

# Greening your own Office

ISO 14001, FM & MOBS,  
Sick Building Syndrome, Transport,  
IT, Food, Stationery, Paper,  
Office, Kitchen, WCs, DDA





# Greening Your Business

CPD topic



# Sustainable Facilities & Property Management

Faber Maunsell's MOBS website

[Http://www.mobs.org.uk](http://www.mobs.org.uk)

sadly no longer available



# Eco-Refurbishing Non-Domestic

**Manner Methods Materials**



# Making changes

- There will always be excuses for status quo prevails
- There will always be excuses from those that dislike change
- We need to look for solutions and overcome the barriers
- There is an increasing urgency
- Government is investing £m s through agencies providing free advice

# 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 bag is on the pavement, can burst and spill all over the street
- Who is looking in your bin anyway?

# If its confidential shred it





# Confidential?

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



# 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

# BREEAM

- **BREEAM**
  - Building Research Establishment
  - Environmental Assessment Method
- **BREEAM for New Offices**
  - Building Fabric
  - Possible to get Outstanding with fully glazed, air conditioned building
- **BREEAM for Existing Offices**
  - For Fit-outs and Refits
- **BREEAM In Use**

	Non-domestic													Domestic			
	Bespoke	Offices - Design	Offices - Fitout	Retail - Design	Retail - Fit Out	NEAT (NHS)	Healthcare	Prisons	Schools	Courts	Industrial ??? with offices	Further Education	EcoHomes	Multi-Residential	Code for Sustainable Homes		
Upper Floors ??? Mezzanines	Yes	Yes	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	???	Yes	Yes	Yes	Yes	Steel mezzanine in industrial buildings? No impact?	
Ground Floors	???	???	okay	???	okay	???	???	???	???	???	???	???	Yes	???	Yes	Subsoil to excavate, hardcore and concrete to fill: No impact?	
External Walls	Yes	Yes	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Roofs	Yes	Yes	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Floor Finishes	Yes	???	Yes	???	Yes	Yes	Yes	???	Yes	Yes	???	Yes	???	Yes	???	Offices assumes Shell and Core but many do Cat A fit out; Retail better; Indoor Air quality?	
Windows ??? Rooflights	Yes	Yes	okay	Yes	okay	Yes	Yes	???	Yes	Yes	???	Yes	Yes	Yes	Yes	Prisons still have windows; Industrial have rooflights	
Internal Walls/Partitions	Yes	???	Yes	???	Yes	Yes	Yes	???	Yes	Yes	???	Yes	Yes	Yes	Yes	Offices assumes Shell and Core but many do Cat A fit out; Retail better; Indoor Air quality?	
Suspended Ceiling Finish	???	???	Yes	???	Yes	???	???	okay	???	???	???	???	okay	???	okay	Offices assumes Shell and Core but many do Cat A fit out; Retail better; Indoor Air quality?	
Hard Landscaping	Yes	???	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	???	Subsoil to excavate, hardcore, hard materials to fill: No impact?	
Boundary Protection	Yes	???	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	???	Absent in urban but not in rural; why not CfSH? Insignificant compared to ground floors/foundations	
Insulation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	But material used in elements are not identified	
Added by GreenSpec																	
Foundations	???	???	okay	???	okay	???	???	???	???	???	???	???	???	???	???	Subsoil to excavate and concrete to fill holes: No impact?	
Rooms in roofs	???	okay	Okay	Okay	okay	Okay	???	Okay	???	Okay	okay	???	???	???	???	Very applicable to domestic	
Stairs	???	???	???	???	???	???	???	???	???	???	???	???	???	???	???	Concrete or steel stairs: No Impact? Timber better?	
Paints and wall paper	???	???	???	???	???	???	???	???	???	???	???	???	???	???	???	Paints: No impact? Hazardous waste? Indoor Air Quality?	
Doors	???	???	???	???	???	???	???	???	???	???	???	???	???	???	???	Glass steel timber doors: No impact? No difference?	
Services	???	???	???	???	???	???	???	???	???	???	???	???	???	???	???	Metal and plastics: no impact?	

## Legend:

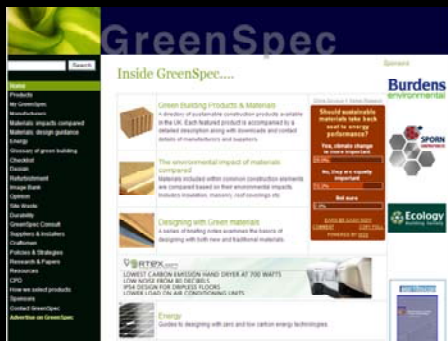
Yes: BRE consider it relevant

???: BRE do not consider it relevant;

GreenSpec consider it relevant, why not?

Okay: BRE do not consider it relevant, GreenSpec agree



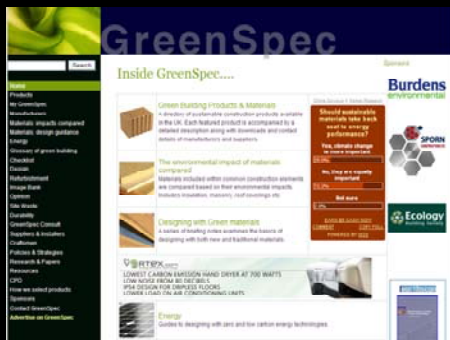


# LEED



- American alternative to BREEAM
- Some say easier to use
- Possible to get Platinum for Fully glazed air conditioned building





# GreenStar

**GreenSpec**  
[www.greenspec.co.uk](http://www.greenspec.co.uk)

**CAP'EM**  
 Cycle Assessment Procedure for Eco-Materials  
[www.capem.eu](http://www.capem.eu)

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



# RICS Ska Ratings

Office Fit -out  
EAM  
Sustainability Rating scheme

1

Another GreenSpec CPD to download soon



# Ska rating

Good practice measures  
for offices



# Ska

GreenSpec

[www.greenspec.co.uk](http://www.greenspec.co.uk)

CAP'EM

Cycle Assessment Procedure for Eco-Materials



[www.capem.eu](http://www.capem.eu)

- Engages with real issue
  - Not just a tick box exercise
- 100 issues
  - 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)



# SEDA Guide

## Design and Detailing for Toxic Chemical Reduction in Buildings

CPD topic

1

Another GreenSpec CPD to download soon



**S E D A**  
Scottish Ecological  
Design Association



SCOTTISH EXECUTIVE

## Design and Detailing for Toxic Chemical Reduction in Buildings

[home](#) | [introduction](#) | [context](#) | [issues](#) | [benign construction](#) | [costs](#) | [details](#)

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### Welcome

Welcome to the website for the SEDA guide on Design and Detailing for Toxic Chemical Reduction in Buildings, the third web mounted design guide commissioned by [SEDA](#) - the Scottish Ecological Design Association - and funded by a [Sustainable Action Grant](#) from the Scottish Executive.

The guide is divided into six chapters; chapters one to five examine the context and principles of designing for Toxic Chemical Reduction. Chapter six shows five typical construction details together with alternatives which optimise the potential for each detail to exploit toxic chemical reduction techniques, along with explanations and costs. These five are available as separate [pdf downloads](#) in addition to a pdf download for the [entire document](#).

The research presented on this site was prepared by [Gaia Architects](#), [Gaia Research](#) and [John Gilbert Architects](#).

Also in [this series of guides](#):

Design Guide 1: [Design and Detailing for Deconstruction](#)

Design Guide 2: [Design and Detailing for Airtightness](#)

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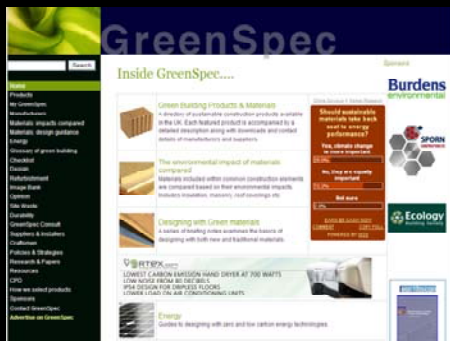


Pfennigäcker A Healthy  
School. Architect  
Joachim Eble  
Architects. Photo  
Howard Liddell

### Contents

# Defra Consultation

- **GPP Government Public Procurement**
  - EU driven
- **UK standards being set higher**
- **Furniture Industry Consultation meeting**
  - Nov 2009
- **Public consultation on draft standards**
  - Completed
  - Overwhelmed by manufacturers



# Greening your own Office

What can be done?





# Running of the Building Operations

- Transport
- Electric Supply
- Energy Use
- Sick Building Syndrome
- Office Activity
- Kitchen and Toilet
- Refuse Collection

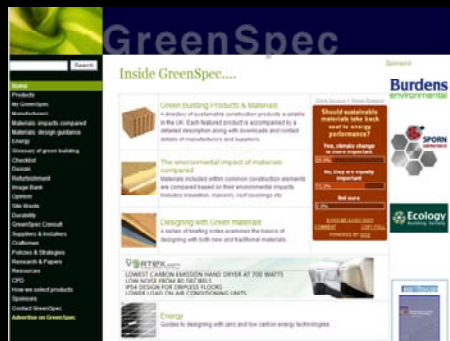
# Conference Calls

- Avoid travel
- if you have Broadband:
  - Phone/video at no extra cost
- multi person/location meetings on the phone
- Video conference calls
- Use Skype on Broadband no extra cost
- Skype in and Skype out

# 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
- Avoid single person lift rides

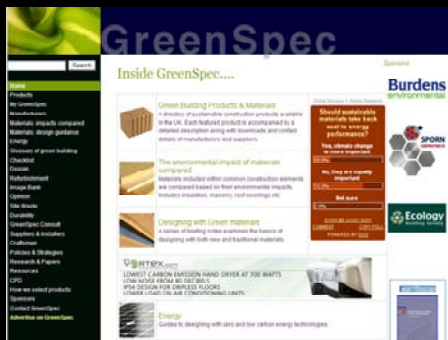




# Energy Supply

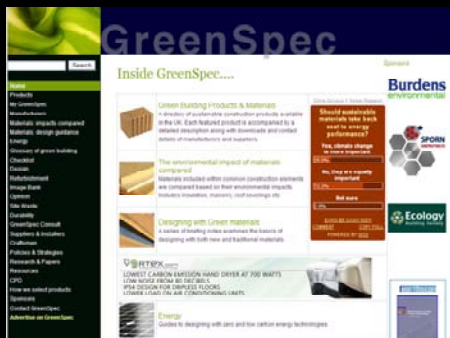
Grid supply, Dispersed Generation and Renewables





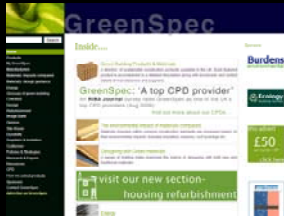
# Violet Energy

- **From the grid**
  - **Transmission Losses**
- **From Power stations**
  - **Few CH&P plants**
    - Cooling tower water wastage
    - Cooling tower heat wastage
- **From coal, gas and oil**
  - **Dirty and carbon intensive**
- **From Nuclear**
  - **Nuclear waste, polluted water cooling into seas**
  - **Depleted uranium tipped shells used in warfare**
    - Radioactive burned out armed vehicles that children play in
  - **Decommissioning radioactive waste**



# Green Energy

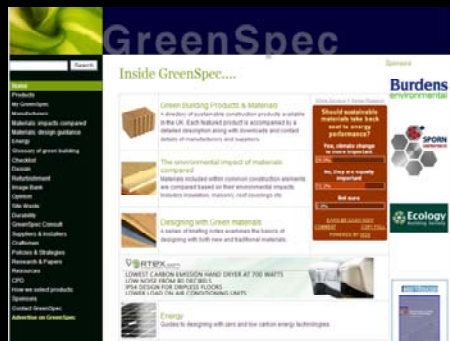
- Via the grid
  - inefficient delivery grid transmission loss
- From your own private district system
  - Some inefficiencies can be compensated
- From your own building
  - no transmission loss
  - Use it efficiently
    - without voltage transformers
    - Efficient consuming equipment



# Energy Supply

**Grid supply, Dispersed Generation and Renewables**

**Another GreenSpec CPD to download soon**



GreenSpec  
[www.greenspec.co.uk](http://www.greenspec.co.uk)

CAP'EM  
 Cycle Assessment Procedure for Eco-Materials  
[www.capem.eu](http://www.capem.eu)

# Energy Use



THE Green  
 REGISTER



# 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

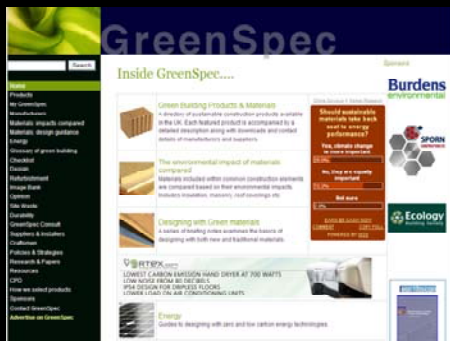


# Carbon Reduction Commitment & Energy Efficiency

April 2010 CRC a new ETS  
Emissions Trading Scheme

# Fuel

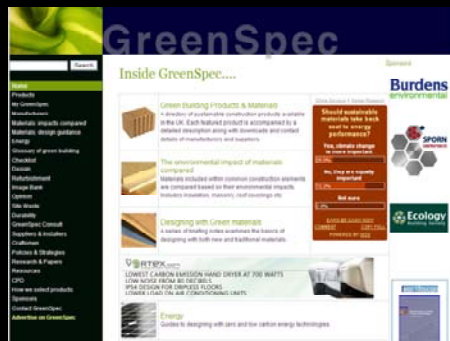
- Use Gas appliances in preference to electricity
- Including Gas Fridge (not easy to find)
- unless using Green Tariff Electric
- If stuck with electric
  - use Class A++ appliances in all cases
- Voltage Optimisation on electric intake



# Electrical Energy Efficiency

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





# Smart metering

## Metering Monitoring & Controls



# Whole building monitoring

- **Electrisave**
- <http://www.electrisave.co.uk/pages/order>
- 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 electrism onto the live cable which comes out of your meter into the fuse box.







# efergy

you can't manage what you can't measure

real time wireless power monitor

save energy

english  español 

efergy about us smart meter 20.10% media contact us

presentation | how to use | product support | FAQ

energy manager

watt is this?

log in

buy efergy






order online today

## the real time electricity monitor

this is efergy,  
the energy saving meter

features  
view demo  
FAQ



CE   
RoHS 

**Customer Service:**  
**08450 177 769**

Buy  
additional  
sensors


## NEWS

Power use in homes is increasing - real-time monitors identify areas where you can SAVE power and reduce your electricity bills



## HOW TO INSTALL

It couldn't be easier! Install yourself the efergy meter in less than 30 seconds. Click on the image to see the VIDEO.



# DIY Kyoto

- Wattson
- Real time read-out of energy consumption of building
- Real time cost read-out too
- [www.Diykyoto.com](http://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

HOW IT WORKS  
INSTALLATION  
MODES  
ONLINE  
TO ORDER

## WATTSON

Watson, DIY Kyoto's first product, is based on the understanding that producing energy efficient products is of no use without an understanding of why they are needed. Without knowing what actually happens when we use the appliances in our homes we have no reason to make changes to our behaviour or purchases.



watson



HOW IT WORKS  
INSTALLATION  
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ONLINE  
TO ORDER

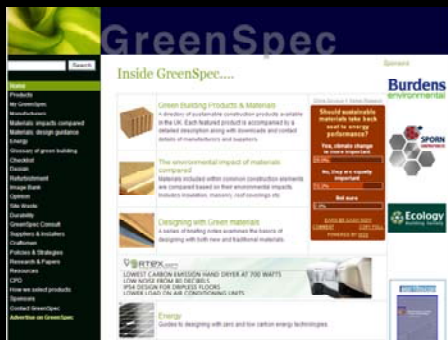
NUMERICAL  
NONVERBAL  
SOFTWARE

Wattson has a non-verbal display, designed to be understood intuitively. Coloured light and patterns shine through the underside of Wattson. Their behaviour reflects the power consumption and the long term energy use of your home. Wattson provides an instant awareness of the 'state' of your house.

Wattson is more than just an energy monitor. You can use it as an intelligent 'mood' light in the evenings, or as a quick 'last check' to ensure everything is switched off before leaving the house. It can even be an educational night light for the children, helping them become aware of the energy consumption in their home.

