



## BREEAM and Water Tarwinder Saran

18<sup>th</sup> June 09

# Agenda

- Introduction to BREEAM
- Water and BREEAM
- Questions

# What is **breeam**

- BRE Environmental Assessment Method
- Certification scheme
- Voluntary
- Independent & credible
- Holistic
- Credits based

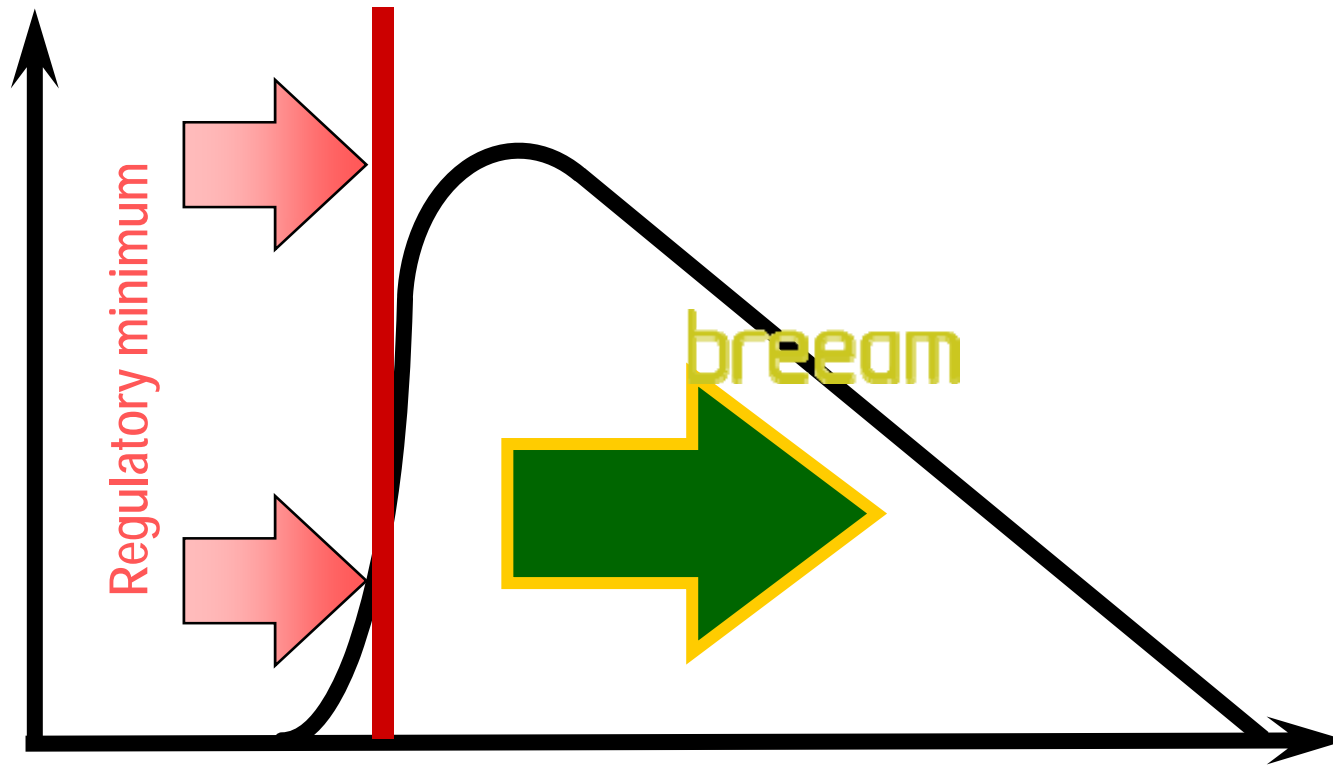


# BREEAM Stats

- Over 116,000 buildings certified, over 714,000 buildings registered
- Network of over 2200 licensed assessors
- Recent studies have shown that BREEAM has helped save 4.5 million tonnes of CO<sub>2</sub> since its inception



# Mass market



bre

# BREEAM Categories



Management



Transport



Health & Wellbeing



Materials & Waste



Energy



Land Use & Ecology



Water



Pollution



# BREEAM Scoring



BREEAM Score

|                    |            |
|--------------------|------------|
| PASS               | 30%        |
| GOOD               | 45%        |
| VERY GOOD          | 55%        |
| EXCELLENT          | 70%        |
| <i>OUTSTANDING</i> | <i>85%</i> |

## Mandatory Credits (*Minimum Standards*)

- The higher the BREEAM rating the more mandatory requirements there are and progressively harder they become.





