Dematerialisation

Person Specific Ergonomics

- H&S championed good posture at work
- Ergonomics of working at desks and computers
- Induction to offices included 19 stage tailoring a chair and all of its settings to fit the user,
- Chair size, seat height, back rest, arm rests, lumbar support, feet supports, etc.

How to fit an ergonomic chair

Home > Online Shop > Articles > Office ergonomics

No chair is equally well suited for all body types. The perfect chair for a 6'2" computer programmer may be ineffective and even harmful if used for long periods by a 5'0" dentist. Your personal ergonomic chair should comfortably fit your unique body-type.

This guide highlights the fit you should look for when choosing your ergonomic chair.

1. Body weight tolerance
2. Seat height
3. Seat depth
4. Seat width
5. Seat angle
6. Seat cushion
7. Backrest height and width
8. Backrest support contour
9. Backrest height adjustment
10. Backrest pivot
11. Seat-to-backrest angle
12. Adjustment controls
13. Armrest height
14. Armrest length
15. Distance between armrests
16. Swivel
17. Base
18. Casters and glides
19. Upholstery

3 Sizes fits all Ultimate adaptability Added extras



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Agile Working

KM, Ownership of Information, Paperless Office, Clear Desk, IT developments, Homeworking, Hot Desking, Agile Working no ownership of space v Ergonomics Health & Safety

UN SDG 3
Good Health & Wellbeing

3 GOOD HEALTH AND WELL-BEING

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Evolution towards Agile Working

- Electronic Calculators
- Mobile phone
 - started brick size + couplers, shrank to egg size before iPhone and now foldable screen
- IBM PC enabled > Apple Mac revolutionized > Amstrad laptop hauled up anchors
- Paperless Office (possible but remains and aspirational)
- Clear Desk Policy, De-cluttering, De-personalizing, De-humanizing work spaces
- Corporate Knowledge, Ownership of Information & Knowledge Management
- IT developments (paperless office possible)
 - Networks, Routers, Broadband
 - Wi-fi and other wireless technology (comes with electromagnetic radiation risks)
- Ergonomic Seating and Desks driven by Health & Safety
- Ipad > iPhone (smart phone) > Ipad (tablet)
 - giant leap forwards in access to technology, information and freedom to roam
- Home, on the road, on site, at client working & hot desking back at office
- Agile Working: no desk of your own, sharing all with all, bad ergonomics again, needs better cleaning
- Coronavirus: Do not Agile work: cleaning will not be good enough

Agile Working

- No ownership of space unless dedicated IT Platform or Hard Wiring necessary
 - (accounts, digital printing, PC software in Apple offices)
- Working with strangers and not in teams
- Needs more team building activity
- Needs Monday morning meetings Friday wine downs
- Seamless portable IT and support essential
- Different work activity and furniture scenarios
 - Excess capacity seats and desks essential
 - Hot deskers need more integration
- Loss of Ergonomic Health & Safety

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Agile Working IT

- Uncluttered floor without Pedestal units
- Good wire management
- Hidden but accessible cable trays
- 4 gang switched socket outlet extension leads with spare capacity for laptops
- 2 in use and default all 4 switched on just in case
- Electromagnetic radiation on 24/7/356
- Power demand from all computers even when turned off
- 2 redundant SSO lights and computers need another power station running 24/7/356
- Agile working gives me a chance to turn off redundant SSO one work station at a time one day at a time
- Some cannot be turned off

Non-specific chairs

- Agile working denies individuals support for their individual frames
- Musical chairs every morning is not practical
- Agile working denies all the benefits gained by H&S and chair ergonomics
- Apparent little differences can make a big difference to wellbeing and productivity



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Healthy & Green Furniture

Furniture Fittings IT Equipment

Defra Public Consultation

- Green Public Procurement
 - EU Directives
 - UK Over ambition for Government Departments
- Consultation on upholstery materials
 - Chemicals for fire protection
 - Unhealthy staff and offices
- Industry response:
 - How much chemistry can we keep using
 - How ill can we keep making people
 - Or dematerialize the chair


Herman Miller Aeron Chair

- 67% recycled parts
- 100% recycled aluminium frame
- (95% better than virgin: energy, materials, water and air)
- Dematerialises conventional chair construction
- Designed for disassembly
- 10 year design life
- Repairable
- ISO labelled for recycling
- Recyclable
- Improved Life Cycle Assessment



Herman Miller Mirra Chair

- Dematerialises conventional chair construction
- Ergonomic design
- Designed for disassembly
- ISO labelled for recycling
- Recyclable
- Repairable
- 1 piece plastic back rest
- Asked chemists for new plastic
 - 100% recyclable
 - Forever
 - They got it



