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# WMDs Waste Management Difficulties

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- Waste Definitions
- ODS Ozone Depleting Substances
- WEEE Waste Electronic & Electric Equipment
- RoHS Restriction of Hazardous Materials
- Flytipping into and out of skips
- Fire Smoke Toxins and Dioxins
- Domestic waste & Domestic Hazardous waste
- HazRed Hazard Reduction

# WMDs Waste Management Difficulties

- Waste Definitions
  - Hazardous Waste
  - Stable Non-reactive Hazardous Waste
    - Gypsum
  - EWC European Waste Catalogue
- ODS Ozone Depleting Substances
  - Violet Materials
- WEEE Waste Electronic & Electric Equipment
  - White goods
  - IT
- RoHS Restriction of Hazardous Materials
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- HazRed Hazard Reduction





#### Pathway past Inert Skip



Inert Skip is spoiled by food scraps being added

Relocate Inert Skip and add waste bin in pathway

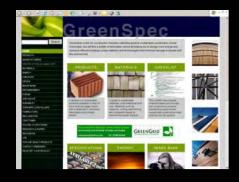
# On-site Practice: Intelligent bin and skip locations





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# Prevention is better than cure





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# Waste Management & Minimisation

Application leads to results

## **Considerate Contractor Scheme**

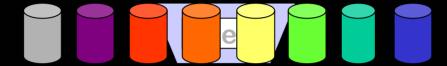
- Public consultation and Community engagement
- Engage with tenants
- Treat with respect whether deserved or not
- Keep informed: meetings and newsletter
- Give them choices don't enforce
- Collect their waste first
- 106 Agreements could be proactive solutions
- Set up bring scheme near site
- Inform them of LA services and facilities
- Segregate your own waste
- Set up materials exchange near site

### SWMP

- Site Waste Management Plans
- Adapt the Voluntary Code of Practice
- Analyse probable arrisings, proposed methods and disposal routes
- Record on Checklist and Datasheet
- For EA scrutiny
- For staff to operate with



#### Window Deconstruction



Timber, aluminium, steel or PVC frames, Plastics, Gaskets, metal fixings, fasteners, Ironmongery, lead cams, sealant, putty

Glass Skip just far enough away to ensure other components do not get into same skip

# Local but not too local: Just out of reach



**Inert Skip spoilt by non-inert waste** 

## **Easy Wins: Domestic waste**

- In good repair: Material Exchange
- Metals: Scrap value
- WEEE: Commercial WEEE processors
- IT: Charity IT Reuse or Commercial IT Reuse or recycling
- Furniture: Community Furniture Recycling
- Carpet: Petrochemical: Take-back
- Carpet: Natural: Compost

### **Domestic Hazardous**

- Medical drugs, sharps, swabs: BioHazard
- Nappies and sanitary waste: Biohazard
- Animal and human waste: Biohazard: FS
- Batteries: lower demand uses
- Lights: WEEE recyclers
- Garden chemicals: HazWaste
- Kitchen Bathroom cleaning chemicals



## Domestic: Bulky

- Furniture
- Bedding
- Carpets
- DIY waste

## Easy Wins: Building Alterations

- Masonry: Hardcore & Mulch
- Metals: scrap value
  - Copper pipe
  - Wiring
- Timber: reuse as timber
  - Recycle as chipboard
  - Recover as fuel
- Windows: Repair and Reuse
  - flat glass to thermal insulation
- Doors: Refurb & Reuse

## Easy Wins: Landscape waste

- Grass: Compost
- Leafs: separate 2 years compost
- Green Waste Trimmings: Compost
- Turf: Loam
- Topsoil: Compost
- Subsoil: blend with compost make topsoil





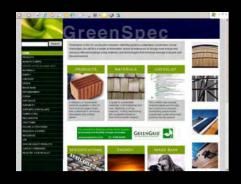
# Landscape Trimming Waste Spoiled by public access& domestic waste © NGS

## Recreational Drug Paraphernalia

- PPE is essential
- Care about deliberate malicious attempts to wound
- Colour coded Medical/sharps waste collection containers (First Aid same)

## Solutions: Asbestos

- Decanting tenants
- Specialist licensed contractors
- Promotion of efforts to keep all healthy
- Educate and engage
- Don't hide activity