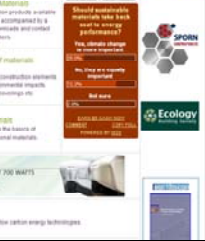


wattson



# Electricity Monitor

- <http://www.electricity-monitor.com/index.php?gclid=CM-55uahoZECFR9WMAodFwzrtg>



# Chargers

# Transformers

# Low voltage

# circuits

# Heat emitters

[www.green](http://www.green)

CAP'EM  
Cycle Assessment Procedure for E

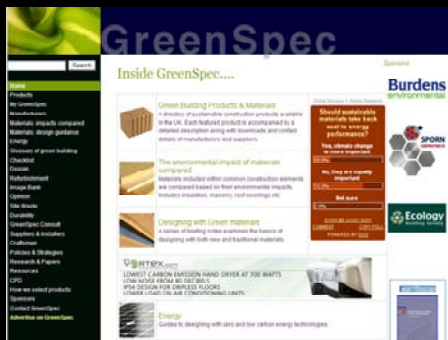
[www.ca](http://www.ca)



# SSO Switched Socket Outlets

## Transformers and Chargers

- Avoid transformers
  - keep and use at delivered voltage
  - E.g. PVs to LV circuits for LV kit
- Turn off transformers and chargers if nothing being charged to avoid energy use and heat gains
- Always switch them off if not in use



# 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”.

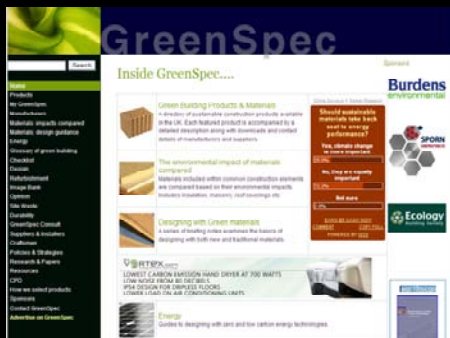
## Turn them off



# Power supplies

- Add 9-12 volt circuit to avoid all the transformers that generate heat adding extra load to cooling & ventilation systems in summer





GreenSpec

www.greenspec.co.uk

CAP'EM

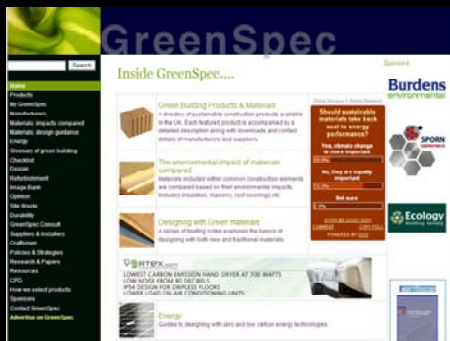
Cycle Assessment Procedure for Eco-Materials



www.capem.eu

# Sustain IT

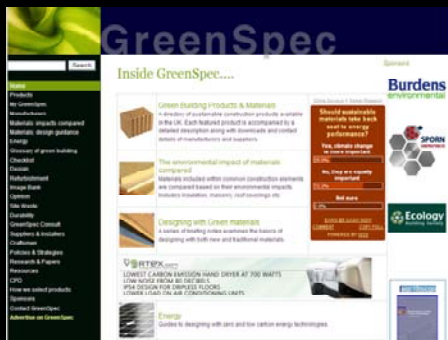
- <http://www.sustainit.org/index.php>



# Electrical Energy Efficiency

## Appliances





# Energy Efficiency

- Appliances
- Kitchen equipment
- Domestic Appliances
- White goods
- PriceXtra
- Electric Supply Modulation

# Energy Efficiency

- Microwave very Energy efficient compared with Cookers
- Short time for staff lunches





# Energy Efficient Appliances

- Choose A+ rated energy, water and noise efficiency appliances,
- Fridge, Freezer, Dishwasher, Water-cooler/chiller, Microwave, Cooker, Coffee making,
- Significant reduction in energy use over life of appliance and office



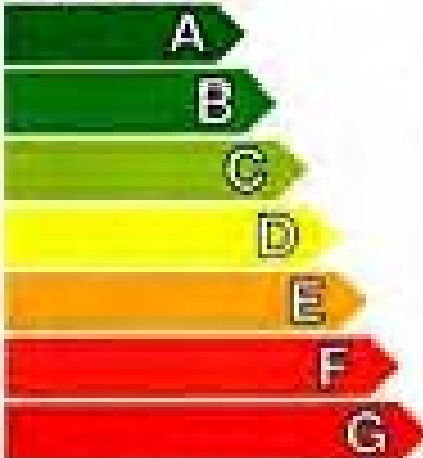
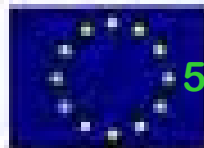
# Domestic Appliances

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



# White Goods Domestic Appliances

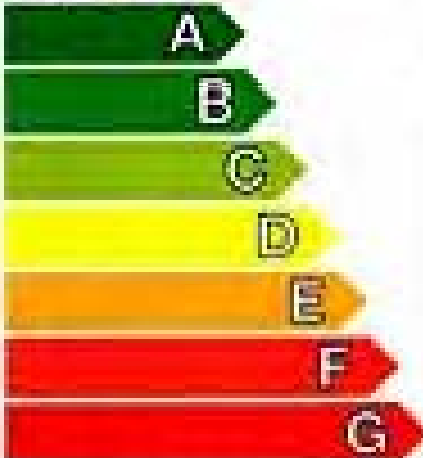
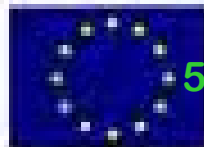
- A+, A, B C, D, E, F & G labels
- Overall Efficiency
- Energy Consumption
- Capacity
- Water consumption
- Wash performance
- Spin performance
- Noise levels

Energy		Washing machine
Manufacturer Model		
<b>More efficient</b> 		<b>A</b>
<b>Less efficient</b> Energy consumption kWh/cycle <small>(based on standard test results for 60°C cotton cycle)</small> <small>Actual energy consumption will depend on how the appliance is used.</small>		1.25
Washing performance <small>A: higher G: lower</small>		A B C D E F G
Spin drying performance <small>A: higher G: lower</small>		A B C D E F G
Spin speed (rpm)		1400
Capacity (cotton) kg		5.0
Water consumption		55
Noise (dB(A) re 1 pW)		Washing 52 Spinning 70
Further information is contained in product brochures		
<small>Item: 100000 Washing Machine Label Directive No. 1000000</small>		



# 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+

Energy		Washing machine
Manufacturer Model		
<b>More efficient</b> 		<b>A</b>
<b>Less efficient</b> Energy consumption kWh/cycle <small>(based on standard test results for 60°C cotton cycle)</small> <small>Actual energy consumption will depend on how the appliance is used.</small>		1.25
Washing performance <small>A: higher G: lower</small>		<b>A</b> B C D E F G
Spin drying performance <small>A: higher G: lower</small>		<b>A</b> B C D E F G
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Further information is contained in product brochures		
<small>Form 10 10/09 Washing Machine Label Directive No. 10/09/01</small>		

# <http://www.pricextra.com>




Price Xtra : Dishwashers - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Reload Mail Print Wordpad Run Download Chat People

Address <http://81.29.69.220/~priceplus99/electrical/dishwashers/top10.php> Go

Google G priceextra Go 74 blocked Check AutoLink AutoFill Send to priceextra Settings

[Home](#) | [About](#) | [Contact](#)

Cars | Electrical | Computers

[VIEW COMPARATOR](#) [TOP TEN](#)

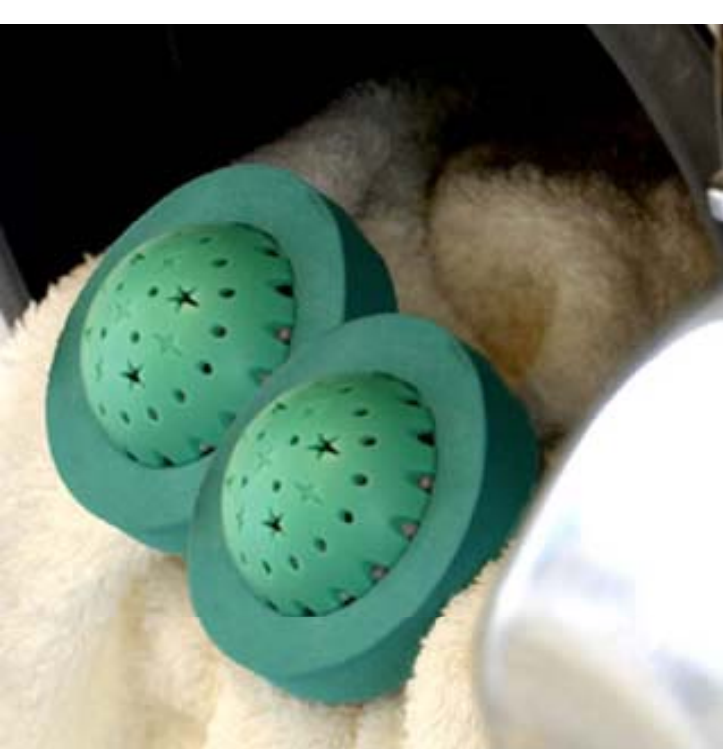
## Dishwashers

Manufacturer:  Sort by:

These are the top ten Dishwashers for your selections...

Manufacturer: ALL

Dishwashers	Power Consumption (Watts)	Cost per Wash (pence)	Cost per Wash (pence)
1. Matsui MTT1W	71 watts	10.488 pence	10.488 pence
2. Bosch SKT5102GB	70 watts	10.64 pence	10.64 pence
3. Indesit IDL 40	74 watts	11.432 pence	11.432 pence
4. Gorenje GV1553S1	80 watts	12.06 pence	12.06 pence
5. Bosch SRS43C22G	80 watts	12.06 pence	12.06 pence
6. Bosch SRS45E22G	80 watts	12.06 pence	12.06 pence
7. Bosch SRS55L12	80 watts	12.06 pence	12.06 pence
8. Zanussi ZSF4126	80 watts	12.06 pence	12.06 pence
9. Indesit DI 450	81 watts	12.328 pence	12.328 pence
10. Indesit IDE44UK	81 watts	12.328 pence	12.328 pence

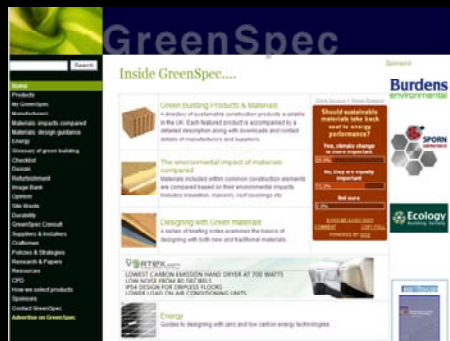


Reduce  
Clothes  
Washing  
Soap  
Use



**ecoballs™**





**GreenSpec**  
[www.greenspec.co.uk](http://www.greenspec.co.uk)

**CAP'EM**  
 Cycle Assessment Procedure for Eco-Materials  
[www.capem.eu](http://www.capem.eu)

# Voltage Optimisation



**THE Green**  
 REGISTER

# Voltage Optimisation

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



# EPS 388

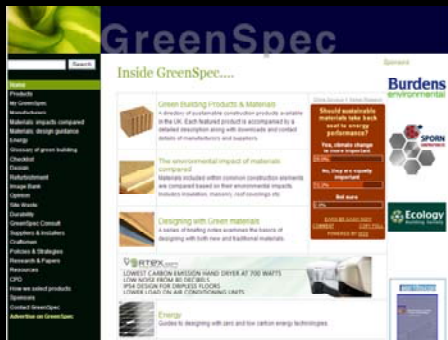
## (Commercial)

- 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.
- [www.power-save.com](http://www.power-save.com)

# 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

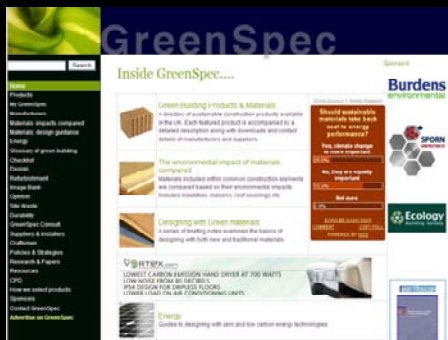


# Electrical Energy Efficiency

## Heating







# Heating Efficiency

- Access to Controls
- Appropriate Heating and Controls
- Energy Saving

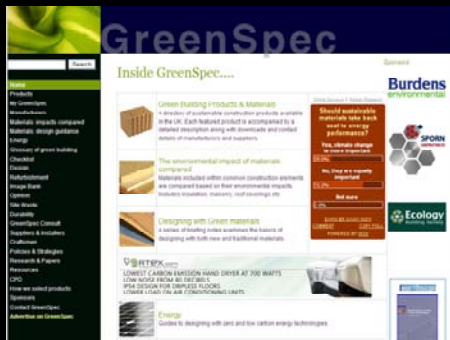
# Energy: Heating

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



# 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 Electric heating



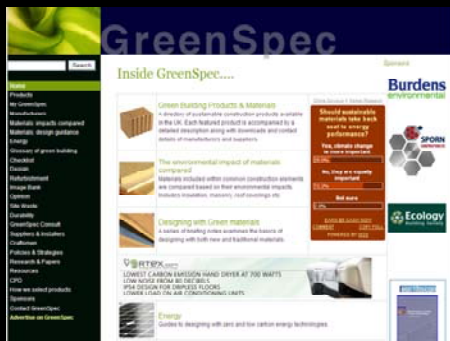
# Electrical Energy Efficiency

## 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





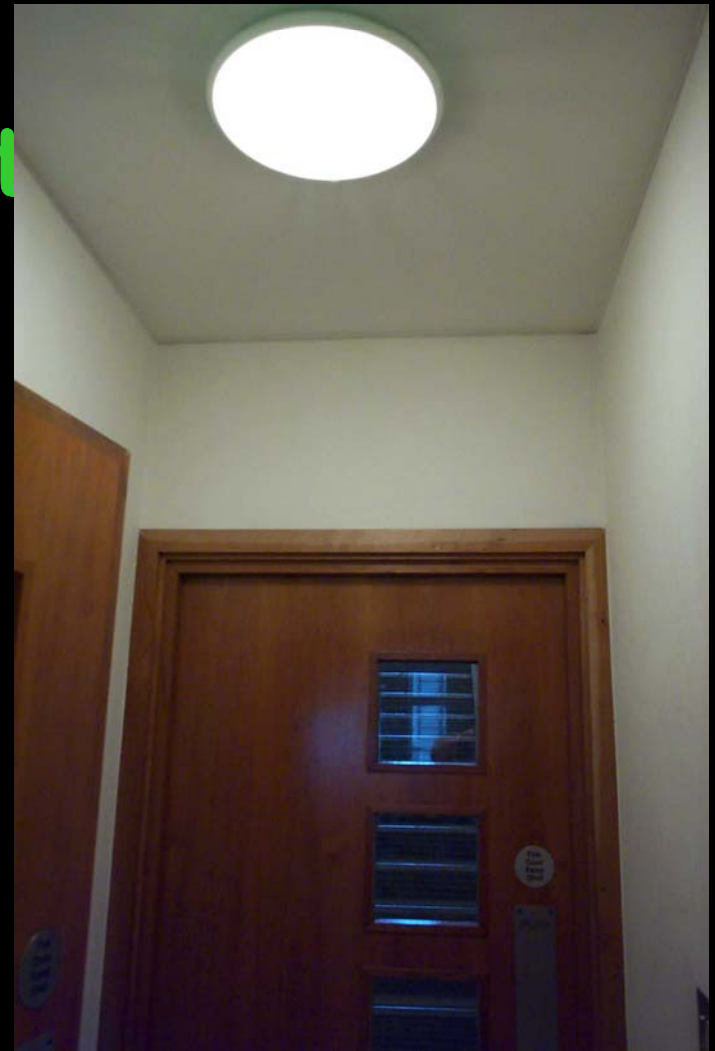
# Energy: Lighting adds heat

- 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

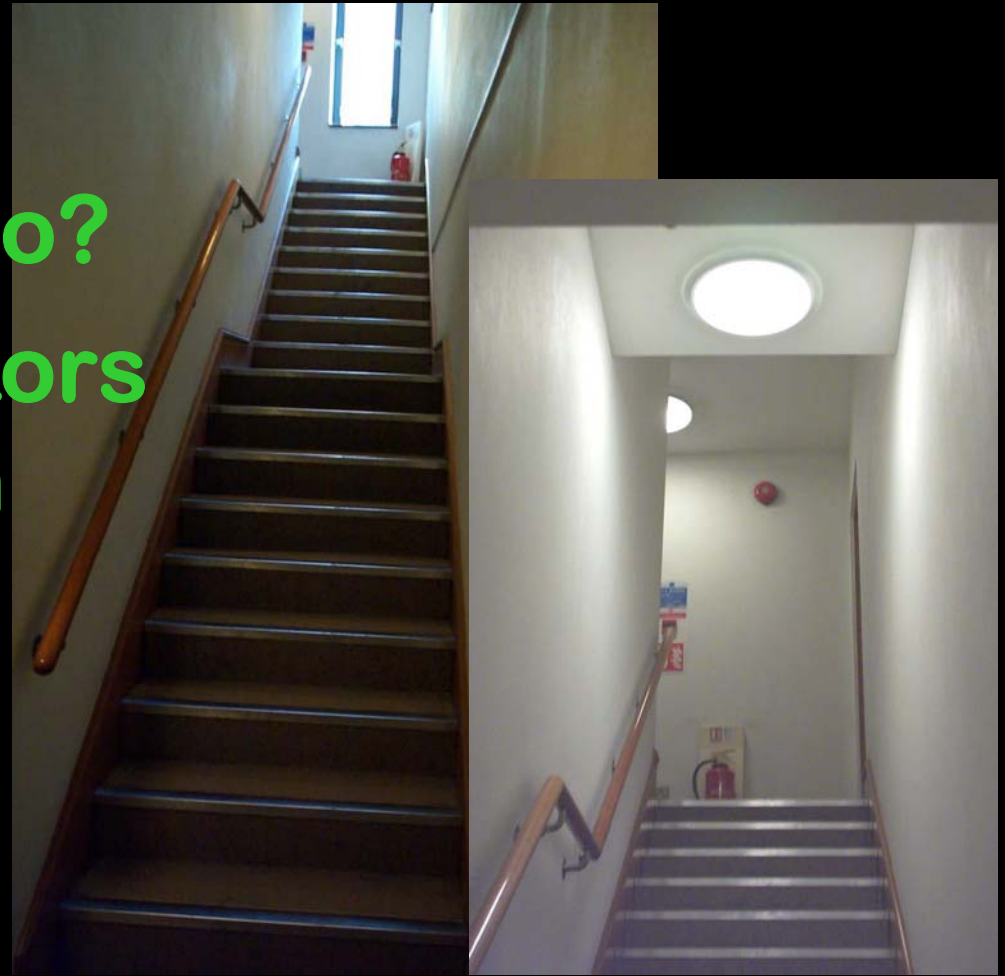
- If Legislation does not require it
- why keep it on?
- Turn it on in the event of a fire
- PIR could turn it on if people present





