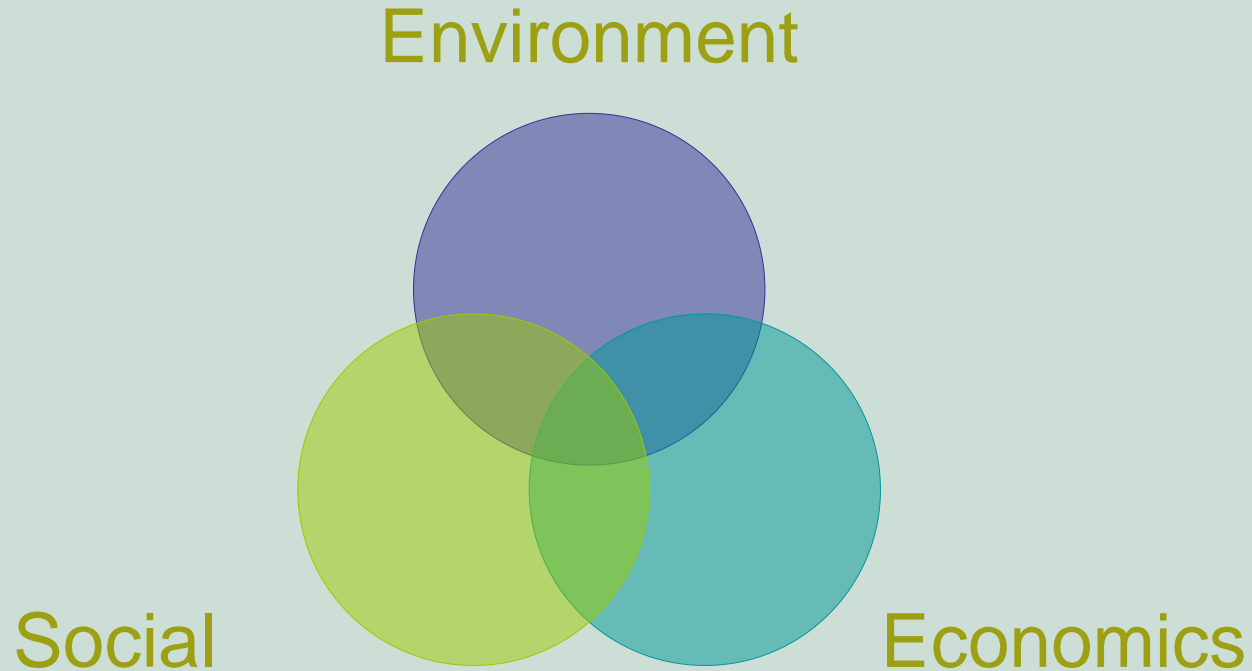


# Sustainable Building

Tim Pollard



# What is sustainability?



# What is sustainable building?

‘Development which meets the needs of the present without compromising the ability of future generations to meet their own needs’