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# Waste Drivers Time Line

Directives, Legislation, Regulations, Codes Int. Treaties

Key Legislative Drivers Inneline

**UK Law** 

Control of Asbestos at Work

1983	1984	1985	1986	1987	1988	

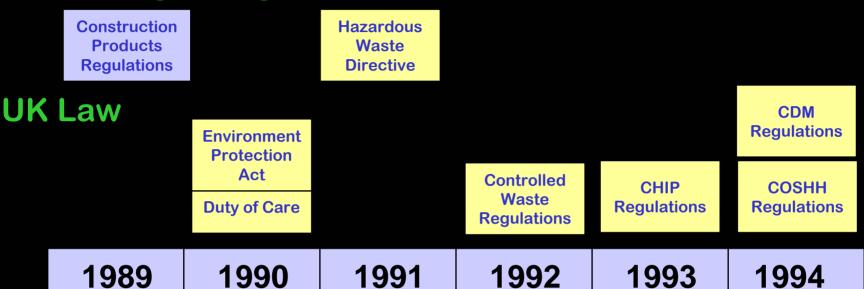
**Fiscal** 

**Targets & Bans** 

**Standards** 

#### **EU** directive

## Key Legislative Drivers Timeline



**Fiscal** 

#### **Targets & Bans**

#### **Standards**

BS 7541 DofC BS 7750 EMS

# Key Legislative Drivers Timeline

EU Regs ODS



**Fiscal** 

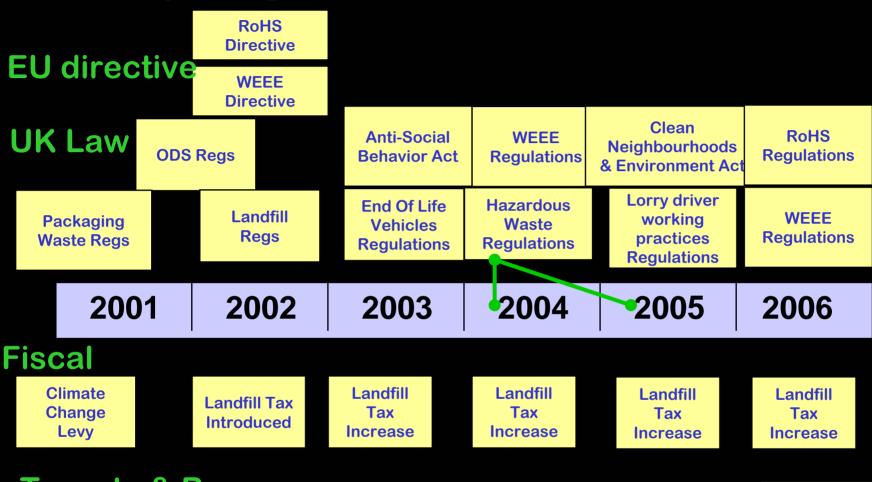
**Targets & Bans** 

**BS EN** 45014

Brownfield site movement

**Movements** 

## **Key Legislative Drivers Timeline**



**Targets & Bans** 

Ban On Whole Tyres To Landfill

Ban On Co-disposal Ban On Shredded Tyres To Landfill

Biodegradable Targets

## Fly-tipping & SWMP Timeline

#### **UK Law & Regs**

#### **Consultations**

Anti-Social Behavior Act

SWMP VCofP Clean
Neighbourhoods &
Environment Act

2003

2004

2005

2006

2007

2008

#### **Powers**

LA given power to stop search, seize possessions

LA & EA to submit Fly-tipping Statistics removed defence of acting under an employer's instructions

maximum fly-tipping penalty increased to £50,000 or 5 years imprisonment on indictment

Powers for statutory SWMPs for construction and demolition projects

Courts able to forfeit vehicles used to commit offences

Courts can award investigation and enforcement costs to LAs and EA and clear-up costs to LAs, EA and landowners

## Fly-tipping & SWMP Timeline

#### **UK Law & Regs**

#### Consultations

Anti-Social **Behavior Act** 

**SWMP VCofP** 

Clean Neighbourhoods & **Environment Act** 

**SWMP** Draft Regs

**SWMP** Reas

2003

2004

2005

2006

2007

New powers to stop,

search and instantly

seize vehicles

used in fly-tipping

2008

#### **Powers**

LA given power to stop search, seize possessions

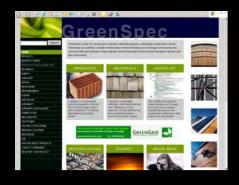
LA & EA to submit Fly-tipping **Statistics** 

removed defence of acting under an employer's ins Fixed penalty notices for a waste transfer note. maximum waste carrier registration or leaving increas waste on streets at the wrong time or 5 years Landowners who allow their land to be **Powers for** fly-tipped required to clean up for cor demolition projects Courts able to forfeit vehicles used to commit offences Courts can award investigation

and enforcement costs to LAs and EA and clear-up costs to LAs. **EA** and landowners