# Use of Natural light

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



# Lighting

- Don't use Tungsten light bulbs
- Will be illegal after 2011 UK 2010 Aus
- Use fluorescent lamps
- Use Low-energy long-life bulbs
- Use LED lights
- Don't need to compromise on light quality to save energy
- choose efficient fittings and lamps

# Lighting 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 when people present
- External lights not 24 hours

# Railway Offices

## TRAFFIC LIGHT SYSTEM FOR ENERGY CONSERVATION



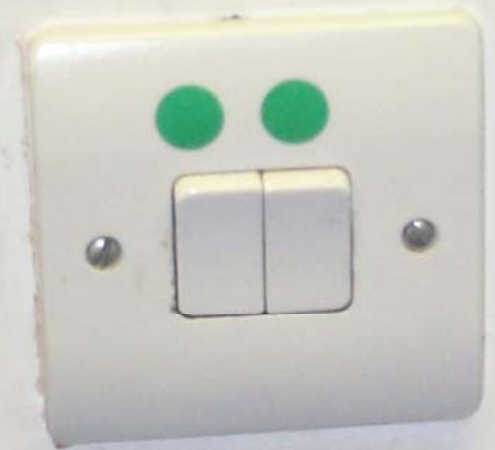
Means Never Turn off



Means Turn Off At The End of A Shift



Means Always Turn Off After Use



15 times life expectancy of tungsten bulb

5 times more energy efficient  
A rating

Specials for use on dimmer switches





15 times life expectancy of tungsten bulb

5 times more energy efficient  
A rating

Specials for use on dimmer switches





# 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

# 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

# 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](http://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

# 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

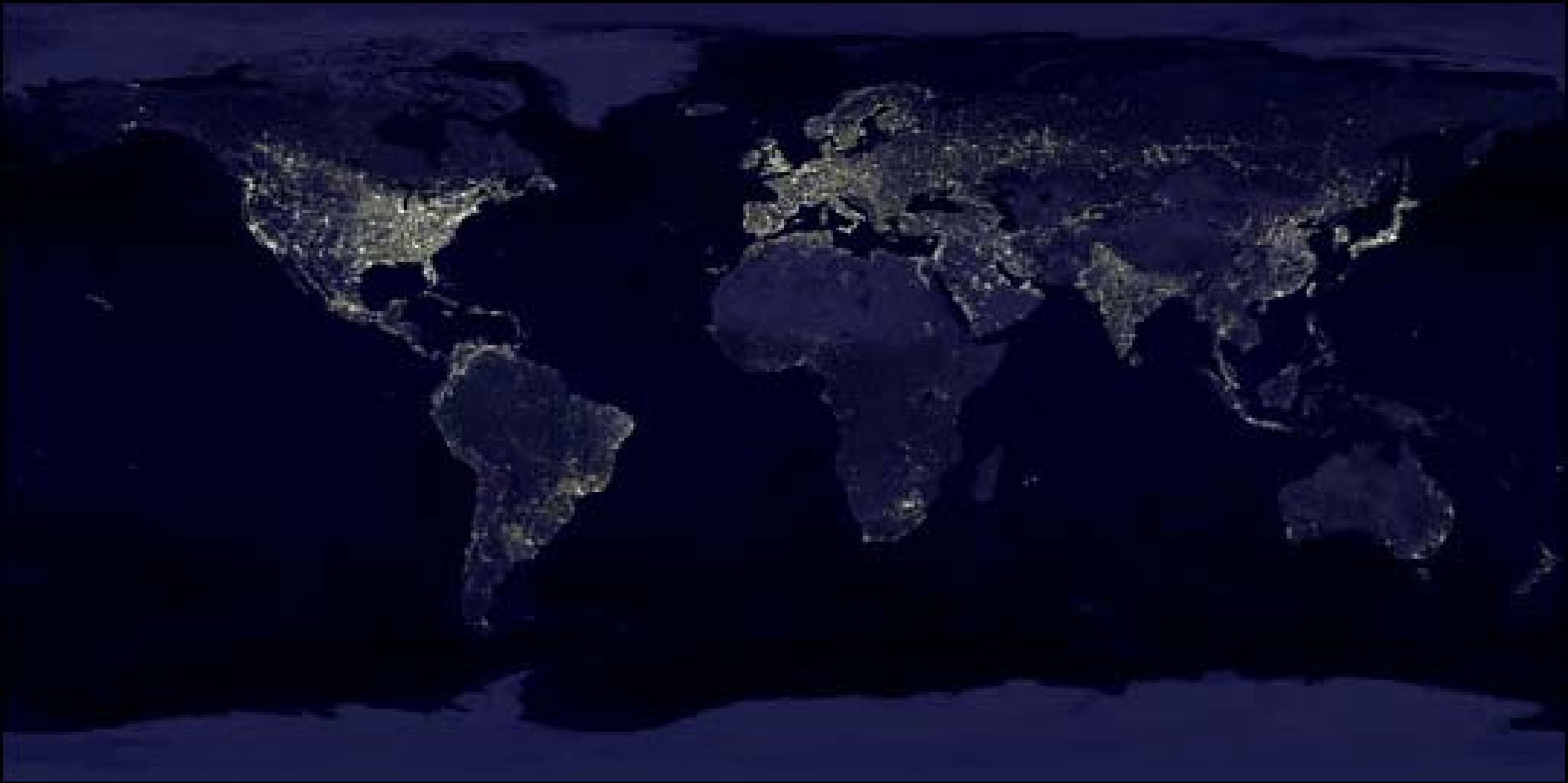
# Lighting



- 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
- <http://www.darksky.org/>



## INTERNATIONAL DARK-SKY ASSOCIATION (IDA)

*Our mission is to preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting.*

[site guide](#) [site map](#) [search](#) [keywords](#)

[About](#)

[Support](#)

[News & events](#)

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[Resources](#)

[Sections](#)

[JOIN IDA /  
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# International Dark-Sky Association: The Light Pollution Authority

### *Light pollution*

*Any adverse effect of artificial light including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste.*

## Updates and announcements

### **Newsletter #66: Sustainability, Urban Planning, and What They Mean to Dark Skies**



[Read Issue #66 of the Newsletter of the International Dark-Sky](#)

### **Beta testers wanted**

Interested in testing our upcoming site redesign? Then please sign up to become a [beta tester](#)

### Search

Powered by Google

### Quick links

### eNews

☒ Send me eNews!

## Sections

**JOIN IDA /  
DONATE NOW**

- ["Stars up, lights down! We support IDA." license plate frame](#)

For every license plate frame sold, Sky Publishing (an IDA charter member) will donate \$3 to IDA.

## Directories

### ▪ Lighting fixtures

- [IDA-Approved™ Dark Sky Friendly products](#)
- [Manufacturers with IDA-Approved™ Dark Sky Friendly products](#)
- [Good lighting products](#) (not yet approved under the IDA Fixture Seal of Approval program)
- [Manufacturers with good lighting products](#) (not yet approved under the IDA Fixture Seal of Approval program)

### ▪ [Lighting laws](#)

- [U.S. municipality outdoor lighting regulations](#)
- [U.S. state outdoor lighting regulations](#)
- [International outdoor lighting regulations](#)

### ▪ Lighting industry

- [Lighting design & engineering](#)
- [General lighting](#)

### ▪ Dark sky advocates

- [Dark Sky Parks & Preserves](#)
- [IDA sections](#)
- [IDA affiliates](#)
- [Other light pollution organizations](#)

## Images & multimedia

### ▪ [Images](#)

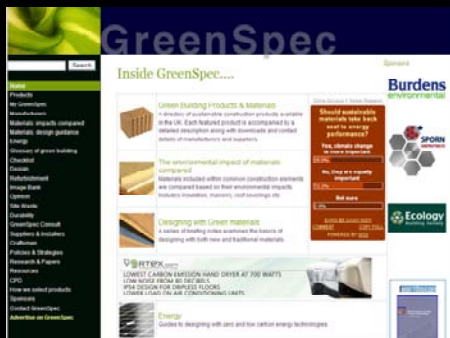
# External Lighting Design

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

# 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

GreenSpec

[www.greenspec.co.uk](http://www.greenspec.co.uk)

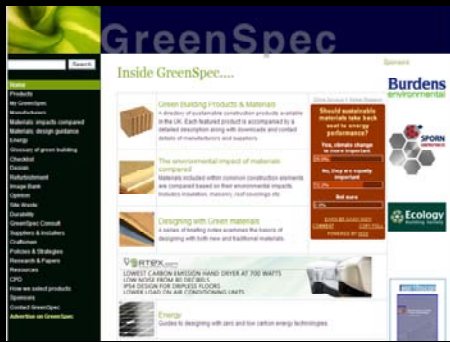
CAP'EM

Cycle Assessment Procedure for Eco-Materials



[www.capem.eu](http://www.capem.eu)

- EST
- Mayor of London
- British Gas Business
- Give your lights time off
- Make it your business use less light
- [www.greenlight-uk.org](http://www.greenlight-uk.org)



GreenSpec  
[www.greenspec.co.uk](http://www.greenspec.co.uk)

CAP'EM  
Cycle Assessment Procedure for Eco-Materials  
[www.capem.eu](http://www.capem.eu)

# Electrical Energy Efficiency

IT

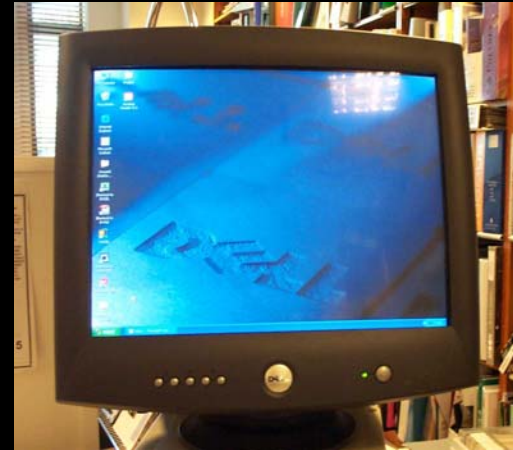


THE Green  
REGISTER

# IT energy Efficiency

- Turning them all off
- Excuses
- Red and green lights give them away
- Energy demand when not in use
- Servers never off

# IT



- Don't leave computers, copiers, printers or monitors on overnight
- unless scheduled backups or updates are due to occur on the night in question,
- or overnight processing is to occur

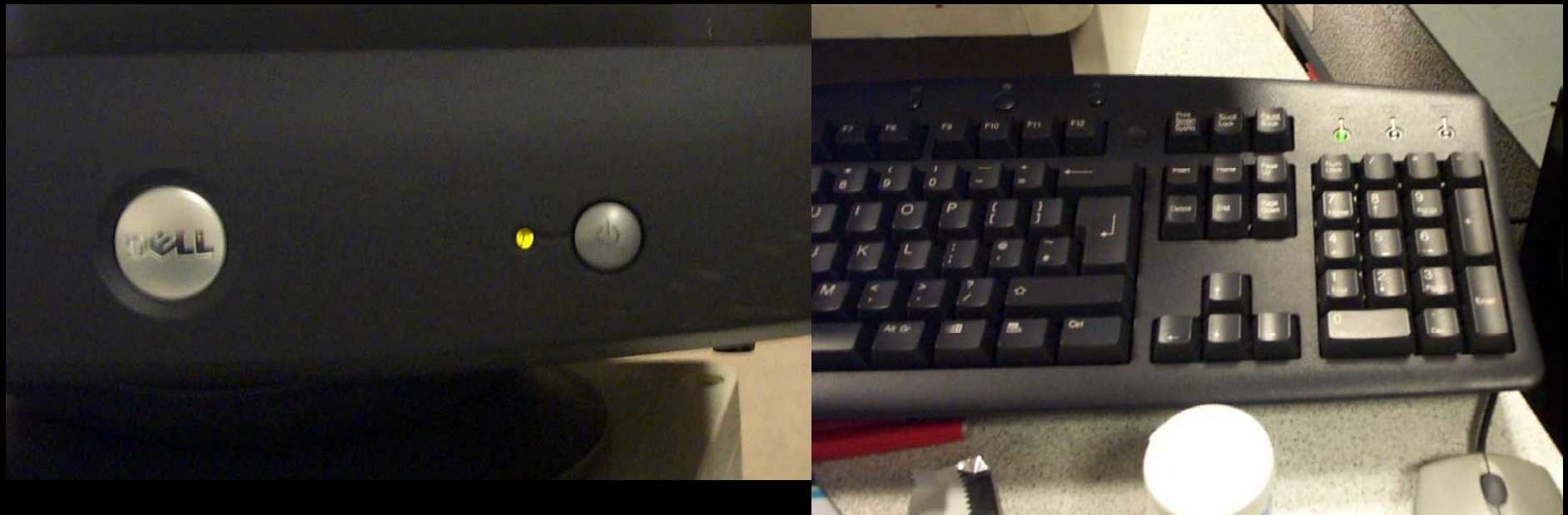
# IT

- 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





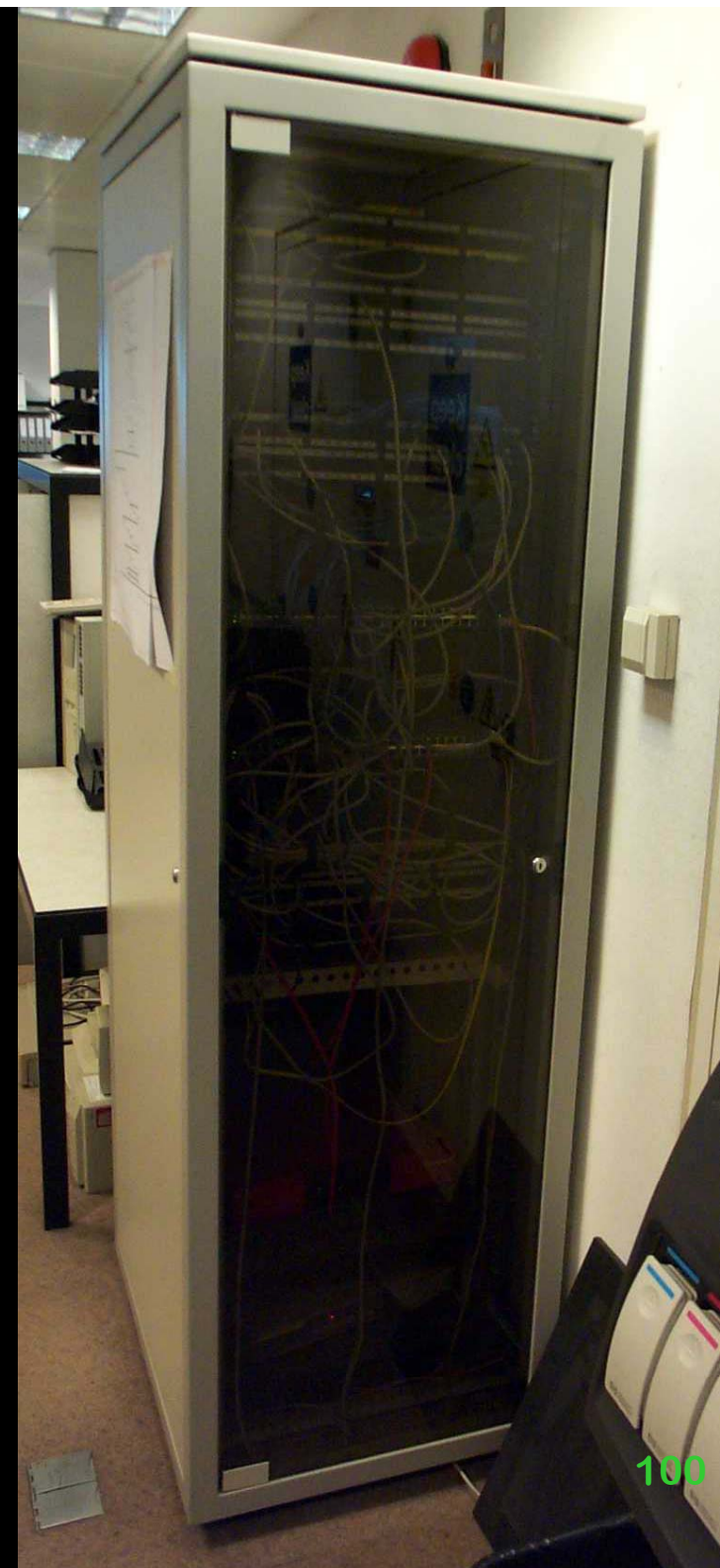
# Clues things are still on

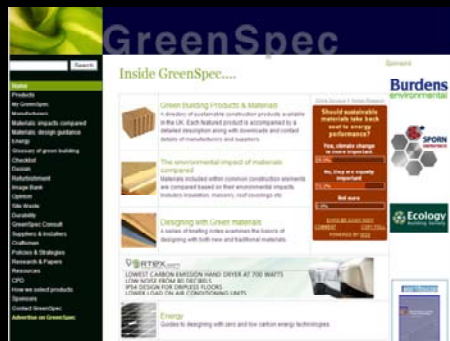
- Infra-red mouse
- Wireless routers
- Extension leads
- Switch them off



# 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?





**GreenSpec**  
[www.greenspec.co.uk](http://www.greenspec.co.uk)

**CAP'EM**  
 Cycle Assessment Procedure for Eco-Materials  
[www.capem.eu](http://www.capem.eu)

# Kitchens & Toilets

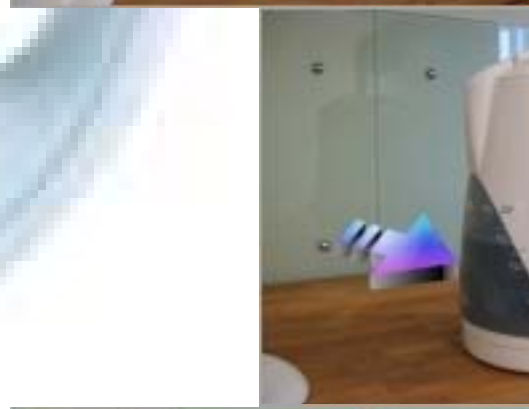


**THE Green**  
 REGISTER

# Kitchen and Toilets

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





# Hot water

- if sufficient staff numbers
- Use boiling water dispenser rather than kettle
- Kettle in preference to saucepan





# 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](mailto:sales@zipheaters.co.uk)
- T 0870 608 8888
- Zip Heaters UK Ltd. 14 Bertie Ward Way, Dereham, Norfolk NR19 1TE



**The world leader for instant boiling + chilled + filtered drinking water**

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Filtered boiling water instantly  
for tea coffee and cooking

Filtered chilled water instantly  
for healthy refreshing drinks

.....at work and in the home



Zip HydroTap for filtered boiling and chilled water

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Water Restrictions  
now apply in  
SE Queensland**  
  
**Click here to learn how  
Zip can make your  
washrooms  
Level 5 compliant**

Copyright © 2006. Zip Heaters (Aust) Pty Ltd  
[Powered By Zebra Interactive](#)

# Cleaning Fluids

- Use biodegradable cleaning fluids,
- at kitchen sink & toilet,





we couldn't care more



PROF.