# Sustainable Impact

Bad

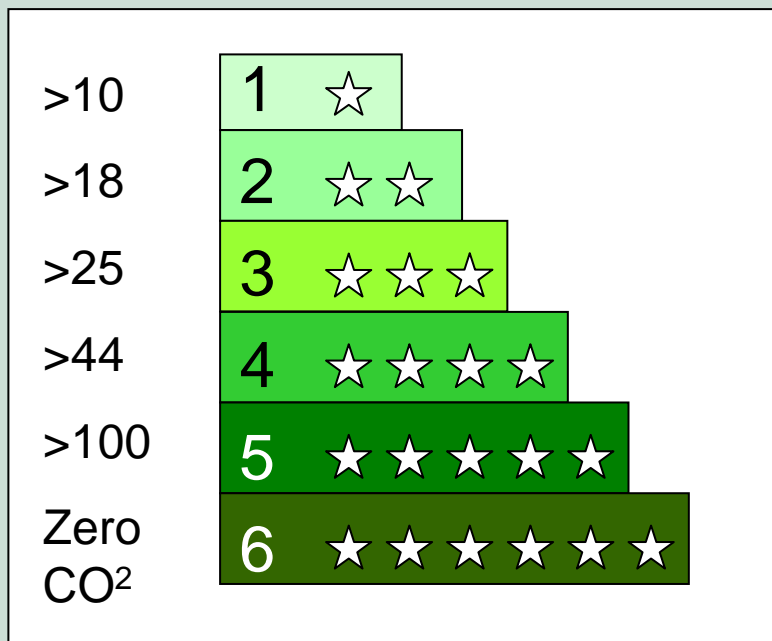
Good  
&  
Bad

Good

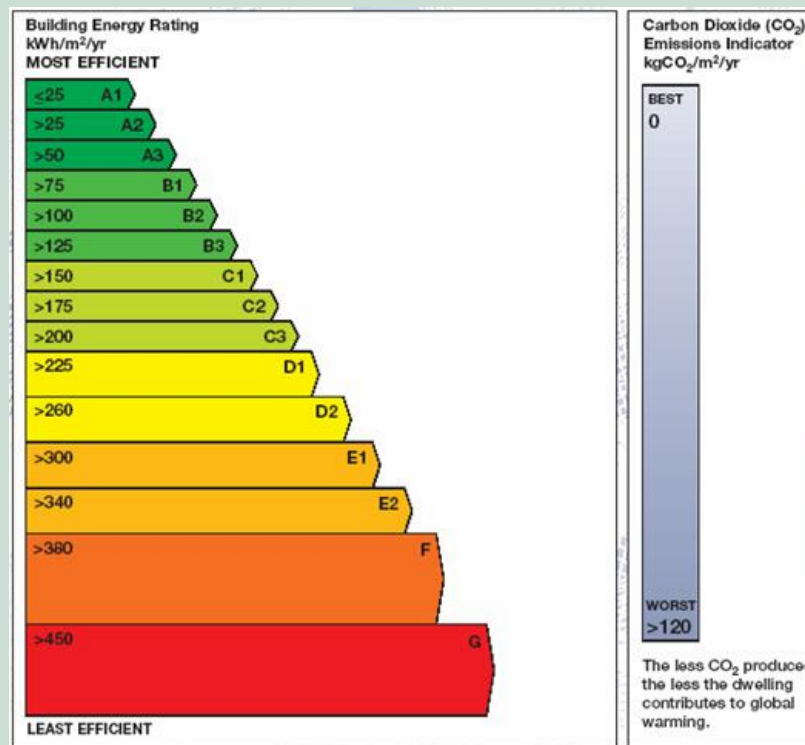


# Standards

## Code for Sustainable Homes



## EPBD



# Environmental Issues

## Climate Change

Rio, Kyoto, Johannesburg

Reduce greenhouse gasses 12.5%

Reduce CO2 by 20%

10 million tons shortfall

## Natural Resources

Fossil Fuels

Timber

Water

Aggregates

## Waste

Pollution

Landfill

Environmental Impact

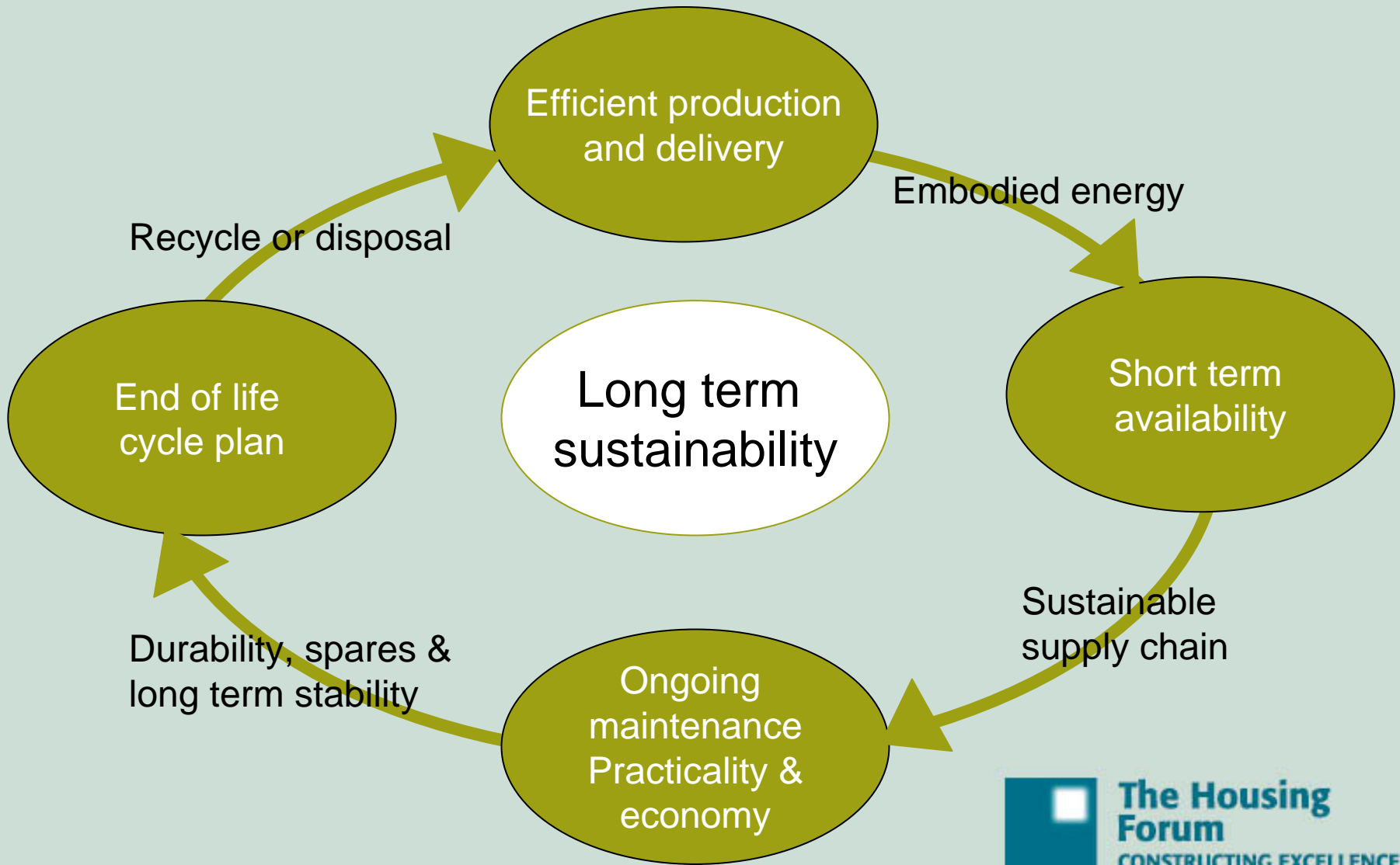
Disposability

# What makes a building sustainable?

- A building that leaves as small an environmental footprint as possible, is economic to run over its whole life cycle, and fits well with the needs of the local community.
- A building that is energy and carbon efficient, designed to minimise energy consumption, with effective insulation and the most efficient heating or cooling systems and appliances.
- A building built with good access to public transport in mind.
- A building built with a minimum of waste in its construction and looks to maximise re-use of on-site materials such as waste soil.
- A building designed and constructed to enable its occupants to use less water, through, for example, the installation of more efficient fittings and appliances.
- A building designed to make recycling and composting easy for the occupants.



# Materials Cycle



# A robust supply chain

The most telling effect on the costs of 'sustainable' construction products will be driven by volume and thus the economies of scale

- Wolseley UK have over 1,800 branches
- More vehicles than Securicor
- Central Distribution
- Worldwide buying power & expertise
- A commitment to sustainable construction