**SWMP** required on projects over £200,000

**SWMP Checklist &** Datasheet to be completed





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# Waste Definitions

Site Waste Management
General Definitions

© NGS 2004-6 Brian Murphy



## **Hazardous Waste**

- Waste whose characteristics cause them to be dangerous or difficult to dispose of such as:
- Explosives, flammable, emits a flammable gas, oxidising, toxic (poisonous harmful), infectious, corrosive or a chemical irritant, reactive, ecotoxic.
- EA's definition



### **Hazardous Waste**

- Contaminated Subsoil & Rubble
  - containing oils and asbestos, etc.
- Paints (synthetic) & Tins with residue
  - some natural paints are compostable
- Solvents & Oils
- Batteries
- Discharge luminaires
- Preservative treated timber (E.g. CCA & Creosote)





Any Car Park Refurb site across the country



# Decoration Waste Paint Pots Returned Carillion UoH site © Carillion





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# Waste Gypsum

Waste Category
Landfill Issues



# Gypsum Plasterboard Waste Management Difficulties Any fit-out or new-build site across the country © BRE

# Stable Non-Reactive Hazardous Waste

- Examples
  - Asbestos
  - Gypsum (EA at Kier EPIC Jan 2005)





- Can be stored in separated cells in landfill site
- if the landfill site has a separate cell
- and a special licence to receive it



## Discharge Luminaires

Purpose made waste collection container





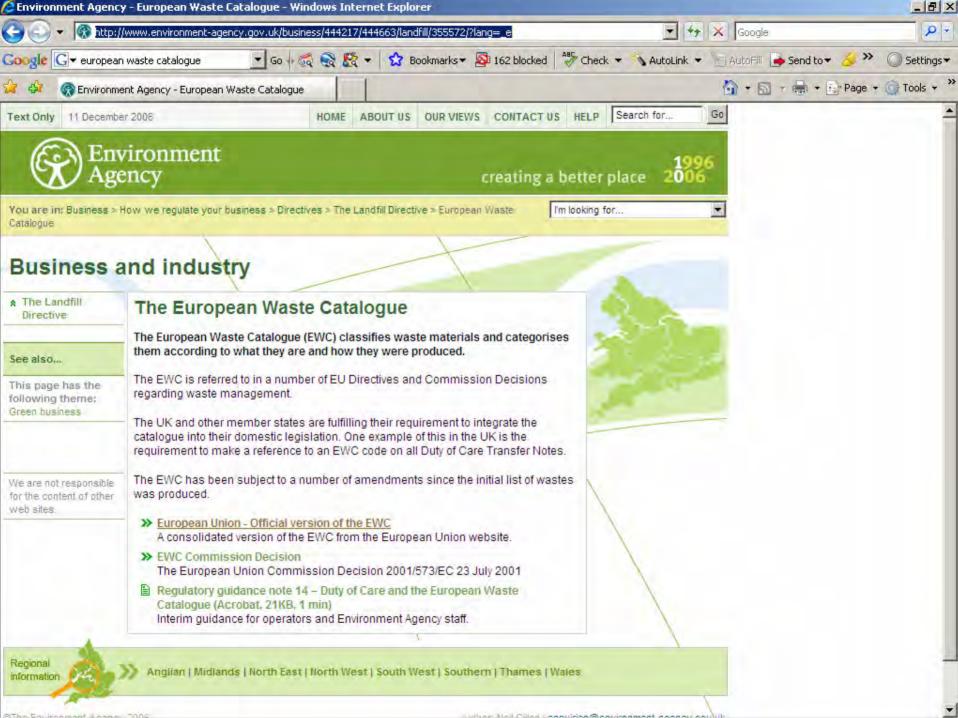
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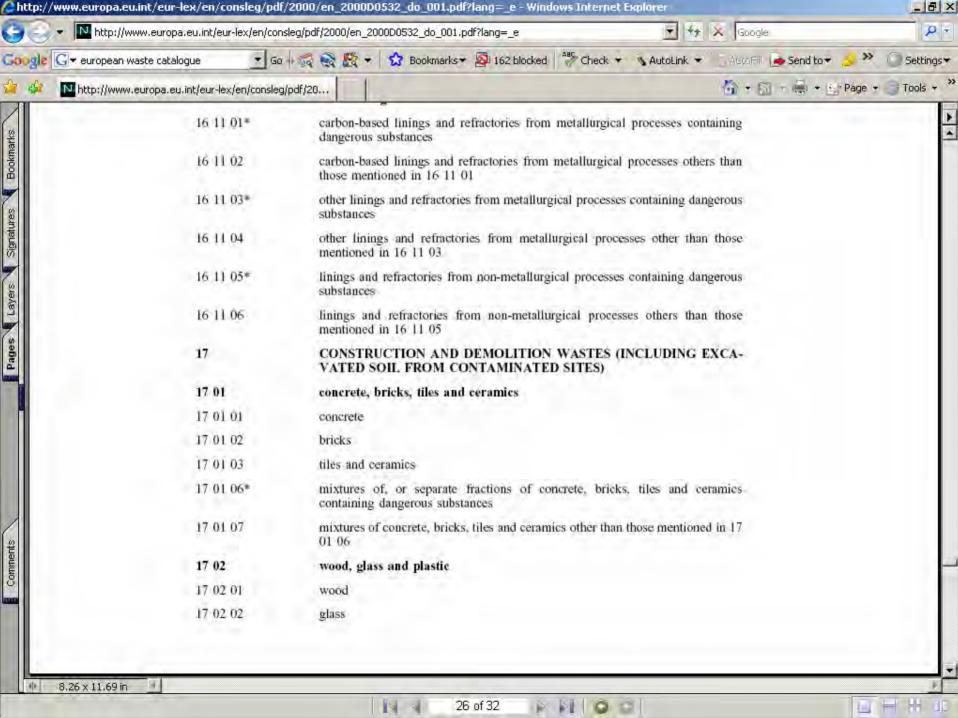
# EWC European Waste Catalogue