[WWW.ECOVER-PROFESSIONAL.COM](http://WWW.ECOVER-PROFESSIONAL.COM)



Ecover ...

## SQUIRTECO

**Product:** Squirteco

**Properties:** \*Cuts through grease and grime effectively using natural power.  
\*Safe around food; plant based ingredients. \*Chrome-friendly. \*No smears on glass. \*Fresh natural fragrance \*No petrochemical based ingredients.  
\*Approved by The Vegan Society. \*Optimum level of biodegradability - far exceeds legal requirements. \*Minimum impact on aquatic life. \*Against animal testing. \*Also suitable for septic tanks.

**Instructions for use:** This all purpose spray cleans and shines a wide variety of household surfaces. It is particularly suitable for kitchen and bathroom surfaces, tiles, glass, enamel, baths, basins acrylic and chrome. Spray lightly over the surface and wipe clean. No need to rinse. For the refill version: replace the screw cap of the refill with the trigger from your empty Squirteco bottle. Screw down tightly.

**Ingredients:** The list below displays ingredients in descending order, with those present in highest quantities coming first.  
Aqua, Ethanol, Caprylyl/Capryl Glucoside, Perfume, Sodium Lauryl Sulfate, Rhamnolipid, Citric Acid

**Pack sizes:** 500 ml bottle with spray and 500 ml refill bottle with screw cap.

**Packaging material:** bottle and labels are made of polyethylene; spray of polypropylene and polyethylene. Polypropylene and polyethylene are 100 % recyclable and can be recycled together perfectly.







**Professional cleaning products: Agriculture, Food Industry and Catering.**  
Produits de nettoyage professionnel : Le secteur de l'agriculture, alimentaire et restauration.  
Professionele schoonmaakmiddelen : Landbouw, voedingsindustrie en grootkeuken.



**Professional cleaning products: Institutional and Industrial.**  
Produits de nettoyage professionnel : Institutionnel et industriel.  
Professionele schoonmaakmiddelen : Institutioneel en industrieel.



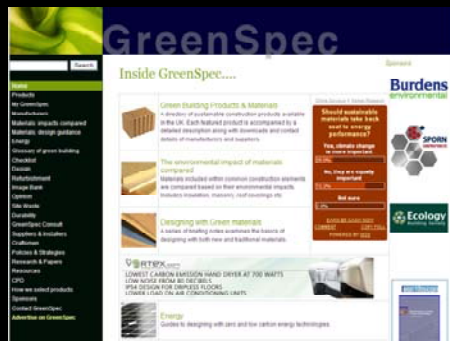
# Cleaning

- <http://www.ecover.com/english/index.htm>
- <http://www.ecover-professional.com/>



# 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
- <http://tr1.mp006.net/r5.aspx?GV1=ZOJH02J001YB0002EB0003EP700026XAE>



GreenSpec  
[www.greenspec.co.uk](http://www.greenspec.co.uk)

CAP'EM  
 Cycle Assessment Procedure for Eco-Materials  
[www.capem.eu](http://www.capem.eu)

# Drinking Water



THE Green  
 REGISTER



[www.greenspec.co.uk](http://www.greenspec.co.uk)

# Sustainable Transport: Goods

CPD topic

Another GreenSpec CPD to download soon

# Drinking Water

- Bottled water is not sustainable (food miles)
- 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



# 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](mailto:sales@zipheaters.co.uk)
- T 0870 608 8888
- Zip Heaters UK Ltd. 14 Bertie Ward Way, Dereham, Norfolk NR19 1TE

# 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.

# 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.



# Corn starch bioplastics

- Belu
- Commercially Biodegradable bottle (closed hot vessel composting)
- Social Sustainability:
- Profits go to clean water projects world wide
- [www.belu.org](http://www.belu.org)
- Looks like plastic ends up in plastic recycling
- Now using glass





NEW  
BIO-BOTTLE

The UK's first  
COMPOSTABLE bottle!  
made from corn!

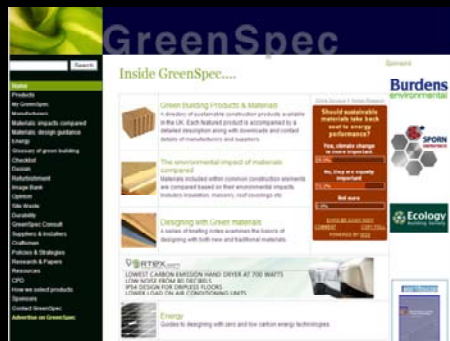


natural mineral water



All our profits go to clean water projects.  
Every bottle you drink gives someone clean water for a month!

ENTER HERE



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CAP'EM  
Cycle Assessment Procedure for Eco-Materials  
[www.capem.eu](http://www.capem.eu)

# Cup & Utensil Cleaning



THE Green  
REGISTER



# 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 liquids



# Utensils, Cutlery and Crockery

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

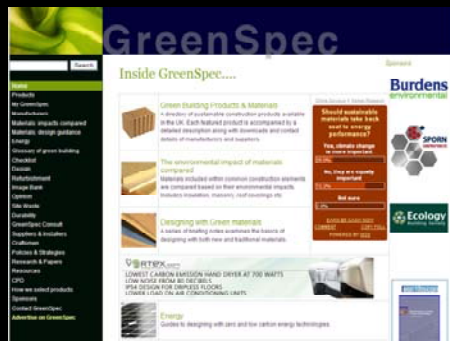


# Plastic cup recycling

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







GreenSpec  
[www.greenspec.co.uk](http://www.greenspec.co.uk)

CAP'EM  
 Cycle Assessment Procedure for Eco-Materials  
[www.capem.eu](http://www.capem.eu)

# Food & Drink



THE Green  
 REGISTER



# Fairtrade



Another GreenSpec CPD to download soon

# Food

- Seasonal, Local, Fresh & Organic is best
- Not imported, frozen & chemical
- Support local farms & farmers markets
- Receive local food boxes
- Exotic fruit and vegetables are not sustainable (food miles)
- Imported foodstuffs are not sustainable (food miles)
- Sainsbury/Tesco is easy and cheap
- Fair trade is best of imported

# Tea, Coffee & Chocolate

- Home grown tea and coffee, hot chocolate is not available
- Fair-trade goods are more sustainable
- but still there are food miles
- Fair-trade coffee is good
- Shade-Grown Fair-trade coffee is best



# Fairtrade Foundation

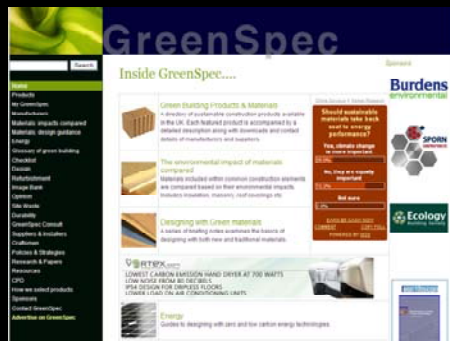
**Fairtrade Fortnight**  
**6-19 March 2006**

- Fairtrade Fortnight
- “increase consumer awareness of the Fairtrade Mark and encourage people up and down the country to purchase Fairtrade products”.
- 2006 Theme ‘Make Fairtrade your habit’
- hundreds of new Fairtrade products available, including clothing made from Fairtrade certified cotton.
- huge range of products including bananas, chocolate, t-shirts and even footballs
- [www.fairtrade.org.uk](http://www.fairtrade.org.uk) [www.fairtradefestival.co.uk](http://www.fairtradefestival.co.uk)
- E [mail@fairtrade.org.uk](mailto:mail@fairtrade.org.uk)

# Fairtrade

- 1000 products
- Coffee, Tea, Chocolate, Cocoa, Sugar, bananas, fresh and dried fruit, juices, honey, cakes and snacks, preserves, nuts, oils, herbs & spices, rice, beer, rum, wine, muesli





**GreenSpec**  
[www.greenspec.co.uk](http://www.greenspec.co.uk)

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[www.capem.eu](http://www.capem.eu)

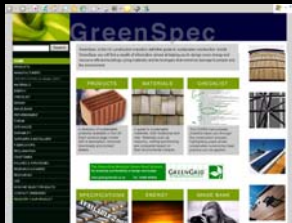
# Sanitaryware & Sinks



**THE Green**  
 REGISTER

# Sanitaryware

- Water saving Taps and Appliances
- Sanitaryware
- Female Issues & Services
- Office crèche
- Hand Cleaning soap
- Cleaning Appliances
- Hot water supply & Insulation
- Showers
- Hand drying
- Toilet paper



[www.greenspec.co.uk](http://www.greenspec.co.uk)

# Sanitaryware & Sinks

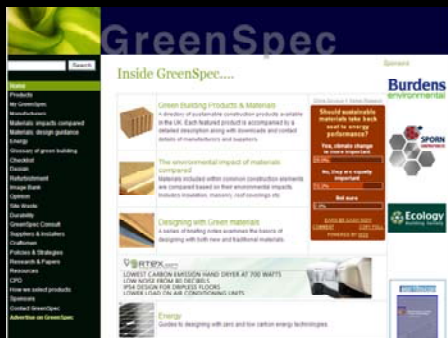
**N13 Sanitaryware: Water  
Taps, Sewage Disposal**

Another GreenSpec CPD to download soon



# SE England

- Water shortages,
- drought over past 2 years
- Recent rains solves this years problems
- Flooding causes pollution does not solve shortages
- BRegs AD G failed to live up to requirements
- Code for Sustainable Homes addresses water



# 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,
- 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!





# Female Urinal (in cubicles)

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

Wasser

Klima

Wärme

Umwelt

Gebäude-  
management

Referenzen

infopo  nt



L  
a  
d  
y  
  
P.

Kontakt

Impressum

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



## Das erste Frauen-Urinal

### Lady P.

Eine effektivere, komfortablere und vor allem hygienischere Lösung als herkömmliche WC's: wenn es das "kleine Geschäft" ist, sind Damen jetzt gleichberechtigt. Wir haben es für Sie: das erste Damenpissoir Lady P. Lesen Sie weiter:

- Die psychologischen Erfahrungen
- Die anatomische Lösung
- Die Gebrauchslösung
- Die räumliche Lösung
- Die ökonomische Lösung
- Die psychologische Lösung

### Endlich!

Die Firma Bunse Haustechnik aus Leipzig installiert auch bei Ihnen das Sanitärmöbel von **Sphinx**! Natürlich ist Ihre Meinung gefragt - zur Idee an sich und vielleicht auch Ihre eigene Erfahrung betreffend, die Sie im

Paunsdorfcenter Leipzig mit Lady P. gesammelt haben? Über eine

Kontaktaufnahme freuen wir uns - nutzen Sie bitte unser Kontaktformular!

Wir veröffentlichen an dieser Stelle Ihre Wortmeldungen!

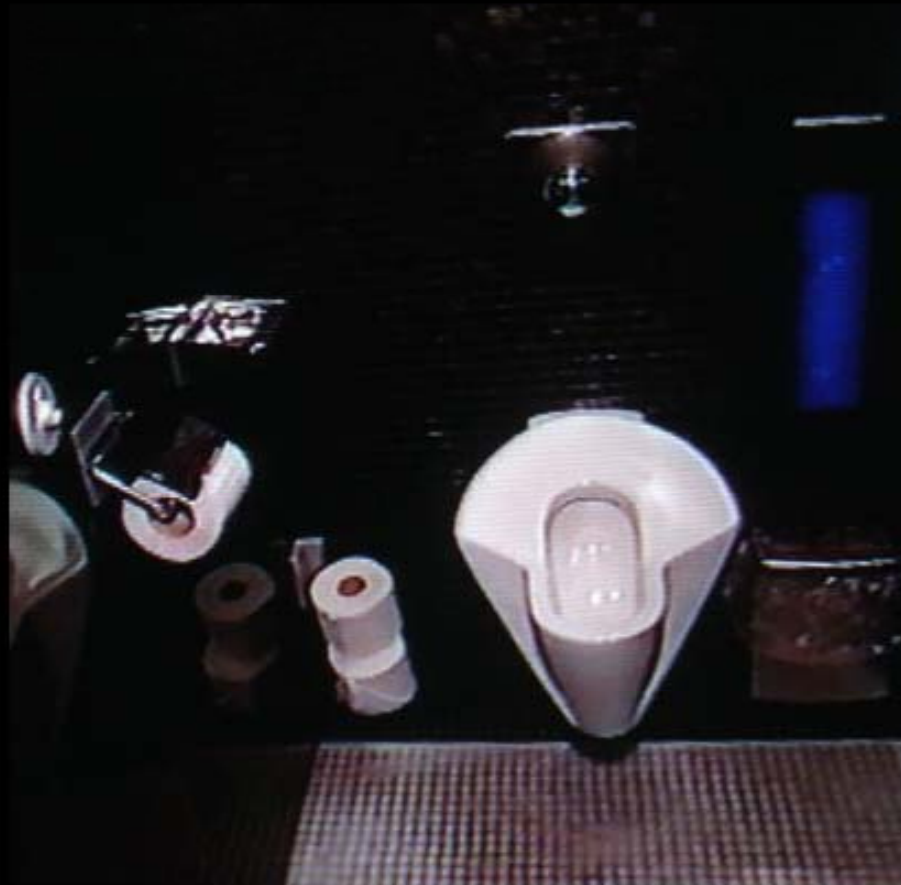
**bunse**  
HAUSTECHNIK  
*Ihr Ideenkompeter*



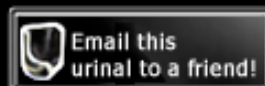
 **Sphinx**

# The Female Urinal of Casinotheater

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



This picture was sent in by diesel. He writes: "it is a rare female urinal, called "Lady P", produced in [the Netherlands]"



# Female Solutions

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

# Female Issues



- Sanitary Towels, Tampons, Liners
- Avoid using the Sewers as a waste disposal route to 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 a no-waste alternative
  - W <http://www.wen.org.uk>

# Office Crèche

- Avoid Pampers etc., avoid landfill
- Avoid silica gel absorbent in core
- Use Natural cloth washable nappies
- Inner lining to remove solids to WC
- Use compostable nappies
- <http://www.wen.org.uk>
- [http://www.naturalchild.co.uk/ShopHome/index.html?target=dept\\_44.html](http://www.naturalchild.co.uk/ShopHome/index.html?target=dept_44.html)
- <http://www.totsbots.com/reusable-nappies.htm>



# WC Flush

- **Was:**
  - 9 litre flush
- **Now:**
  - $\leq$  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



# 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, shorter queues
- Unlikely

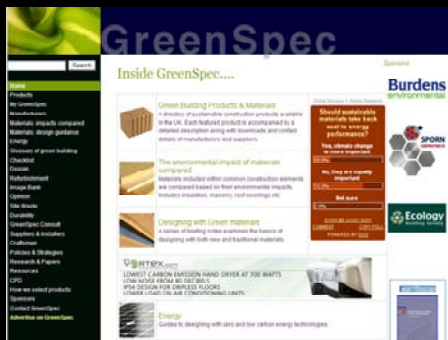
# Existing Buildings: WC

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

# 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](http://www.interflush.co.uk).



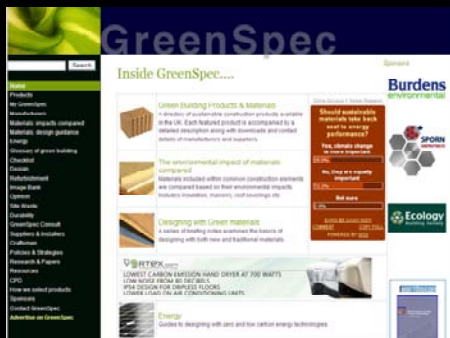
# WC Cleaning

- Use a brush in preference to chemicals
- Use natural cleaning liquids if you must
- Use biological bacteria coated china
- Lives on the surface, that eats the skid marks and are not washed away

# 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



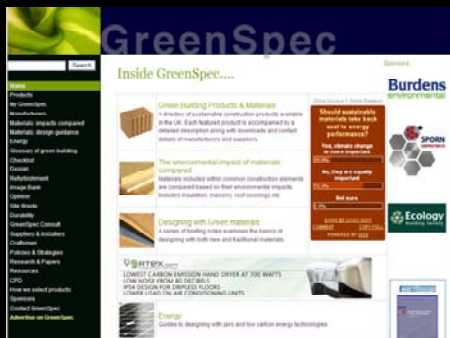


# Tap cleaning

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

# Percussion taps

- Shut too fast to get to the water
- Or too slow turning off
- Or too fast turning off under high pressure, water hammer noise through building
- 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 aerator/sprinkler
- Two stage taps, slow flow and fast fill

# Taps

- Hot and cold water taps on isolation/flow regulator valve
- 4 litres/minute maximum
- proximity taps
- aerators or spray heads
- safe temperature blending
- not pressurized
- Pumped on circulating pipe if remote storage
- Solar Thermal heating

# Existing Buildings: Taps

- Retrofit water aerators/sprinklers on existing taps
- Tap Magic
- <http://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



- > Home
- > Water Saving Products
- > Orders
- > Contact Us
- > About Tapmagic
- > Water is Life
- > Press Releases
- > FAQ's
- > Links



## Water saving tap inserts

**Reduce waste, reduce cost.**

Tapmagic is unique in offering dual flow: opening the tap a little gives a strong but water-saving spray for hand washing or cleaning teeth - opening the tap further bypasses the spray mode to fill the basin quickly; savings of over 50% independently proved.