# The Building Envelope



Insulation is an effective way of improving the energy efficiency of buildings

The first challenge is to maximise the efficiency of the envelope of the building so as to minimise the demands for heating or cooling and thus reduce energy consumption and carbon emissions

Glazing plays an important role in both heat loss and gain. Maximum passive heat gain through building design and orientation

# Insulation Products

Manufacturer	Product
Rockwool	Mineral wool insulation
Knauf	Glass & Mineral wool insulation
Thermafleece	Sheep wool insulation
Excel	Re-cycled newspaper insulation
Pavatex	Wood fibre insulation board



# Windows & Environment

Manufacturer	Product	Centre pane u-value (w/m2.k)*
Jeld Wen	Triple Glazing (PEFC wood)	
	Argon Fill	1.0
	Krypton Fill	0.7
	Xenon Fill	0.5

\* UK new build common practice 1.8 - 2.2

Manufacturer	Product
Passivent	Natural Ventilation Products
Xpelair	Heat Recovery Units
BASF	Micronal Smartboard



# Minimise Consumption

## Heating and Hot Water

### Ground Source Heat Pump

Manufacturer	Product
Worcester Bosch	Greenstore
Nibe	Fighter

### Biomass

Manufacturer	Product
Grant	Biomass

### Solar Thermal

Manufacturer	Product
Worcester Bosch	Greenskies
Baxi	Solarflo
Vaillant	Aurotherm

### Condensing & Controls



# Minimise Consumption

## Electricity

### Photovoltaics

Manufacturer	Product
Solar Century	Various

### External Lighting

Manufacturer	Product
Concord Marlin	Various

### Internal Lighting

Manufacturer	Product
Megaman	Lamps
Philips	Various
Thorn	Various

### Appliances

Manufacturer	Product
Various	Various



# Don't forget water

## Drainage & Plumbing

### Plumbing

Manufacturer	Product
Armitage	Aridian Urinal
Various	LWC Cisterns
Cistermiser	IR Control Valve
Saracen	IR Taps