# BREEAM Water



## Water

- Water shortages are becoming increasingly more common. We need to use what we have sparingly. Designers/clients can influence new building occupiers to do this.
- BREEAM credits are awarded where the following measures are in place:
  - Water efficient appliances (e.g. low flush toilets)
  - Water metering
  - Leak detection systems
  - Water butts

# Water

- **Wat 1 Water Consumption**
- Wat 2 Water Meter
- Wat 3 Major Leak Detection
- Wat 4 Sanitary Supply Shut Off
- **Wat 5 Water Recycling**
- **Wat 6 Irrigation Systems**
- **Wat 7 Vehicle Wash**



# Water

## **Wat 1 Water consumption**

- To minimise the consumption of potable water in sanitary applications by encouraging the use of low water use fittings



## **Wat 5 Water recycling**

- To encourage the collection and re-use of waste water or rainwater to meet toilet flushing needs and reduce the demand for potable fresh water.



# Water

## **Wat 6 Irrigation systems**

- To reduce the consumption of potable water for ornamental planting and landscape irrigation.



## **Wat 7 Vehicle wash**

- To minimise the volume of potable water used by vehicle washing facilities.



# Wat 1 – Water Consumption

**3 - 5 credits available (depending on building type) 3 Credits for :**

## **Offices and Industrial Schemes**

- Water Calculator Tool

## **Retail – Standard requirement compliance**

- Minimise the consumption of potable water used in sanitary applications



# Wat 1 – Water Consumption (M)

## Offices and Industrial Schemes – Water Calculator Tool

- **Minimise the consumption of potable water used in sanitary applications**
- **Water use of sanitary fittings:**
  - WC's
  - Urinals
  - Taps
  - Showers
  - *Exclude kitchen taps, cleaners' sinks and external taps*

| Credits | Consumption per person per year |
|---------|---------------------------------|
| 1       | 4.5 – 5.5 m <sup>3</sup>        |
| 2       | 1.5 – 4.4 m <sup>3</sup>        |
| 3       | <1.5 m <sup>3</sup>             |

# Wat 1 – Water Consumption (M)

- **Offset consumption with rain and grey water collection**
- **Need to know;**
  - Annual rainfall
  - Catchment area and type
  - Rainwater filter coefficient
  - Collection tank capacity
  - Percentage of tap/shower water collected
  - Percentage of WC/urinals using the greywater



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**Wat 1 Water Consumption**

**WCs**

| WC / flushing type | Full flush volume (litres) | Reduced flush volume (litres) | Elbowless flush volume (litres) | Proportion By Use (litres) | water/flush (litres) | litres/flush |
|--------------------|----------------------------|-------------------------------|---------------------------------|----------------------------|----------------------|--------------|
| Type 1             | 3.00                       |                               | 3.00                            |                            | 2.5                  | 0.00         |
| Type 2             |                            |                               | 3.00                            |                            | 2.5                  | 0.00         |
| Type 3             |                            |                               | 3.00                            |                            | 2.5                  | 0.00         |
| Type 4             |                            |                               | 3.00                            |                            | 2.5                  | 0.00         |

**Urinals**

|        | Flush Volume (litres) | Proportion By Use (litres) | water/flush (litres) | litres/flush |
|--------|-----------------------|----------------------------|----------------------|--------------|
| Type 1 |                       |                            | 2                    | 0.00         |
| Type 2 |                       |                            | 2                    | 0.00         |
| Type 3 |                       |                            | 2                    | 0.00         |
| Type 4 |                       |                            | 2                    | 0.00         |

**Wash Hand Basins with taps**

|        | Flowrate (litres/min) | Litres/min | Proportion By Use (litres) | water/flush (litres) | litres/flush |
|--------|-----------------------|------------|----------------------------|----------------------|--------------|
| Type 1 | 3                     | 3          |                            | 2.5                  | 0.00         |
| Type 2 | 3                     | 3          |                            | 2.5                  | 0.00         |
| Type 3 | 3                     | 3          |                            | 2.5                  | 0.00         |
| Type 4 | 3                     | 3          |                            | 2.5                  | 0.00         |

**Showers**

|        | Flowrate (litres/min) | Litres/min | Proportion By Use (litres) | water/flush (litres) | litres/flush |
|--------|-----------------------|------------|----------------------------|----------------------|--------------|
| Type 1 | 3                     | 3          |                            | 0.1                  | 0.00         |
| Type 2 | 3                     | 3          |                            | 0.1                  | 0.00         |
| Type 3 | 3                     | 3          |                            | 0.1                  | 0.00         |
| Type 4 | 3                     | 3          |                            | 0.1                  | 0.00         |