**Which product  
do I need?**



Cartridge Animation

### Tapmagic Cartridge M24 & M22

#### **New Improved Model**

Dual flow unit; fits taps with threaded outlets.  
Price per unit £4.79

**More Info**

**Buy Now**



### Tapmagic Unifit

Fits taps with round outlets 15-19mm  
Price per unit £4.79

**More Info**

**Buy Now**

### Spraymagic Unifit

Price per 2 unit pack £4.29

**More Info**

**Buy Now**



# Sinks

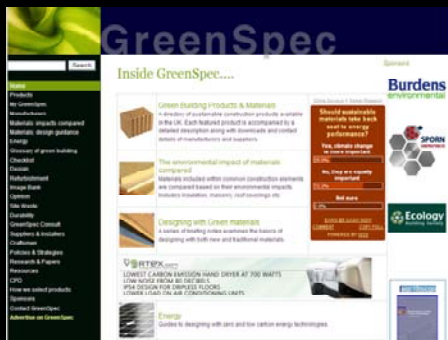
- Hot and cold water taps
- Need quick sink fill to avoid heat loss
- And sprinkler/aerator low flow
  - for hands face washing & teeth brushing
- Isolation valve and balancing system
  - but regulating flow less important
- Elbow/level taps, easy on/off
- Sinks fitted with two stage taps:
  - sprinkler 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

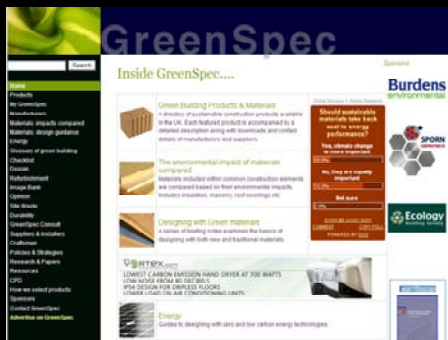
# Existing Buildings: Appliances and Sanitaryware

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



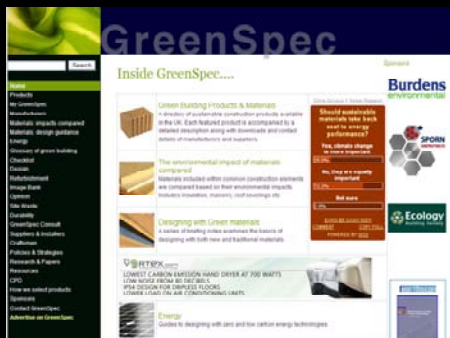
# Cyclist Showers

- 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 of power-shower



# 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**



# 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



# Services Repairs

- **British Gas Engineer's on repairs and maintenance contracts**
- **Required to insulate pipes close to insulated replacement cylinders**
  - But not beyond 1 meter
- **They think pipe insulation is a waste of time**
  - They are very wrong
- **And BG Engineers tell the public:**
  - 'trust BG Engineers'
  - 'All other Engineers are cowboys'

# Basins & Soap Recess

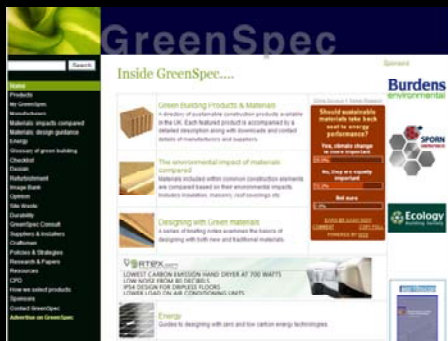
- Soap Recess don't drain
- Especially if Architect designed
- Soap bar dissolves
- Wasteful of soap



# Hand cleaning soaps

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





# Hand Drying

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

# Hand Drying Towel

- Cleaned by service
  - but carried out on a commercial scale
- Reused not wasted



# Hand drying paper towels

- Wasted
- Unless segregated for recycling



# Warm Air Hand dryers

- Don't locate hot air blowers over radiators
  - because radiators will rust away
- Electrically warmed air
  - Inefficiently created grid electricity
- 2000+ Watt inefficient hand dryers
  - More efficient models coming
- Long wait to get dry
  - Impatience means hands not dried despite expended heat

# Cold Air Hand dryers

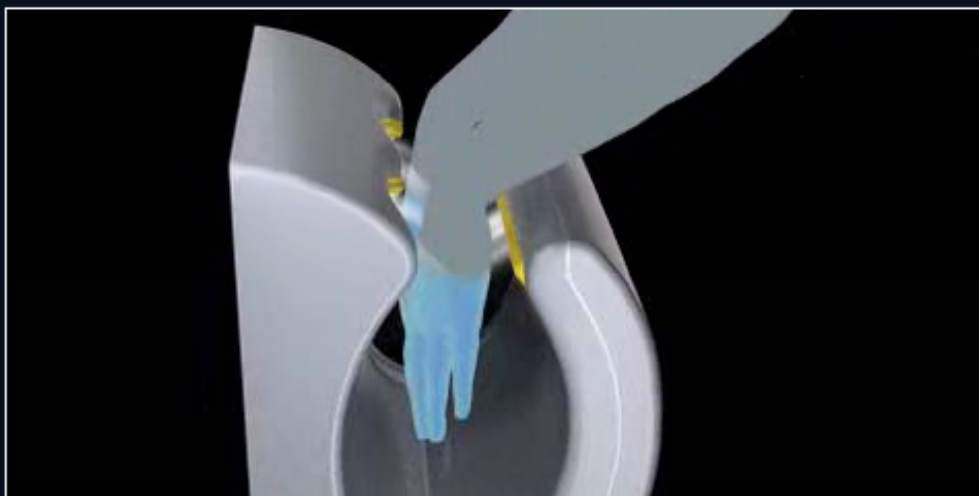
- Wet hands in, proximity detection, withdraw hands slowly,
- 400 mile/hour blast of air removes water
- No heat added, just air and some residual heat from motor
- 10 seconds compared with 27 to 40+
- 1900 watts to blast air
- Mistaken for urinals

dyson airblade

United Kingdom

[What is Airblade](#) | [Why Airblade](#) | [Development](#) | [How to buy](#) | [Customer service](#) | [Airblade news](#) | [Contact us](#)

## The fastest, most hygienic hand dryer



► [View](#)

See how it works

Reduce your costs

Order Dyson Airblade™

Contact Dyson

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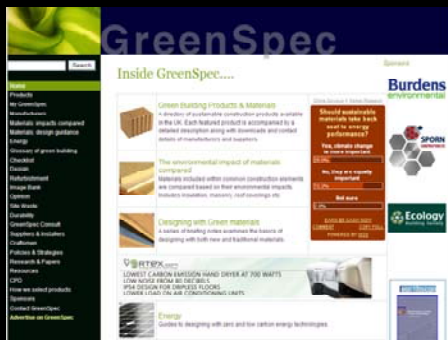
# Efficient cold air hand dryers

- 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



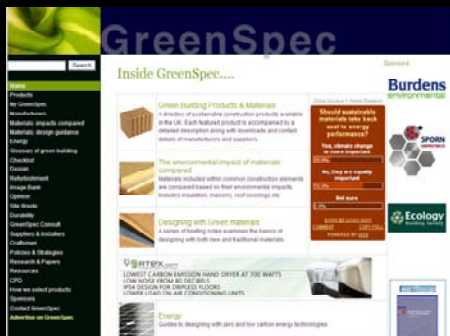
# Toilet Paper





# Toilet Paper

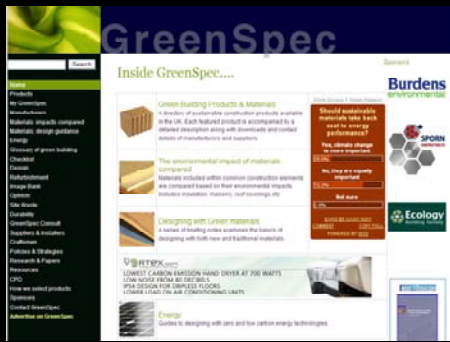
- 5 years ago
- 270,000 trees/day flushed down toilet
- Very little recycled paper available
- 23% compared to 88% in commercial/business paper
- Only 21% FSC-certified sourced pulp



# Campaigns work

- After a very brief campaign less than 5 years ago
- Most toilet paper manufacturers now provide FSC certified paper
- Or have recycled content paper
- Or both
- Choose it if you don't already





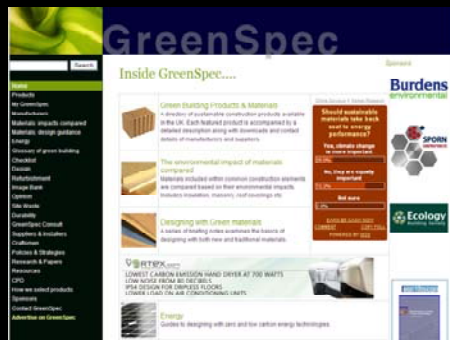
# Office Equipment & Expendables

Computers, Paper, Furniture,  
Finishes



# Office Expendables

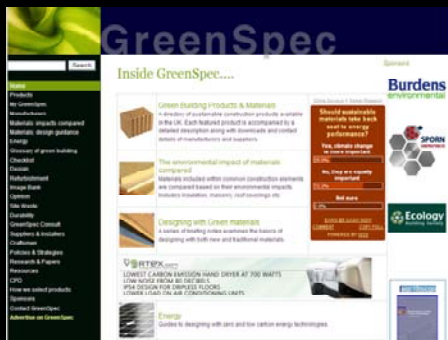
- Ink cartridges
- Printing paper
- Reducing paper use
  - Word processing and printing
- Recycled Stationery Suppliers
- Green Stationery



# Ink Cartridges

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

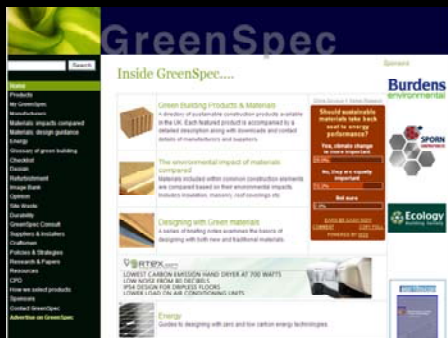




# Ink Cartridges

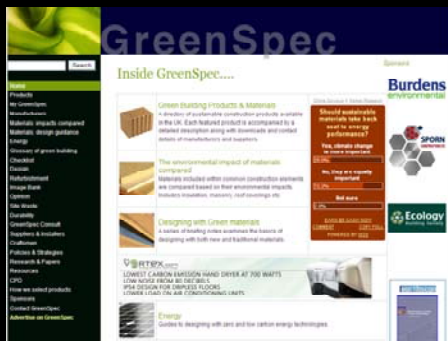
- Companies offer reuse by refilling
- Sell at lower costs
- Buy empties back





# 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

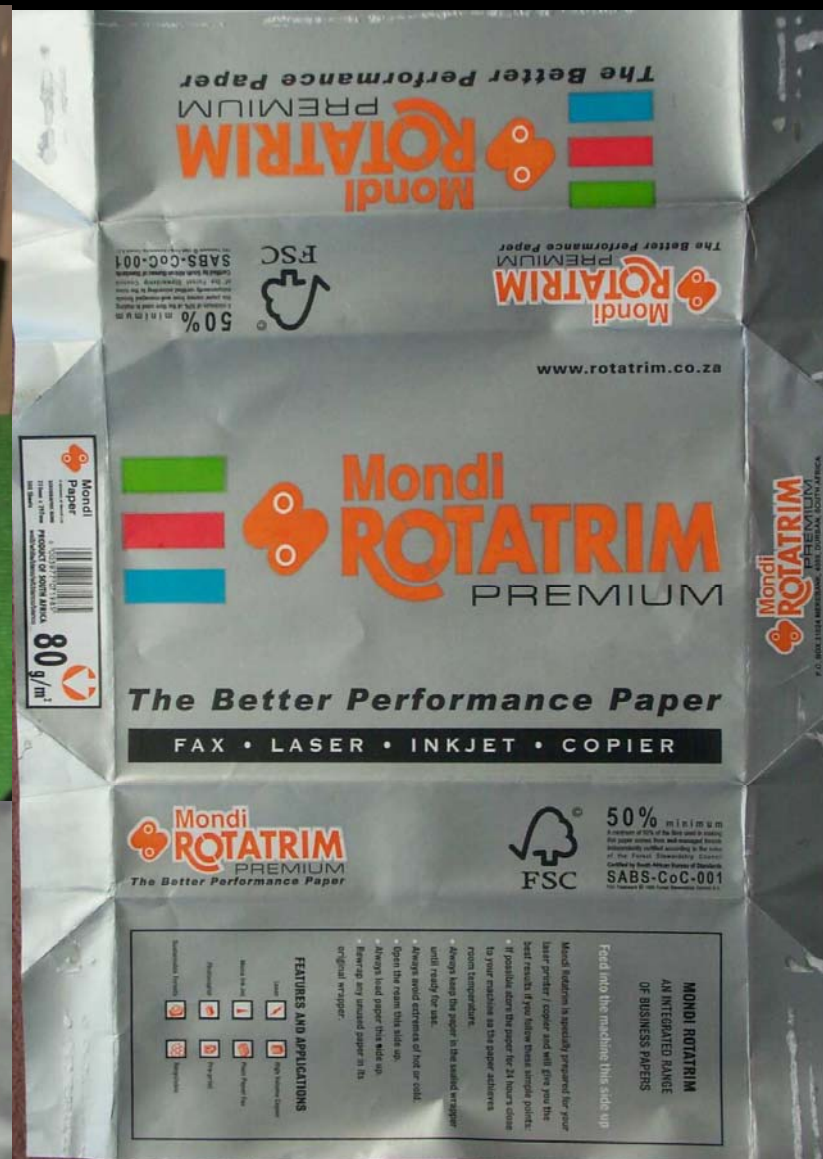
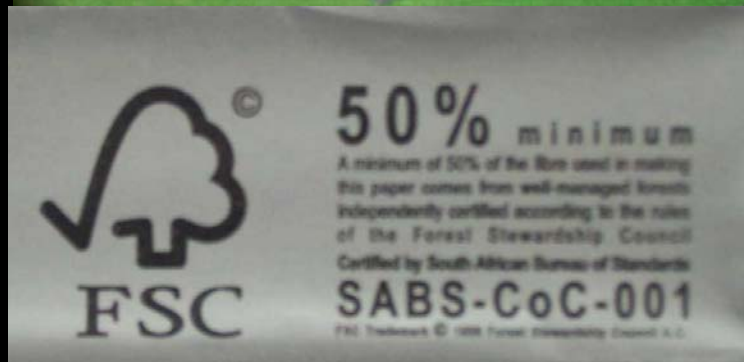