### SUDS

Manufacturer	Product
Marley	Waterloc
Marshalls	Priora

### Rainwater Harvesting

Manufacturer	Product
Titan	Envireau



# Product Manufacture

We have considered product performance but there is also the consideration of the carbon invested in the manufacture, delivery & disposal of products

## Finishes

Manufacturer	Product
Renewal	Carpet Tiles
Tarkett	Linoleum
Claytec	Plasterboard
Castle	Lime Render
NBT	Paints

## Timber

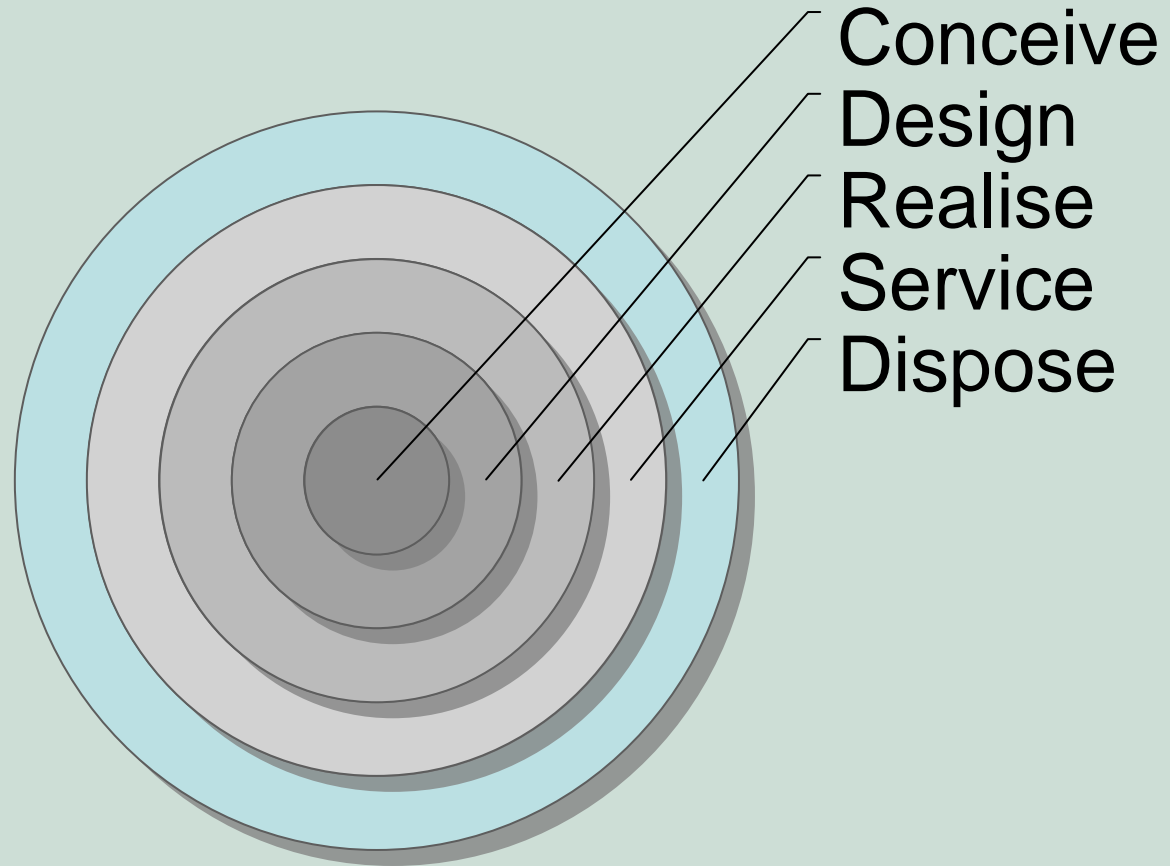
Manufacturer	Product
Finnforest	Various certified
Sonnae	Chipboard (98% recycled)

## Drainage

Manufacturer	Product
Geberit	HDPE



# Life Cycle Costing



# Sustainable Building Center

## Definition & Purpose

*A living, interactive showcase for renewable and sustainable materials for building and water conservation projects providing a commercial route to market.*

*The service will be supported by both technical and design assistance where appropriate.*

*The Center is a single point of contact for data and information and the focal point for Wolseley's sustainable products strategy allowing access to a wide range of stakeholders.*



# Sustainable Building Center



# Sustainable Building Center



# Key Features

- Measurable Energy Management System switching between installed technologies i.e from PV to CHP to Wind, etc.
- Designed to be “dynamic” for new technologies
- Key products displayed in galleries and within the actual structure
- A totally “living & interactive” environment
- Lecture Theatre / AV Suite – 40 people
- Supporting data for each product
- Supporting web site and literature