http://www.environment-agency.gov.uk/business/444217/444663/landfill/355572/?lang=\_e

Or

Google 'European Waste Catalogue'









# Ozone Depletion Potential

#### **ODS Ozone Depleting Substances**

- Thermal Insulation: extruded plastics
- Refrigerants: liquids/gases
- Fire extinguishing systems: gases
- Silicone chip: cleaning fluid
- Since OD was discovered and the causes identified OD Thermal Insulation manufacturers continued to make OD plastics for 2 more decades



## Fridges + White Goods

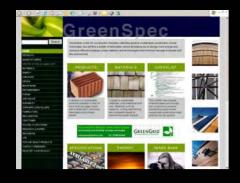
Dumped in the street; Fridge & Freezer ODP in refrigerants



## Ozone O<sub>3</sub> Depletion Potential 1980's to 2004 CFC HCFC HFA HFCs

#### **CFC** free

- What about:
- HCFC
- HFAs
- HFCs
- ODP Ozone Depletion Potential
- GWP Global Warming Potential
- GHGP Green House Gas Potential





### Violet Materials

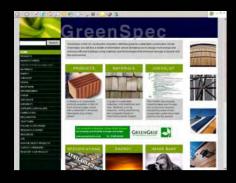
why we need to stop specifying them some alternatives

#### **ODP v GWP**

Substance	Type	Montreal Protocol	<b>ODP</b> R11=1	<b>GWP</b> CO <sub>2</sub> =1
R11	CFC	Yes	1	1500
R22	HCFC	No	0.05	510
R125	HFC	No	0	860
Wider Group	HFA		As HFC & HCFC	As HFC & HCFC
H1301	Halon	Yes	10	5800

## **ZODP Zero Ozone Depletion**Potential

- But what about Green House Gases
- Global Warming Potential GWP
- This is often worse then ODP
- We have had some good news about Ozone layer holes recovering and repairing themselves
- But is it a blip?





## WEEE

Waste from Electrical and Electronic Equipment.

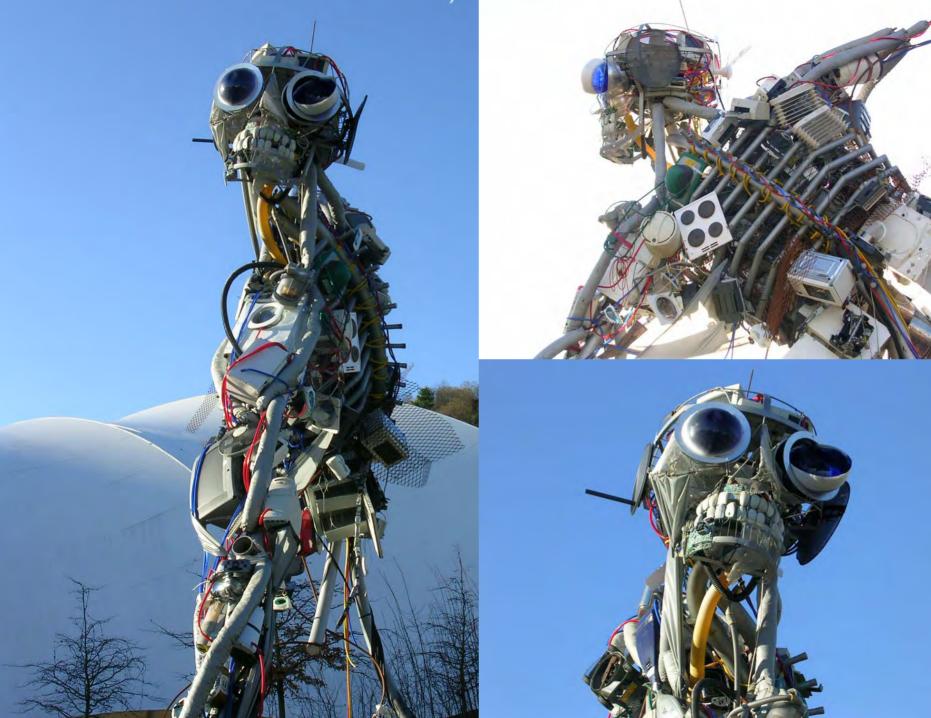
## WEEE Waste from Electrical and Electronic Equipment.