# Paper

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







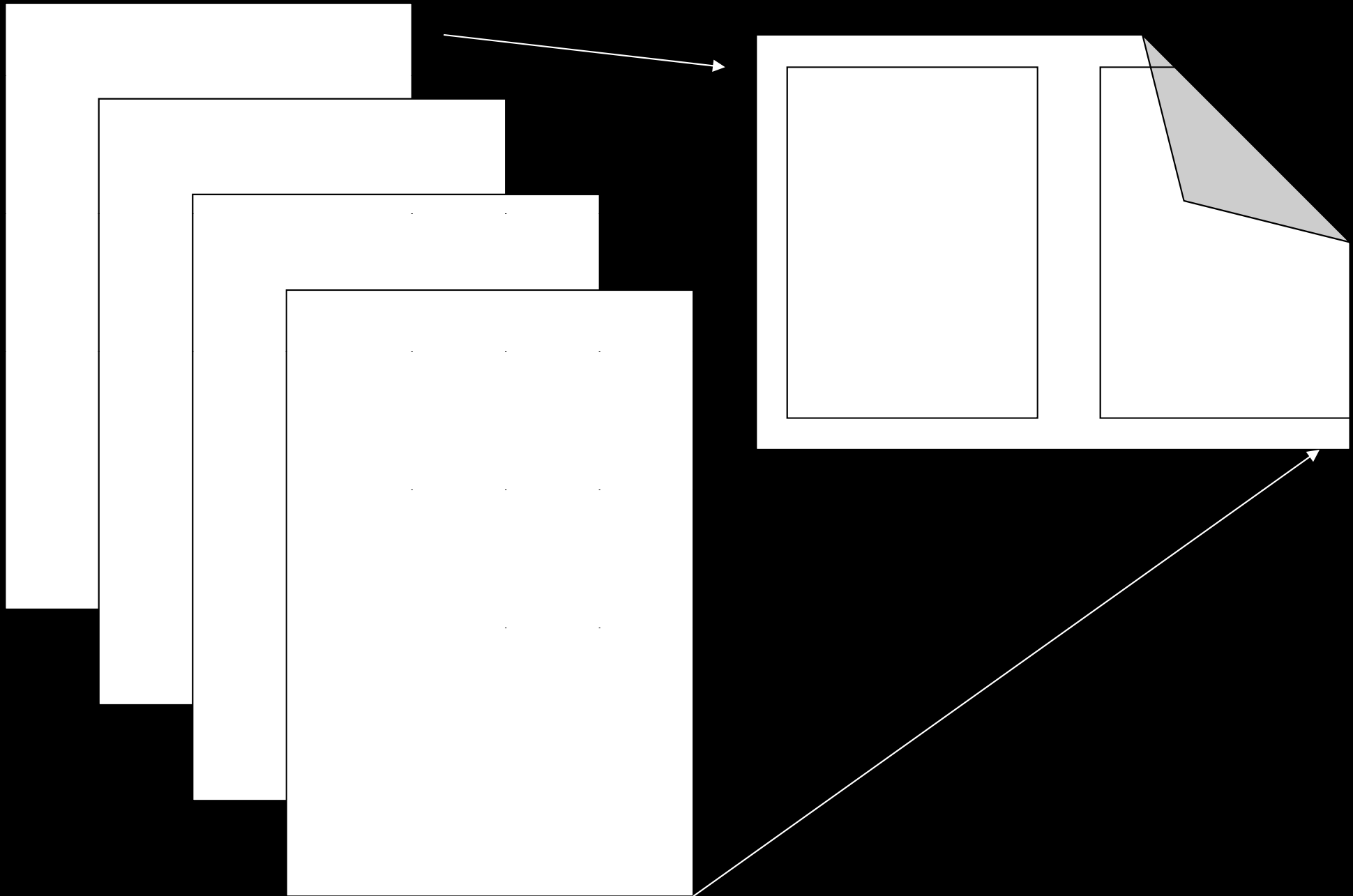


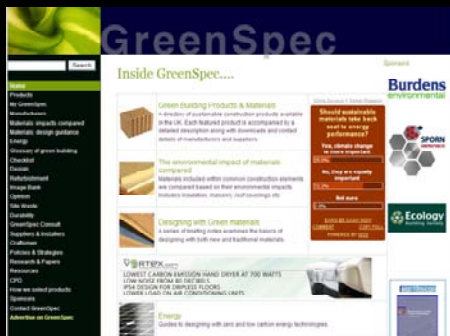
# Word Processing

- 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,

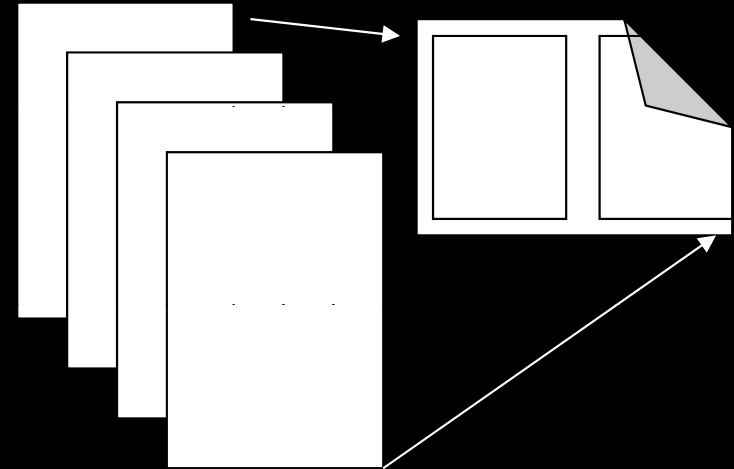




# Saving Paper

- 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!

# Copiers



- Set default to print double sided
- 2 A4 side by side shrunk to fit A4 landscape i.e. 4 pages per A4 sheet
- Save £Ks/annum
- Set specific requirements per job



# Green Office Supplies

- Government Approved suppliers and supplies list available
- “Quick wins”

# Recycled Office Supplies

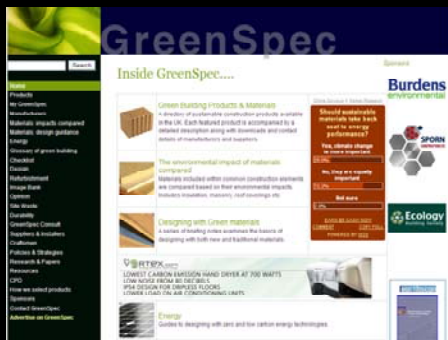
- [www.remarkable.co.uk](http://www.remarkable.co.uk)
- Remarkable (Pencils) Ltd. The Remarkable Factory, Midland Road, Worcester, WR5 1DS  
T 01905 769 999 F 01905 769 300
- E [sales@remarkable.co.uk](mailto:sales@remarkable.co.uk)
- Recycled tyres: Mousemats, pencil cases,
- Recycled plastics: Rulers, Pencils
- Recycled paper: Books, Pads, Paper
- Recycled rubber and paper avoiding plastics<sup>94</sup>





# Green Stationery

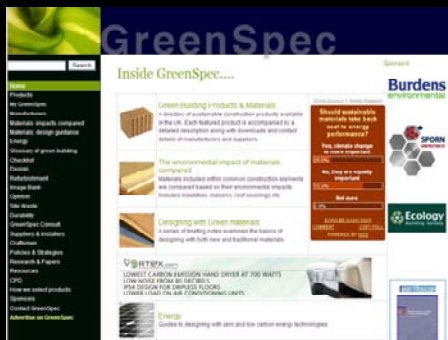
- <http://www.greenstat.co.uk/index.html>
- Studio One, 114 Walcot Street, Bath,  
UK, BA1 5BG  
T 01225 480 556
- F 01225 481 211
- E [jay@greenstat.co.uk](mailto:jay@greenstat.co.uk)



- [www.firstimpressionslastlonger.com](http://www.firstimpressionslastlonger.com)
- Victory House, 89B Gloucester Rd,  
Croydon, CR0 2DN
- T 0208 665 4080
- F 0208 665 4092
- [E adam@yhcholdings.com](mailto:adam@yhcholdings.com)

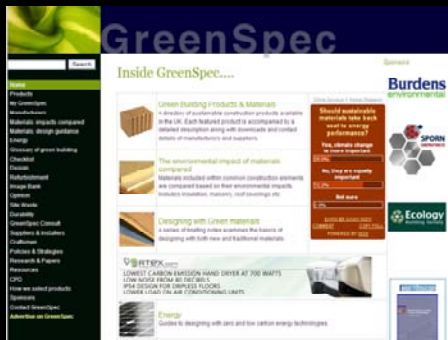
- Carbon neutral environmentally responsibly printer cartridges and stationary
- offer very competitive prices and customer service, whilst cutting your carbon emissions and making your business as green as It can be.
- visit your business and show you how to reduce your wastage and save you money





# 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



# Sick Building Syndrome

Furniture Fittings IT Equipment



# 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
- Illegal to smoke in office 1<sup>st</sup> July 2007
- M Ventilation with recycling of germs

# 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

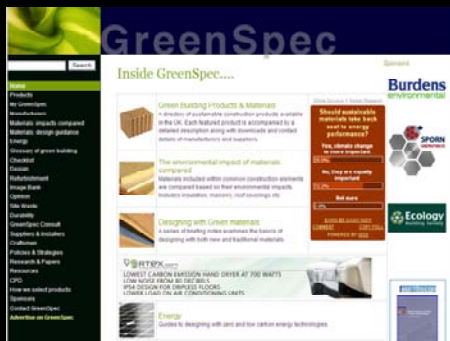
# Defra Consultation

- **OGC Office of Government Commerce (being superseded)**
- **GPP Government Public Procurement: EU driven**
- **UK standards being set higher**
  - But Nordic swan 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: complete**
- **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

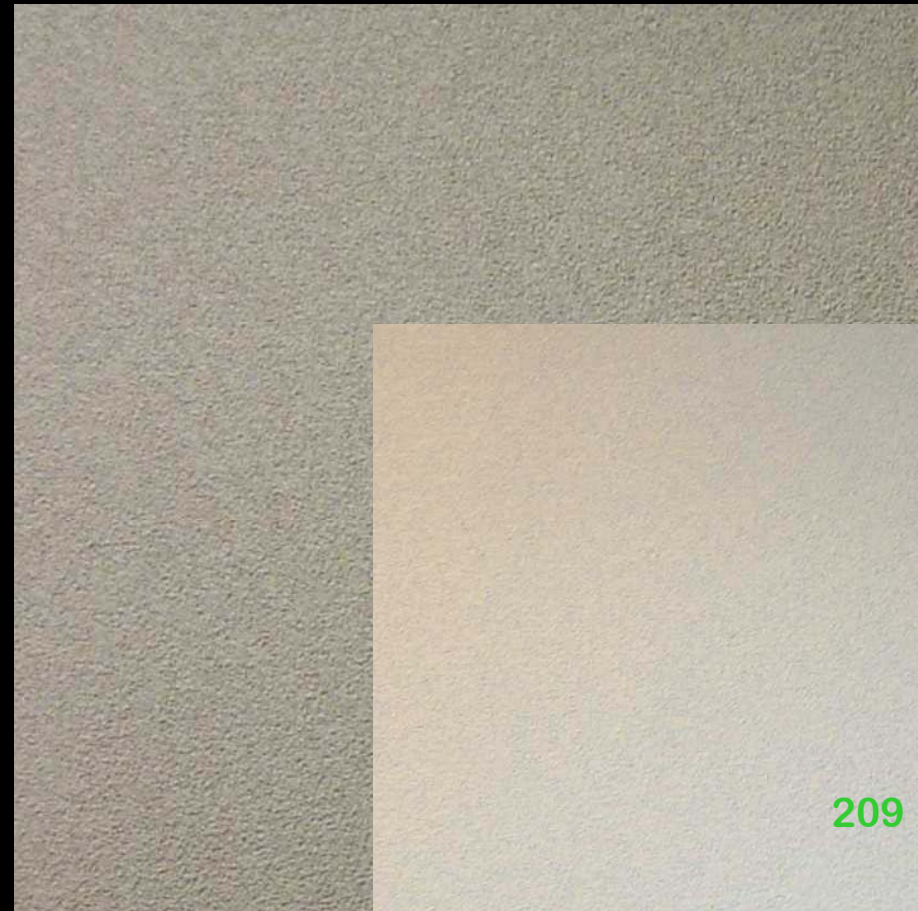
- Sick Building Syndrome
- Encourage the use of plants to condition air
- Encourage use of water, minimise static electricity
- Discourage smoking (indoors)
- Encourage fitness





# Paints and lacquers:

- Synthetic plastics and solvent based paints with high VOC (Volatile Organic content)
- Avoid all synthetic paints
- Avoid low VOC paints
- Avoid Vinyl paints,
- Avoid Vinyl wall paper
- Avoid Solvent paints,
- Plastics attract dust, need cleaning





   
Cycle Assessment Procedure for Eco-Materials  
**[www.capem.eu](http://www.capem.eu)**

- Chairs
- Tables
- Avoiding Plastics
- Reducing materials
- Avoiding Off gassing



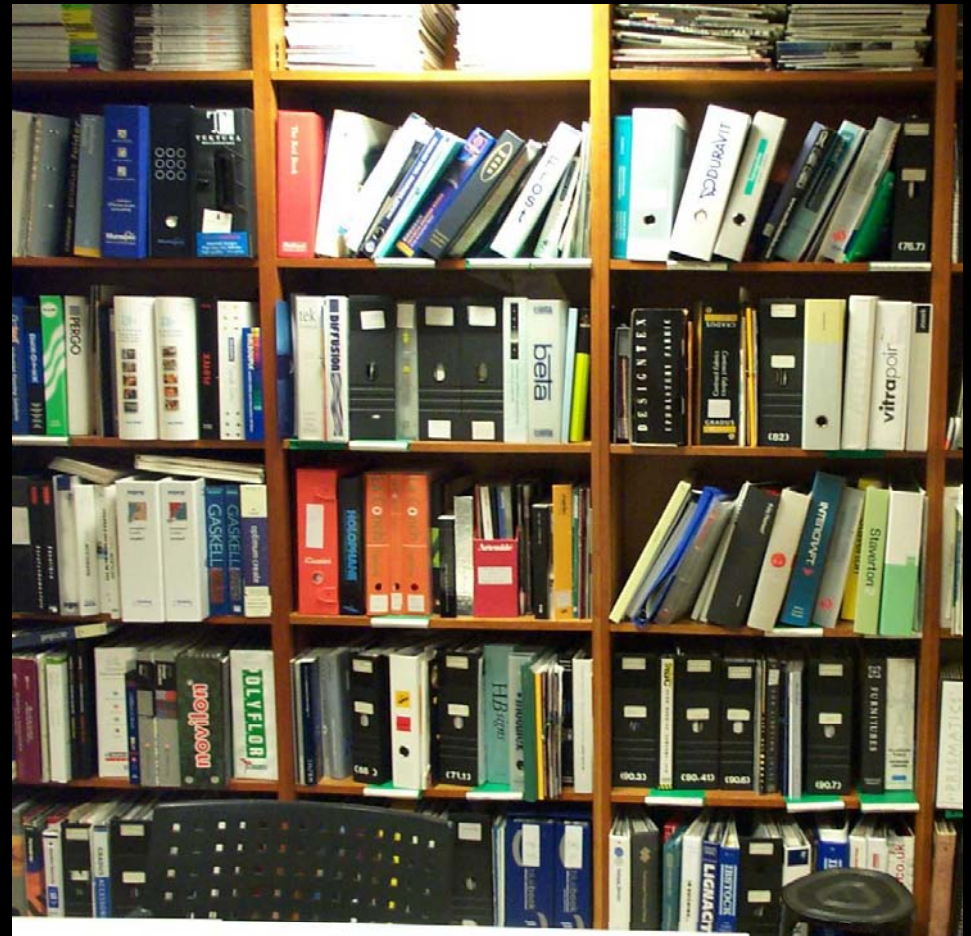
# Plastics, PVC in particular

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



# Library

- Binders many of PVC
- Off-gassing to internal air
- Pthylates



# Office Filing

- Binders many of PVC
- Off-gassing to internal air





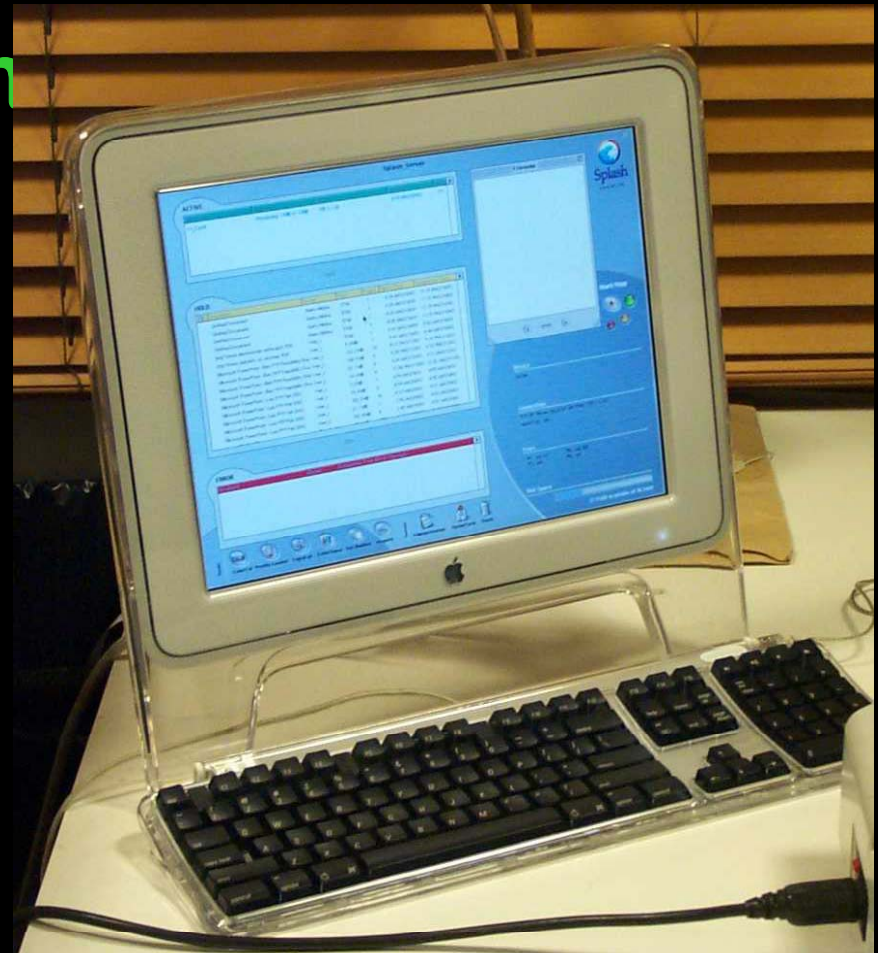
# Ergonomics: Sitting at Monitors

- Avoid glare in monitors
- Keep face 28" away from screen
- Check ergonomics of table, chair and computer parts and user