# Wat 1 – Water Consumption (M)

- **Water calculator tool**
  - Note default values
  - 2/3 rule for taps
  - ‘Click’ or ‘two stage’ taps
  - Assumes 1 occupant per 10m<sup>2</sup> in all cases
  - Manufacturer’s details
- **Demonstration**



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Wat 1 Water Consumption

**WCs**

| WC / Fixing type | Full flush volume (litres) | Reduced flush volume (litres) | Elbowless flush volume (litres) | Proportion By Use (litres) | litres/person | litres/occupy |
|------------------|----------------------------|-------------------------------|---------------------------------|----------------------------|---------------|---------------|
| Type 1           | 3.00                       |                               | 3.00                            |                            | 2.3           | 0.00          |
| Type 2           |                            |                               | 3.00                            |                            | 2.3           | 0.00          |
| Type 3           |                            |                               | 3.00                            |                            | 2.3           | 0.00          |
| Type 4           |                            |                               | 3.00                            |                            | 2.3           | 0.00          |

**Urinals**

|        | Flush Volume (litres) | Proportion By Use (litres) | litres/person | litres/occupy |
|--------|-----------------------|----------------------------|---------------|---------------|
| Type 1 |                       |                            | 2             | 0.00          |
| Type 2 |                       |                            | 2             | 0.00          |
| Type 3 |                       |                            | 2             | 0.00          |
| Type 4 |                       |                            | 2             | 0.00          |

**Wash Hand Basins with taps**

|        | Flowrate (litres/min) | Litre/flush | Proportion By Use (litres) | litres/person | litres/occupy |
|--------|-----------------------|-------------|----------------------------|---------------|---------------|
| Type 1 | 3                     | 3           |                            | 2.5           | 0.00          |
| Type 2 | 3                     | 3           |                            | 2.5           | 0.00          |
| Type 3 | 3                     | 3           |                            | 2.5           | 0.00          |
| Type 4 | 3                     | 3           |                            | 2.5           | 0.00          |

**Showers**

|        | Flowrate (litres/min) | Litre/flush | Proportion By Use (litres) | litres/person | litres/occupy |
|--------|-----------------------|-------------|----------------------------|---------------|---------------|
| Type 1 | 3                     | 3           |                            | 0.1           | 0.00          |
| Type 2 | 3                     | 3           |                            | 0.1           | 0.00          |
| Type 3 | 3                     | 3           |                            | 0.1           | 0.00          |
| Type 4 | 3                     | 3           |                            | 0.1           | 0.00          |



# Wat 1 – Water Consumption (M)

## Retail – Standard requirement compliance

### 1st credit

- WCs have effective flush volume of 4.5 litres or less

### 2nd credit

- WCs have either:
  - Effective flush volume of 3 litres or less OR
  - Effective flush volume of 4.5 litres or less AND a delayed action inlet valve

### General requirement

- Dual flush toilets must have symbols or guidance on appropriate operation



# Wat 1 – Water Consumption (M)

**3<sup>rd</sup> credit**

**Two that offer greatest possible reduction in water consumption:**

- All taps have a maximum flow rate of 6 litres/minute **AND** one or a combination of the following:
  - Timed automatic shut off taps (e.g. push taps)
  - Electronic sensor taps
  - Low flow screw down/lever taps
  - Spray taps
- All showers have a measured flow rate  $\leq 9$  litres/minute (water pressure 0.3MPa, water temperature of 37°C)
- All urinals are either:
  - Fitted with individual presence detectors
  - Ultra low flow or waterless urinals



## Wat 5 – Water Recycling

### **Retail scheme only – 2 credits available**

**Where one of the following water recycling strategies is implemented:**

- A rainwater collection tank is installed and is sized appropriately to collect rainwater from roof or meet flushing demand

**OR**

- Waste water from showers and wash hand basins is recycled to meet at WC/urinal flushing demand

**OR**

- A combination of waste water and rainwater collection that meets toilet and urinal flushing demand and (where specified) irrigation

# Wat 6 – Irrigation Systems

## 1 Credit available

**Where the irrigation method specified for internal or external planting and/or landscaping complies with 1 of the following:**

- Drip feed subsurface irrigation that incorporates soil moisture sensors. The irrigation control should be zoned to permit variable irrigation to different planting assemblages
- Reclaimed water from a rainwater or greywater system.
- External landscaping and planting that relies solely on precipitation, during all seasons of the year.
- The only planting specified is restricted to species that thrive in hot and dry conditions.
- Where no dedicated, mains-supplied irrigation systems (including pop-up sprinklers and hoses) are specified, and planting will rely solely on manual watering by building occupier or landlord.



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