- WEEE Directive 2002/96/EC
- mandates the treatment, recovery and recycling of electric and electronic equipment
- 90% currently ends up in landfills
- 13<sup>th</sup> August 2006 implemented in UK
- All applicable products in the EU market must pass WEEE compliance
- and carry the "not in Wheelie Bin" sticker



#### WEEE

- White Goods
  - Fridges & Freezers
- Brown Goods
- Computers & IT
- Lighting components: discharge lamps





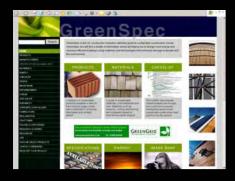




#### White Goods



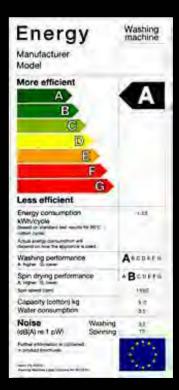


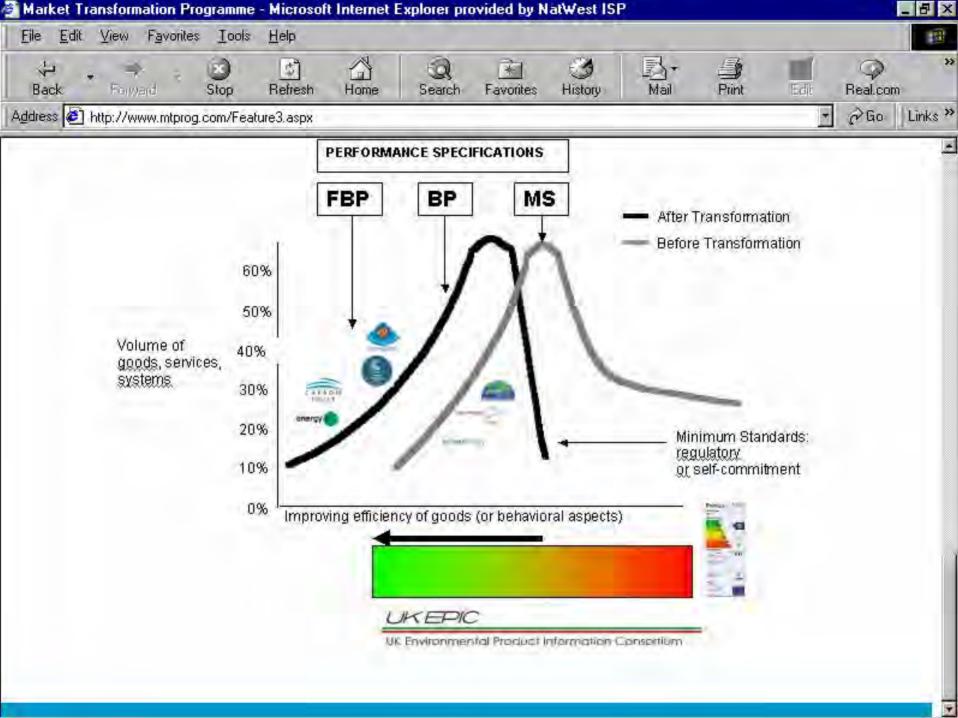




## White Goods











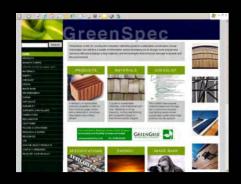
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## RoHS

## Restriction of Hazardous Substances

## RoHS Restriction of Hazardous Substances

- RoHS Directive 2002/95/EC
- also known as Lead-Free
- restricts the use of six hazardous materials found in electrical and electronic products
- 1st July 2006 implemented in UK
- All applicable products in the EU market must pass RoHS compliance
- RoHS impacts the entire electronics industry