NGS GreenSpec

Steelcase 'Pulse'

office chair

Please look different to every other office chair thanks to its unique form-factor system - a system which offers you unparalleled levels of comfort. Pulse is a truly well-balanced phenomenon - looking, comfort and beauty - freedom of movement and total control - precision and relative ease of the adjustment controls, manufacturing quality and environmental responsibility - we could go on and on. Pulse was re-designed. It has 30% less components than its preceding model as well as being 5kg lighter. In addition, we have created a model which uses 3D Tool Space (Optimise) patented formula in the upholstery which increases comfort and reduces the amount of foam used in the chair.

Pulse is also accompanied by an Environmental Product Declaration (EPD) (EPD1402). This is the first declaration of its kind awarded to office furniture and its other manufacturers in our field has verification of such a high standard.

Finally, it is highly recyclable (99.4%) and has been manufactured in a responsible location: our plant in Sarnsbury, France which is ISO14001 certified.

greenest item:	100%
standard:	100%
GBE Specifier:	unrated (but see EPD below)
download:	Environmental Product Declaration (EPD)
specification:	Brochure (2.0MB)
recycled content:	100%
cost transparency:	100%
manufactured in:	© GBE NGS 2003-21 Greening up Your Office



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greenest item:	100%
standard:	100%
GBE Specifier:	unrated (but see EPD below)
download:	Environmental Product Declaration (EPD)
specification:	Brochure (2.0MB)
recycled content:	100%
cost transparency:	100%
manufactured in:	© GBE NGS 2003-21 Greening up Your Office



NGS GreenSpec

Steelcase 'Pulse'


office chair

Please look different to every other office chair thanks to its unique form-factor system - a system which offers you unparalleled levels of comfort. Pulse is a truly well-balanced phenomenon - looking, comfort and beauty - freedom of movement and total control - precision and relative ease of the adjustment controls, manufacturing quality and environmental responsibility - we could go on and on. Pulse was re-designed. It has 30% less components than its preceding model as well as being 5kg lighter. In addition, we have created a model which uses 3D Tool Space (Optimise) patented formula in the upholstery which increases comfort and reduces the amount of foam used in the chair.

Pulse is also accompanied by an Environmental Product Declaration (EPD) (EPD1402). This is the first declaration of its kind awarded to office furniture and its other manufacturers in our field has verification of such a high standard.

Finally, it is highly recyclable (99.4%) and has been manufactured in a responsible location: our plant in Sarnsbury, France which is ISO14001 certified.

greenest item:	100%
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GBE

Green Building Calculator

<https://greenbuildingcalculator.uk>

GBE

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Accessibility

UN SDG 3

Good Health & Wellbeing

3 GOOD HEALTH AND WELL-BEING




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Disability Discrimination Act DDA



Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

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Green Building Calculator

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Information Sources

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GBE Magazine

- A Greener Office (UK)
- Jane Marshall
- Features Editor
- www.agreeneroffice.co.uk
- Sustainable FM

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Information Sources

- Etheco
- <https://www.etheco.com>
- on-line green equivalent of Which? Magazine
- Ethical Consumer Magazine
- <https://www.ethicscore.org/home.aspx>
- Good Shopping Guide
- <https://www.thegoodshoppingguide.co.uk/>

London Remade

- Mayors Green Procurement Code
 - Business Recycling Campaign grown into
 - Business Greening Campaign
 - Carbon Reduction Commitment
 - No longer exists

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Envirowise

- Many Publications
 - Exchange for contact details
- Office Audits for free
- Campaigns
 - Efficiency
 - Water

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- Brian Murphy ONC HNC Construction, BSc Dip Architecture (Hons+Dist)
 - Technician and Architect by Training 45 years
 - Specification Writer by Choice 37 years
 - Environmentalist by Actions 22 years
 - Writer and Educator as a Calling 15 years
 - Number Cruncher by Necessity 10 years
- Greening up my act since 1999
- Founded National Green Specification 2001
- Launched www.greenspec.co.uk 2003
- Created GBE at <https://greenbuildingencyclopaedia.uk> 2012 - 2021
- Created GBL Learning: <https://GBELearning.com> 2020 - 2021
- Created GBC at <https://greenbuildingcalculator.uk> 2011 - 2021
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- Facebook: [BrianSpecMan](https://www.facebook.com/brianspecman) <http://www.facebook.com/brianspecman>
- Google My Business: National Green Specification
- Pinterest: Brian Murphy - GBE Green Building Encyclopaedia
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