# LCD Monitor

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



# Copiers

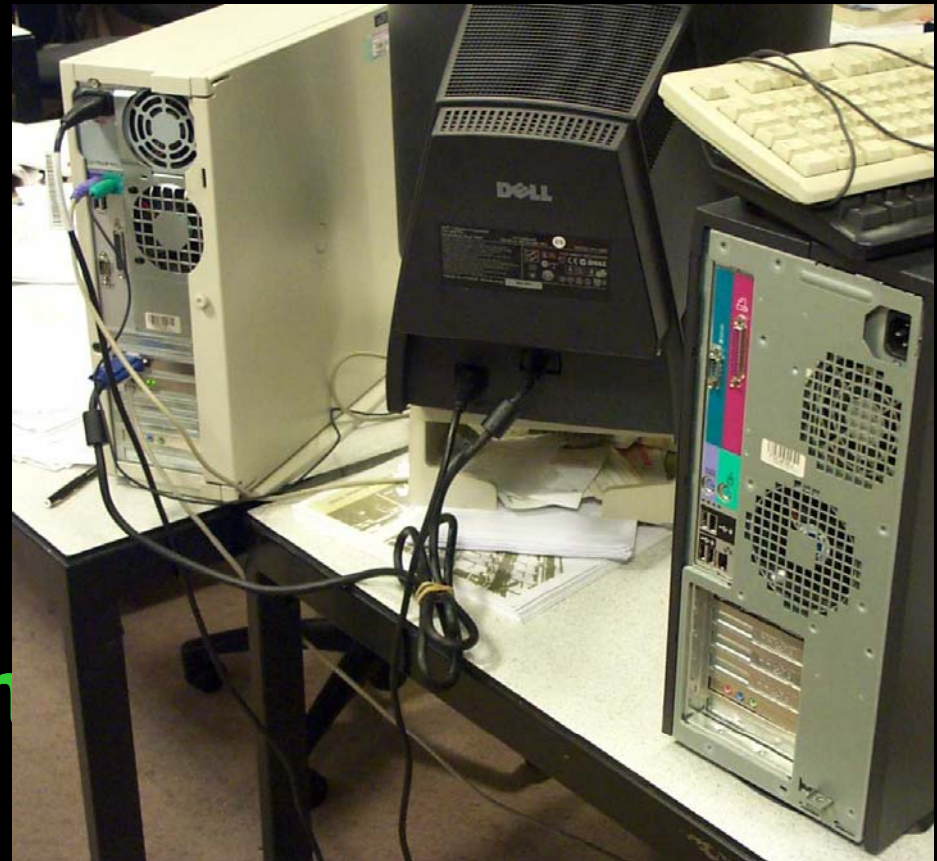
- Keep photocopiers away from people, in closed rooms, with ventilation
- O<sub>3</sub> Ozone generated
- Take care with laser toner: Carcinogenic
- Wash hands thoroughly after use
- New breed of laser toner ground even smaller





# Rear of Computers

- Radiation from all ports that are not in use
- Lead caps are available
- Nobody uses them





[www.greenspec.co.uk](http://www.greenspec.co.uk)

# BRE Thermal Modelling

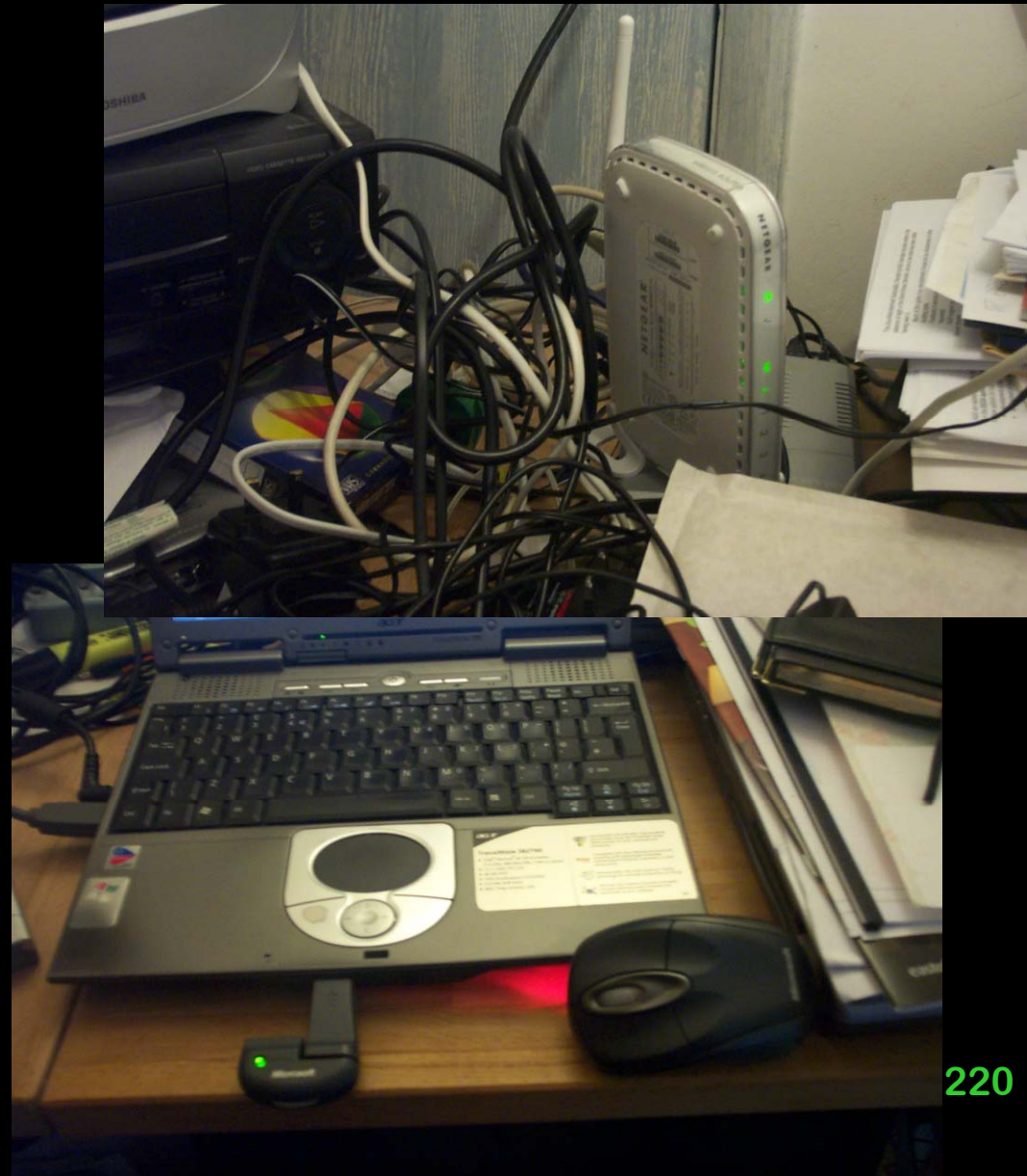
Another GreenSpec CPD to download soon

# SSO Switched Socket Outlets

- Radiation emanates if switched on with no plug in socket
- Always switch them off if not in use

# Infrared and Wireless Networks

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



# Graphic Department

- Solvents
- Past: CFC propellants
- Ozone Depletion Potential
- Alternatives available now
- Hazardous waste
- Not segregated yet



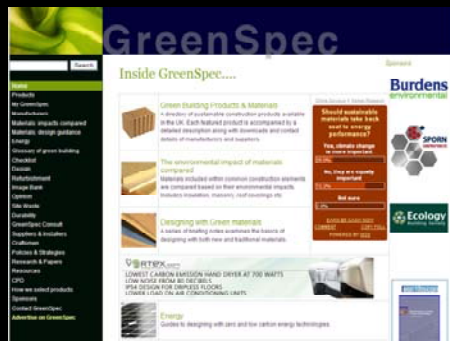


[www.greenspec.co.uk](http://www.greenspec.co.uk)

# Disability Discrimination Act DDA

Another GreenSpec CPD to download soon





# Healthy & Green Furniture

Furniture Fittings IT Equipment



# 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



## Steelcase 'Please'

### office chair

Please looks different to every other office chair thanks to its unique two-back system - a system which offers you unparalleled levels of comfort. Please is a truly well-balanced phenomenon - balancing comfort and beauty, freedom of movement and total control, precision and intuitive use of the adjustment controls, manufacturing quality and environmental responsibility - we could go on!

From a sustainability angle, Please was eco-designed. It has 30% less components than its preceding model as well as being 4kg lighter. In addition, we have created a model which uses 3D Tech fabric (Steelcase patented formula) in the upholstery which increases comfort and reduces the amount of foam used in the chair.

Please is also accompanied by an Environmental Product Declaration (ISO14025) This is the first declaration of its kind awarded to office furniture and no other manufacturer in our field has certification of such a high standard.

Finally, it is highly recyclable (99.1%) and has been manufactured in a responsible location; our plant in Sarrebourg, France which is ISO14001 compliant.

<b>greener than:</b>	n/a
<b>standards:</b>	n/a
<b>BRE Ecopoints:</b>	unrated (but see EPD below)
<b>downloads:</b>	<a href="#">Environmental Product Declaration (178k)</a> <a href="#">Brochure (2.3Mb)</a>
<b>specification:</b>	n/a
<b>recycled content:</b>	none
<b>cost commentry:</b>	n/a
<b>manufactured in:</b>	France





Options

Bookmarks

Signatures

Layers

Pages

Comments

1

2

3

4

5

6

7

8

9

10

11

12

13



**Please is smartly designed** to ensure the highest quality and reliability, as well as long life. Our new generation chair comes complete with the standard **Steelcase 15 year parts and labour\* warranty** and complies with (and, has the certification!) **all European quality standards.** The considered predison is inherent in every aspect of Please, proving that beauty is more than just skin deep.



**Environmental responsibility** begins at the product design stage. Steelcase reviews eco-design principles before the product development process starts. This leads to improved products with a better environmental performance. The new generation Please chair is a great example – we've significantly reduced the weight of the chair – from 24kgs to 20kgs by reducing the number of components by 30% and by the intelligent use of raw materials. New Please chair contains no PVC, no glue on the seat pan. The new generation Please chair is 99,1% recyclable.

Moreover, to convey clear and transparent information about the environmental performance of products during their entire life cycle, Steelcase provides an **Environmental Product Declaration (EPD)** (ISO/TR 14025). Based on the Life Cycle Assessment (ISO 14040-43), the EPD is a dynamic communication tool for science-based, verified and comparable environmental information and data.

Please is manufactured in our award-winning, ISO 14001 certified seating factory in Sarrebourg, France – which has been recognised for its outstanding contribution to recycling, waste reduction and low-impact manufacturing.

Options x

1

2

3

4

## EPD

### Material Declaration

The **Please** task chair consists of the materials listed below. The total weight is 23,623 kg including packaging.

material	kg	%	plastic	kg	%	other materials	kg	%
Steel	8,936	37.8	ABS	0,161	0.7	Cardboard (for packaging)	3,800	16.1
Aluminium	4,288	18.2	LDPE (for packaging)	0,108	0.5	Hydraulic oil (for packaging)	0,138	0.6
			PP	0,886	3.8	Other	0,083	0.4
			PE	1,856	8.6			
			POM	0,076	0.3			
			PU	1,425	6.0			
			Non-reinforced plastic	2,251	9.7			

### Environmental Product Declaration

The environmental impacts of the **Please** task chair throughout its entire life cycle – including raw materials extraction, production, transport, use, and disposal – were assessed using Life Cycle Assessment (LCA), in early 2014.

The **functional unit** used in the LCA was chosen as 'Provision of comfortable office seating – with the features stated in the product description – for an average person (65 – 75 kg) for 8 hours a day, 5 days a week over a lifetime period of 10 years'.

### Life Cycle Inventory Analysis

The Life Cycle Inventory Analysis covers all life cycle stages as shown below:

#### Disposal

It was assumed that on average about 65% of the chairs are landfilled, 27% incinerated and 13% recycled at the end of their useful life.

#### Materials

This stage includes raw materials extraction and transformation, as well as supply with parts and semi-manufactured parts up to and including delivery to the manufacturing site at Sanitburg.

#### Transport

Transport from supplier to Sanitburg and transport from Sanitburg to major European markets is considered.

#### Production

This stage comprises all production and assembly processes. Data was obtained from the ISO 14001 environmental management system of the production site in Sanitburg and allocated to the product.

### Life Cycle Assessment

System environmental impact categories

**Global warming**  
Is the change of global temperature due to emissions of greenhouse gases.

**Acidification**  
Is the change to mass and their pH and thus, soil and water ecosystem degradation of materials such as metals, limestone and concrete, both due to acid emissions.

**Eutrophication**  
Is the loss of plants and animals in aquatic ecosystems due to oxygen depletion following blooms of algae, stimulated by high nutrient concentrations.

**Photochemical smog**  
Is a type of air pollution harmful to the environment and human health caused by emissions of nitrogen oxides and volatile organic compounds.

**Ablative resource depletion**  
Is the depletion of non-renewable resources such as oil, coal and metals due to their extraction and consumption.

**Noise**  
Is the built noise and the noise waves created during the whole life cycle of the product.

**Toxic substances**  
Are substances which cause harm to the natural environment or human health.

### Environmental aspects of Please – 468 200 MP

The contributions of inventory parameters to different impact categories throughout the entire life cycle of **Please** task chair are listed below. Life cycle inventory parameters are considered only if they contribute more than 1% of the total impact in that impact category.

Category	Parameter	Inventory value	Unit	Characterised impact value	Unit
<b>Global warming</b>	CO <sub>2</sub> (carbon dioxide)	12,810	g	Total 10 960	g CO <sub>2</sub> eq
	H <sub>2</sub> O (water vapor)	23	g	8.1	%
	CH <sub>4</sub> (methane)	30	g	8.1	%
	CH <sub>4</sub> (methane)	103	g	8.1	%
	CO (carbon monoxide)	403	g	1.0	%
<b>Acidification</b>	NO <sub>x</sub> (nitrogen oxides)	216	g	Total 1420	g NO <sub>x</sub> eq
	NO <sub>2</sub> (nitrogen dioxide)	208	g	84.8	%
	SO <sub>2</sub> (sulfur dioxide)	216	g	84.8	%
	SO <sub>2</sub> (sulfur dioxide)	216	g	84.8	%
	SO <sub>2</sub> (sulfur dioxide)	216	g	84.8	%
<b>Eutrophication</b>	NO <sub>x</sub> (nitrogen oxides)	216	g	Total 1420	g NO <sub>x</sub> eq
	H <sub>2</sub> O (water vapor)	23	g	11.1	%
	CH <sub>4</sub> (methane)	30	g	11.1	%
	CH <sub>4</sub> (methane)	103	g	11.1	%
	CH <sub>4</sub> (methane)	103	g	11.1	%
<b>Photochemical smog</b>	CO <sub>2</sub> (carbon dioxide)	110	g	Total 1780	g CO <sub>2</sub> eq
	CO (carbon monoxide)	403	g	17.7	%
	NO <sub>x</sub> (nitrogen oxides)	216	g	17.7	%
	NO <sub>2</sub> (nitrogen dioxide)	208	g	17.7	%
	NO <sub>2</sub> (nitrogen dioxide)	208	g	17.7	%
<b>Ablative resource depletion</b>	Iron ore (pig iron)	3,401	g	Total 10 960	g Feeq
	Coal	10 960	g	10.9	%
	Crude oil	10 960	g	10.9	%
	Iron	8 008	g	10.9	%
	Iron scrap	8 008	g	10.9	%
<b>Noise</b>	Sound power	0.126	g	Total 10 960	g Feeq
	Sound power	0.126	g	10.9	%
<b>Toxic substances</b>	Toxic substances	211	g	Total 10 960	g Feeq
	Toxic substances	211	g	10.9	%

No environmental impact was calculated for Global warming, Acidification, Eutrophication, Photochemical smog, Ablative resource depletion, Noise, and Toxic substances. Data was obtained from the ISO 14001 environmental management system of the production site in Sanitburg and allocated to the product.

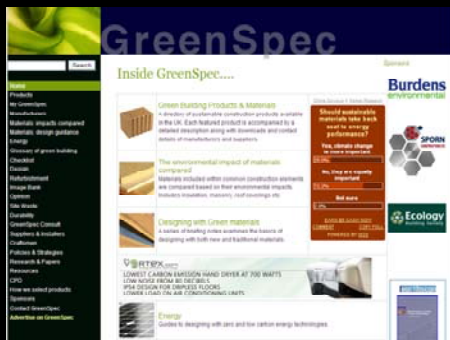


# Plant Based Resin

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







# Office Reception

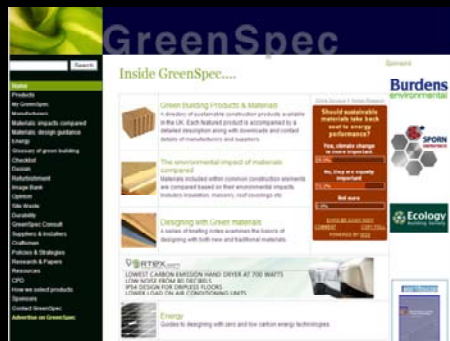


- Posh Show walls
- Venetian Polished Plaster
- Not local materials
- Not local Tradesmen
- Alternative: Rammed Earth?