#### RoHS 6 materials



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- Cd ≤ 100 ppm
- Pb ≤ 1000 ppm
- Cr VI ≤ 1000 ppm
- PBB ≤ 1000 ppm
- PBDE ≤ 1000 ppm
- Hg ≤ 1000 ppm

#### Impacted under RoHS Directive

- Large household appliances:
  - refrigerators, washers, stoves, air conditioners
- Small household appliances:
  - vacuum cleaners, hair dryers, coffee makers, irons
- Computing & communications equipment:
  - computers, printers, copiers, phones
- Consumer electronics:
  - TVs, DVD players, stereos, video cameras

#### Impacted under RoHS Directive

#### Lighting:

- lamps, lighting fixtures, light bulbs

#### Power tools:

drills, saws, nail guns, sprayers, lathes, trimmers, blowers

#### Toys and sports equipment:

- videogames, electric trains, treadmills

#### Automatic dispensers:

- vending machines, ATM machines

#### **RoHS Exemptions**

- Currently exempted from RoHS compliance
- Large stationary industrial tools
- Control and monitoring equipment
- National security use and military equipment
- Medical devices
- Some light bulbs and some batteries
- Spare parts for electronic equipment in the market before 1<sup>st</sup> July 2006

#### RoHS Guide

- www.rohsguide.com
- become better informed
- before contacting RoHS compliance specialists



- > Home
- » RoHS Categories
- » RoHS Compliance FAQ
- » RoHS Testing
- » Other RoHS Initiatives
- » RoHS / WEEE Books
- » RoHS / WEEE Resources
- » RoHS News

#### Books on RoHS Compliance & Lead-free Electronics

Bestselling books others have bought on RoHS and WEEE compliance:









#### WEEE compliance scheme

Are you obligated under WEEE? Find out Valpak is the one stop shop solution for how we can help now.

#### **WEEE Compliance Scheme**

all aspects of WEEE.

Ads by Gooooogle

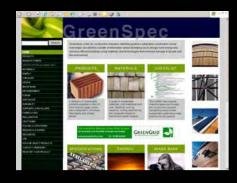






## Green Personal Computers

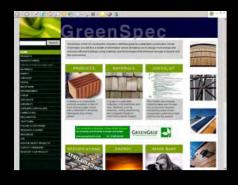
**IAMECO** 





# Green Personal Computers

**IAMECO** 

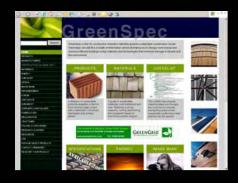




## HAZRED

www.hazred.org.uk

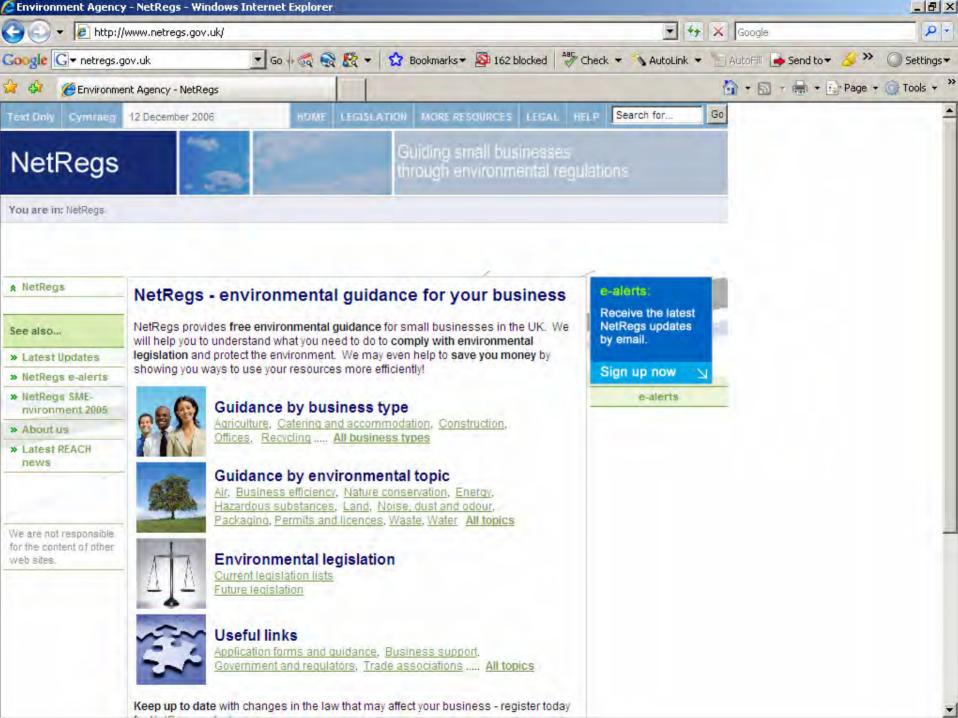






## NETREGS

www.netregs.gov.uk



#### **EWC European Waste Catalogue**







#### **Flytipping**

DEFRA 2005/6
Clean Neighbourhood and Environment Act
Anti-Social Behaviour Act
Environment Protection Act: Duty of Care, SWMP





## Flytipping

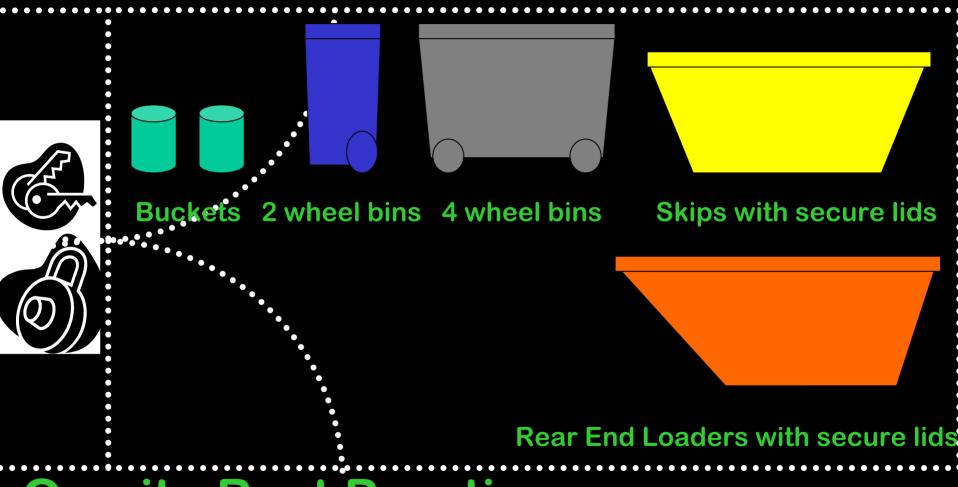
DEFRA 2005/6
Clean Neighbourhood and Environment Act
Anti-Social Behaviour Act
Environment Protection Act: Duty of Care, SWMP

### Flytipping into and out of skips

#### **Flytipping**

A fly-tipping incident every 35 seconds





## On-site Best Practice: Secure compound and containers



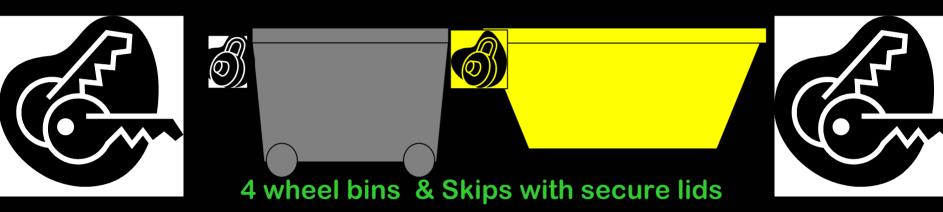
## Shop ReFit Waste Any shop refit site across the country © NGS

#### Lockable lids on skips



## Building Site Secure Transport

## Transfer station



Key Holder



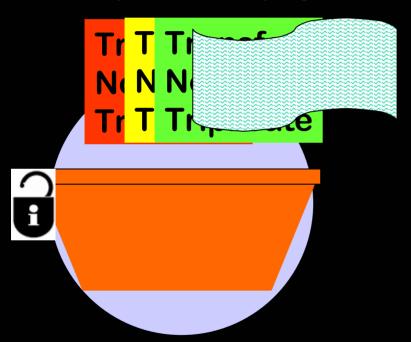
Key Holder

2 wheel bins & Rear End Loaders with secure lids

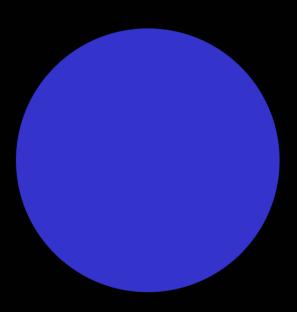
#### To EA

#### **Waste Transfer Notes**

**Compare and pay** 



**Rubber Stamp** 



**Building Site** 

**Segregation Site** 





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## **Anti-Social** Behaviour Act 2003

**DEFRA 2005/6** Clean Neighbourhood and Environment Act **Anti-Social Behaviour Act Environment Protection Act: Duty of Care, SWMP** 