# Rammed Earth Walls

- Abundant and Natural
- Recipe can be determined on site
- Thermal & Acoustic mass
- Fire resistant
- Load-bearing
- Absorbs radiation, smells and moisture
- Hygroscopic
- any shape
- many ingredients, colours & textures
- Sculptural & Artistic opportunities
- Waste disposal back to earth
- Recyclable & Reusable
- Needs temporary formwork





# Office Waste

Stationery, Kitchens and  
Washrooms





[www.greenspec.co.uk](http://www.greenspec.co.uk)

# Waste from buildings in Use

Waste output from  
Domestic, Commercial & Other Building  
occupation

Another GreenSpec CPD to download soon



# Waste

GreenSpec

[www.greenspec.co.uk](http://www.greenspec.co.uk)

CAP'EM

Cycle Assessment Procedure for Eco-Materials



[www.capem.eu](http://www.capem.eu)

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



# Paper Towels

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





# 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?

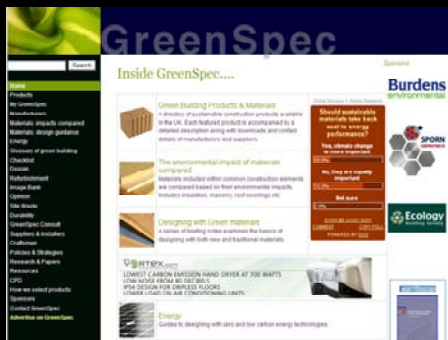
- paper towel manufacturers
- who if any are taking back and recycling?
- My suspicion is there wont be any.
- White paper recyclers may have contacts with non white paper recycling.

# London Office Paper Recycling

- [http://www.bioregional.com/news%20page/news\\_stories/laundry/laundry\\_251104.htm](http://www.bioregional.com/news%20page/news_stories/laundry/laundry_251104.htm)
- [http://www.ethicalmedia.com/stories/laundry\\_pressrelease/](http://www.ethicalmedia.com/stories/laundry_pressrelease/)
- <http://www.london-recycling.co.uk/about/initiatives/laundry.php>
- <http://www.wasteonline.org.uk/resources/information sheets/officerecyclinginlondon.htm>
- [http://www.londonremade.com/download\\_files/Recycling%20services.pdf](http://www.londonremade.com/download_files/Recycling%20services.pdf)

# Manchester Office Paper Recycling

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



# Compostable?

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

# Reusable Cloth is even better

- Cloth towel dispenser and washing service
- but an environmental profile may be called for
- landfill is no longer an acceptable option



# Waste Segregation

- Segregate waste at point of generation:
- Multiple bins or multiple compartment
- Segregate reusable and recyclables
- from compostables, waste and composites



# Segregation: Recycleables

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



# 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

# Segregation: Waste

- Plate scrapings
- Animal produce
- Poultry, meat or fish
- Composites difficult to separate

# 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





# Waste

- Segregate recyclable paper and cardboard
- 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

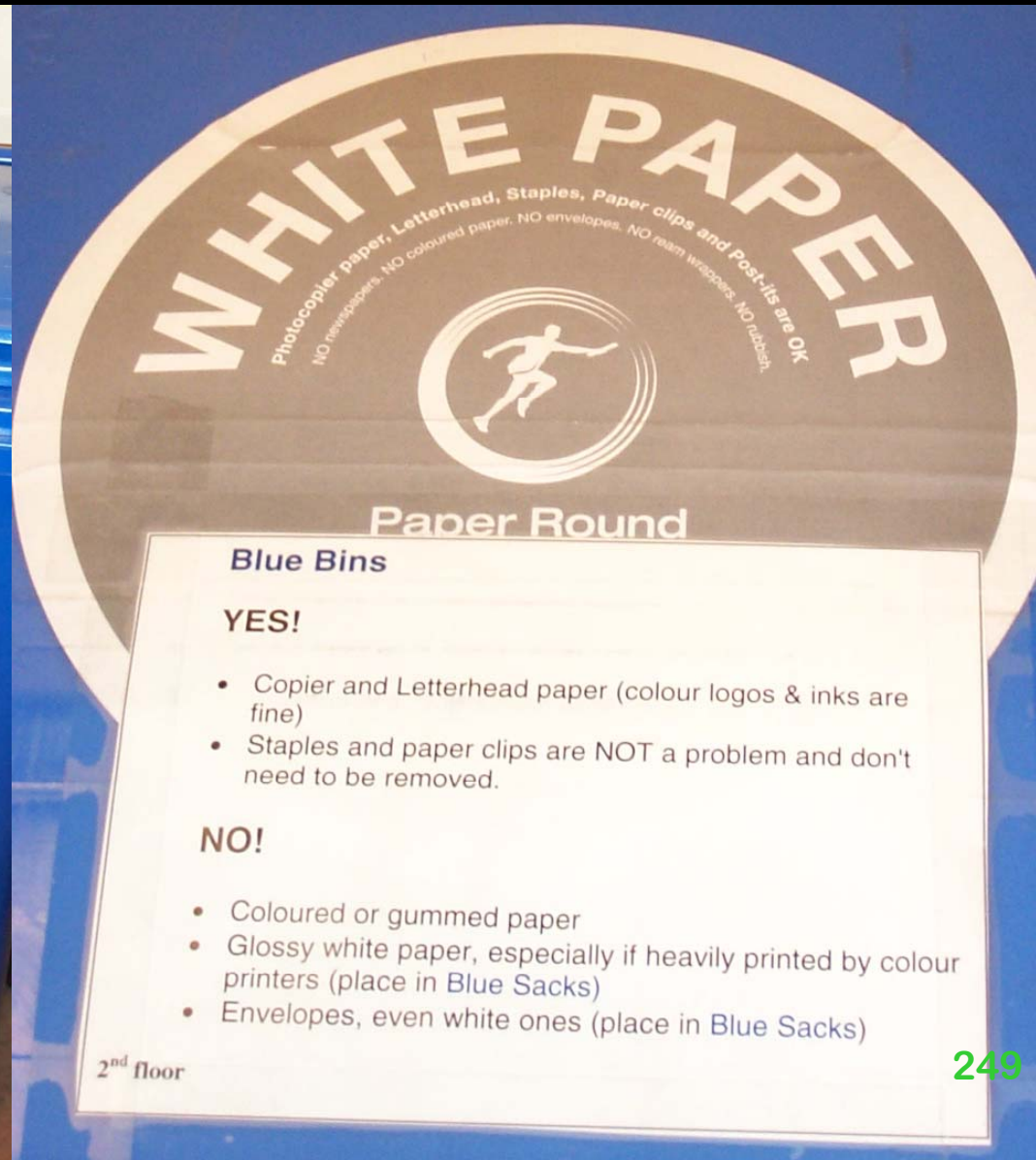




# Segregating Waste At Source



# Two bins, one to segregate



## Blue Bins

### YES!

- Copier and Letterhead paper (colour logos & inks are fine)
- Staples and paper clips are NOT a problem and don't need to be removed.

### NO!

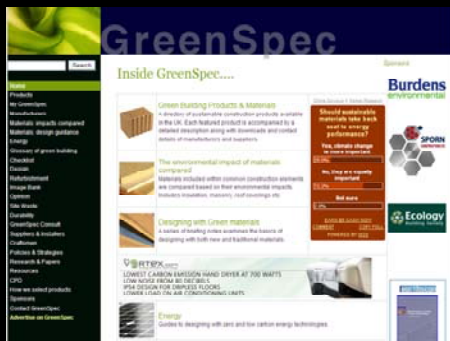
- Coloured or gummed paper
- Glossy white paper, especially if heavily printed by colour printers (place in Blue Sacks)
- Envelopes, even white ones (place in Blue Sacks)

2<sup>nd</sup> floor



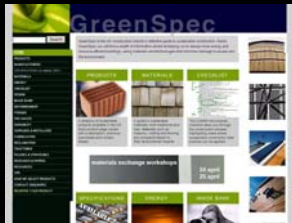
# A4 Scraps stored for reuse





# WEEE & Hazardous Waste IT





[www.greenspec.co.uk](http://www.greenspec.co.uk)

# WEEE & RoHS

**Waste from Electrical & Electronic Equipment  
& Restriction of Hazardous Substances**

**Another GreenSpec CPD to download soon**

# WEEE Regulations

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



# Hazardous Waste: fluorescent



# Battery Recycling

- <http://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 32kg 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
- Not being segregated
- Most often a small proportion of the charge is used and then discarded





# Batteries

- Dead Camera batteries will still turn Walkman
- Dead Walkman batteries will still turn clocks for years
- Dead walkman batteries will run a radio for months
- Dead batteries will light LED bike lamps



# Rechargeable Batteries

- If you have to use batteries
- Use rechargeable
- New types
- 15 minute charge possible



# 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



# 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



# Hazardous Waste: Batteries



# Batteries

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



# 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



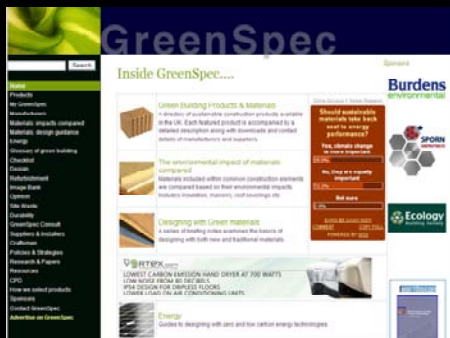
[www.greenspec.co.uk](http://www.greenspec.co.uk)

# Waste Recycle Iconography

Domestic Waste & DWRC

Another GreenSpec CPD to download soon





GreenSpec

www.greenspec.co.uk

CAP'EM

Cycle Assessment Procedure for Eco-Materials



www.capem.eu

# Recycle Now

- [http://www.wrap.org.uk/downloads/Recycle\\_guidelines\\_v4-2.25040d04.pdf](http://www.wrap.org.uk/downloads/Recycle_guidelines_v4-2.25040d04.pdf)



## Material streams

If we are to engage consumers and encourage better recycling behaviour, it is essential that material streams signage at bring sites and household recycling centres includes clear, legible and practical layouts with consistent and distinct colouring.

The colours detailed have been tested for usability, visibility and consumer engagement. They are suitable for use across the various print and digital processes.

This colour palette contains Pantone and cmyk references for print, web references for online use and RAL and 3M Vinyl references for other uses such as vehicle livery, signage, vinyl lettering etc. The vinyl references have been carefully chosen to be the most widely available, off-the-shelf and cost-effective options.

**Note:** The colour blocks on this page and in use throughout these guidelines should not be assumed as accurate colour references. Refer to the relevant formula guidelines for each colour system.

Each material stream download contains the preferred wording for that material. However, you may replace this with your own wording, e.g. you might prefer to use 'drinks cans' instead of 'aluminium cans'.

In all cases you must seek prior approval from WRAP.

### Artwork download

To help you choose the most appropriate material streams icons for your applications, WRAP has provided a master iconography list which can be downloaded as a PDF file from [www.recydenowpartners.org.uk](http://www.recydenowpartners.org.uk)

### Guidance download



textiles

Pantone 130 C  
Process 0 30 100 0  
Web #FDB812  
RAL 1003  
Vinyl 50-28 Apricot



plastics

Pantone Warm Red C  
Process 0 90 100 0  
Web #EE3F22  
RAL 040 50 70  
Vinyl 70-41 Warm Red



paper

Pantone 300 C  
Process 100 30 0 0  
Web #0089D1  
RAL 5015  
Vinyl 50-84 Azure Blue



glass

Pantone 3272 C  
Process 100 0 45 0  
Web #00A9A4  
RAL 190 60 45  
Vinyl 70-795 Dark Aqua



clear glass  
bottles & jars

Pantone 3272 C  
Process 100 0 45 0  
Web #00A9A4  
RAL 190 60 45  
Vinyl 70-795 Dark Aqua



brown glass  
bottles & jars

Pantone 4645 C  
Process 30 50 60 0  
Web #B7886E  
RAL 060 60 20  
Vinyl 100-39 Tan



green glass  
bottles & jars

Pantone 338 C  
Process 60 0 35 0  
Web #5BC4B6  
RAL 180 80 25  
Vinyl 50-792 Aqua



blue glass  
bottles & jars

Pantone 292 C  
Process 50 10 0 0  
Web #74BEEB  
RAL 250 70 25  
Vinyl 70-81 Soft Blue



garden  
waste

Pantone 354 C  
Process 80 0 80 0  
Web #18B26A  
RAL 150 60 60  
Vinyl 50-745 Bright Green



building  
materials

Pantone 4635 C  
Process 20 60 80 30  
Web #985D35  
RAL 060 40 30  
Vinyl 50-917 Dark Sahara



metals

Pantone 431 C  
Process 20 0 0 70  
Web #54656F  
RAL 7031  
Vinyl 50-96 Grey



automotive  
waste

Pantone Black C  
Process 30 30 30 100  
Web #000000  
RAL 9005  
Vinyl 50-12 Black



electrical

Pantone Magenta C  
Process 0 100 0 0  
Web #ED008C  
RAL 4010  
Vinyl 50-64 Pink



paint

Pantone 266 C  
Process 75 75 0 0  
Web #5B56A6  
RAL 300 40 45  
Vinyl 50-66 Purple



other  
recyclables

Pantone 021 C  
Process 0 53 100 0  
Web #F78F1E  
RAL 2008  
Vinyl 50-32 Orange



hazardous  
materials

Pantone process yellow C  
Process 0 0 100 0  
Web #FEF200  
RAL 1026  
Vinyl 50-24 Lemon Yellow  
Note: for icon and text  
use Black



household  
waste

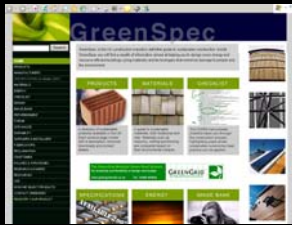
Pantone Black C  
Process 30 30 30 100  
Web #000000  
RAL 9005  
Vinyl 50-12 Black

# Westminster Website

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

# 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 give to charity, schools and hospitals
- School in a box
- NGS GreenSpec website
  - Furniture Fittings Equipment & IT: APP FFEI
  - [http://www.greenspec.co.uk/rtf/APP\\_FFEI\\_Furniture.rtf](http://www.greenspec.co.uk/rtf/APP_FFEI_Furniture.rtf)
  - Material Exchange Websites: APP MEW
  - [http://www.greenspec.co.uk/rtf/APP\\_MEW\\_MExchWeb.rtf](http://www.greenspec.co.uk/rtf/APP_MEW_MExchWeb.rtf)
- Freecycle: [www.freecycle.org](http://www.freecycle.org)



[www.greenspec.co.uk](http://www.greenspec.co.uk)

# Green Personal Computers

IAMECO

Another GreenSpec CPD to download soon

# 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

# IAMECO I am Eco

- **MicroPro PC manufacturer Ireland**
- **MicroPro X-PC**
- **Green PC aiming for 1<sup>st</sup> EcoLabelled PC**
- **MicroPro IAMECO PC**
- **Modular design, upgradeable for life**
- **Disassembly: 11 minutes 1 person**
- **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)**
- **Timber casing: beautiful object desirable to keep for ever**





## Welcome to iameco computers



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- [← Eco computer cases](#)
- [← Aluminium cases](#)
- [← Eco computer monitors](#)
- [← Eco computer keyboards](#)
- [← Eco computer mice](#)
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## iameco wooden mice



### iameco-Beech-Optical

iameco beech wooden mice  
Description: 3D USB Optical mice  
made of solid beech wood

**Cost:** €39.99 incl. VAT



### iameco-Beech-Optical

iameco beech wooden mice  
Description: 3D USB Optical mice  
made of solid beech wood

**Cost:** €39.99 incl. VAT



### iameco-Ash-Optical

iameco ash wooden mice  
Description: 3D USB Optical mice  
made of solid ash wood

**Cost:** €39.99 incl. VAT



### iameco-Ash-Optical

iameco ash wooden mice  
Description: 3D USB Optical mice  
made of solid ash wood

**Cost:** €39.99 incl. VAT



### iameco-Sapele-Optical

iameco sapele wooden mice  
Description: 3D USB Optical mice  
made of solid sapele wood

**Cost:** €39.99 incl. VAT



### iameco-Sapele-Optical

iameco sapele wooden mice  
Description: 3D USB Optical mice  
made of solid sapele wood

**Cost:** €39.99 incl. VAT

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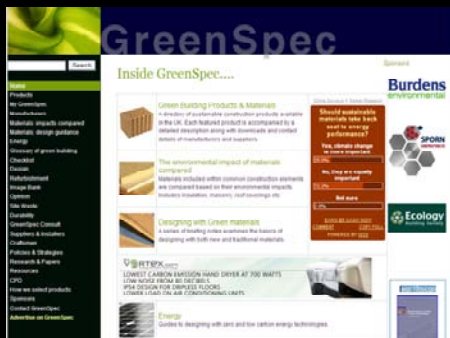


# Information Sources

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







# Envirowise

GreenSpec

[www.greenspec.co.uk](http://www.greenspec.co.uk)

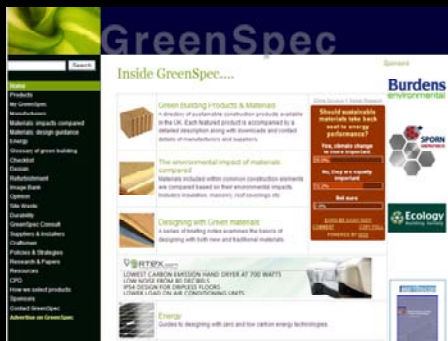
CAP'EM

Cycle Assessment Procedure for Eco-Materials



[www.capem.eu](http://www.capem.eu)

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



# Greening your own Office

ISO 14001, FM & MOBS,  
Sick Building Syndrome, Transport,  
IT, Food, Stationery, Paper,  
Office, Kitchen, WCs, DDA