#### **Local Residents**

- Breach of site boundary
  - Safety issues
- Flytipping
  - Domestic waste into landscape
  - Domestic waste into construction skips
- Fires in skips
  - Toxics
- Nuisance
  - Vandalism
- Theft from stores or finished buildings
- Delays and disruption to occupation



## Site Boundary Security

Incomplete boundary, overlooking, easy target, invite and receive



## Site Boundary Security

metal not as robust as plywood



## Site Boundary Security

metal not as robust as plywood





Close to site boundary: invitation to use



Close to boundary: invitation to local ASBO residents

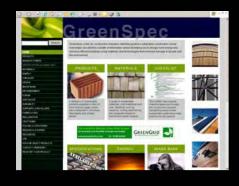






## Incineration & Clean Air Act 1993

On site open fires Burning of waste





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## Incineration & Clean Air Act 1993

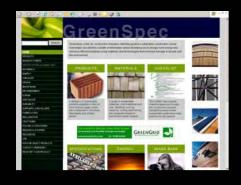
On site open fires
Burning of waste

#### Fire Smoke Toxins and Dioxins

 Low temperature fires generate pollutants, toxins, dioxins

#### Site Fires

- NBS Specification still has optional clauses 1 permits site fires
- When will we ever learn?





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# 2005 Clean Neighbourhoods & Environment Act

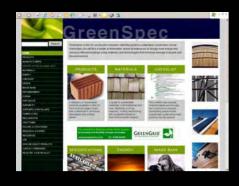
**DEFRA 2005/6** 

Clean Neighbourhood and Environment Act
Anti-Social Behaviour Act 2003
Environment Protection Act: Duty of Care, SWMP

#### **Material Exchange**

- Ebay & Freecycle
- Furniture Reuse Networks
- IT Reuse networks
- Building Materials Exchanges
- Material Exchanges
- Architectural Salvage
- Construction Reclaim
- NISP National Industry Symbiosis Programme
- Recycling WRAP







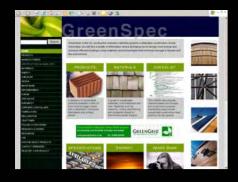
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## Tenant Segregation

Domestic Waste Recycling
On estate

## Estate Waste Segregation: bins with underground chambers



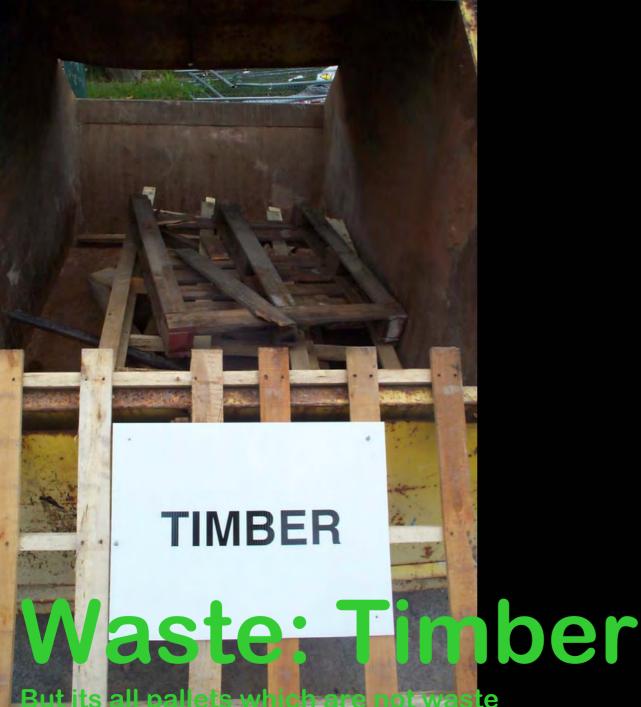




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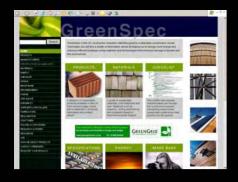
# Contractor Segregation On-site

Construction Waste Segregation











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# Contractor Segregation Off-site

**Construction Waste Segregation** 

#### **Small Quantities**

- Little scope to reuse or recycle
- No recyclers are interested
- No manufacturers interested
- Many materials probably mixed
- Of little use to next project
- Segregate off site
- Send to transfer/bulking station

#### Peterborough EcoCentre

- Small builders waste service
- Out of hours operation
- Bring/send segregation transfer station
- Like a Domestic Recycling Centre
- Bring and segregate your own into many waste stream containers
- Or send and pay for segregation
- Way bridge for bulk











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## Transfer Station

## Segregation Construction Waste Recycling Centre

Construction Waste Recycling Centre for MSME Builders



