Water Efficiency in Domestic & Commercial Bathrooms

Including references to The Code for Sustainable Homes, Building Regulations Part G, and BREEAM

Introductions

Allow me to introduce myself

This CPD has been created by
- Twyford Bathrooms
  - The technical team
  - The sales and marketing team
- Consultants to the industry

Learning outcomes and Agenda

Reference to:
- The facts - current water usage in the UK
- The need for water conservation
- Government targets and applicable regulations
- raise awareness of
  - The bathroom products that are available to meet the requirements

Presentation Agenda

- Twyford Bathrooms
  - Brief overview of the company
- The water supply and water efficiency requirements
  - An introduction & some details
  - Regulations & assessments
- Water efficient bathroom products

Rules: Open questions at the end but interruptions acceptable
Sanitec

The leading European player in bathroom solutions with well known brands

Head Office | Stoke-on-Trent

Sanitec

Twyford bathrooms

Since 1849

The RED HOT topic

Water Efficiency

A global concern involving governments worldwide

Startling facts

World Population Now - 6.8 Billion

2.6 billion without water

4.2 billion with water
Startling facts

- 2/3rds of the global population will live in water stress areas by 2025
- Consumers’ thirst for water consuming products
- Greater pressure on supply and demand

In the UK

London is dryer than Istanbul

Increasing population

Environmental constraints

Pollution affecting water sources

Climate change

Water fluctuations which existing infrastructure cannot deal with

Water consumption

GOVERNMENT TARGET

Reduce consumption to 130 litres per person per day by 2030

33% households metered
The importance of Water Efficiency

- Adaptation to
  - More droughts
  - More floods
  - More people
  - More housing
  - More shops, offices, public buildings
- Energy demand for
  - Getting water to properties
  - Getting waste away from properties

The DOMESTIC Environment
Public and Private Homes

Governed by
Code for Sustainable Homes
Building Regulations Part G

Credit scoring

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Achieving a sustainability rating

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**New Homes** – 80 litres pppd by 2016

Timeline targets

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From voluntary to zero carbon by 2016

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<th>V = Voluntary</th>
<th>AM = Assessment Mandatory</th>
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Part G
Dwellings and public buildings

 Came into force 6 Apr 2010

Gives guidance
Responsibility of the architect, designer, builder and installer
Key points of G2

- Applies
  - To a NEW building
  - To a substantial refurb
    - where there has been material change

- Fittings and appliances
  - Must use water efficiently
  - Must prevent undue consumption

- Consumption
  - Must not exceed 125 ltrs/head/day

Headlines - 6 Parts

G1 | wholesome water and now grey water allowed
G2 | now 125 litres per head per day target
G3 | hot water systems | scaling | 48°C max
G4 | provision of sanitary conveniences
G5 | a dwelling must have a bathroom
G6 | washing facilities in kitchens

Key points of G2

- Water Efficient Product Labelling Scheme
  - BMA’s "WEPLS"

- Inform LA Building Control
  - Within 5 days
  - Declaring the potential water consumption

LABC
The **COMMERCIAL** Environment

*Governed by*

BREEAM
Building Regulations Part G

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**BREEAM**

- A measure of the environmental impact of a building
- Allows benchmarking
- Comprehensive ‘tools’
- Scoring system – Based on credits

**Assessment Methods**

- **TOTAL BUILDING**
  - cu metres per person per year
- **PRODUCT INSTALLED**
  - Water usage ratings

**BREEAM**

- Used by Planning Authorities
  - A condition for planning permission
- Local communities are the winners
  - Lower running costs

Promotes sustainable developments
Healthcare - BREEAM WAT 1

**water consumption**

- **AIM**
  - to minimise the consumption of potable water in sanitary applications by encouraging the use of low water use and water efficient fittings, technologies and processes

- 3 credits generally available

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BREEAM WAT 1 **water consumption**

**ASSESSMENT CRITERIA**

- **WCs**
  - Effective flush volume of 4.5L or less

- **TAPs**
  - Flow rate 6 litres per minute

- **SHOWERs**
  - Flow rate 9 litres per minute

- **URINALs**
  - With water management or ‘water-free’ systems

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**G**

**For Domestic AND Public Buildings**

**Water Efficient Bathroom Products**
Low Volume WCs

Effective average flush: 3 litres

Dual flush
4 and 2.6 litre

Water Efficient very low volume
Dual flush or Single flush
Hidden cistern Lever or push button

Back to Wall
Wall Hung

Concealed cisterns

Options
- PUSH BUTTON
  - Single or dual flush
- LEVER
  - Single or dual flush
- DAIVs
  - Delayed Action Inlet valves

WATER SAVING
CONCEALED CISTERNs
Rimless Toilets

Current Water Regs require a max usage = 6 litres
This WC saves 2 litres per flush
Birmingham Hospital has 1149 WCs installed
Average use in hospital = 4 flushes per hour

RESULT
220,608 litres saved per day
4 litre
80,521,920 litres annual saving

The dry

Very Low Flush WCs
can revert to 6 litre after installation
if 'drainline carry' problems occur
Note H&S implications

Low flow Domestic style taps

- Click stop
  - dual action
- Ceramic disc
- Low flow

One click - 2.5 litres / min
Two click - 5 litres / min
Taps for commercial situations

- Touch tap
  - Battery Operated
  - Water saving
  - 6L flow restrictor
  - Modern design
  - Monobloc
  - Mid market price

Low volume showering

- Showers
  - Cubicles or shower controls
    - Hotels & leisure
    - Healthcare
    - Education

Taps for commercial situations

Flow rate not exceeding 6 ltrs per min @ up to 5 bar

- Push button 15 seconds @ 1 bar
- Economy pricing
- Temperature controlled
- Non-con
- 5 seconds @ 1 bar
- Mid market

- Intra-red
- Touch FREE
- Mid market
Low volume bath - acrylic
Standard 1700 x 700 mm
Fully reinforced acrylic
Economy pricing
Achieved by clever internal shaping
140 litres to o/flow

Low volume bath - steel
Standard 1700 x 700 mm
Porcelain enamelled steel
Standard gauge (1.8mm)
Steel enamelled to BS1344
Economy pricing
130 litres to o/flow

Urinals
Exposed or concealed pipes
Water flush or ‘water-free’

Toilet Suite Testing
Reputable companies have TESTED & CERTIFIED products
Water Regulations 1999
BS EN997 Class 2
Water Regs SOLIDS test

The machine is manufactured by the WRC of Swindon to the requirements of the Water Regulations

Solids discharge test unit

Four test samples in each flush test

Stored in water to keep supple

cloth & sprayed red

Solids test media

Four sample solids are dropped into the pan through a 'directing device'

Computerised test

Each pan tested 10 times
Solids dropped through directing device

Solids always fall into the pan from a standard height and angle so that results can be compared

Directing device

The directing device drops samples into the water consistently

Samples proceed out of the WC and pass a blue light

Camera sees the red samples against the blue light and as each one passes a blip is recorded

Recorded
The amount of water flowing with samples is recorded.

Last sample should be followed by 2.5 litres.

If less, pan fails.

Water Regs
Fluid waste contaminant test

Full and reduced flush
Fluid waste contaminant test

Fluid waste contaminant test
Potassium Permanganate
The dye is visibly reduced in concentration after flushing.

Contaminant sample AFTER flushing.

Used to measure the strength of remaining dye and compare it with original. Should be less than 1 percent of the strength of the original.

Colour Spectrophotometer

**Bibliography**

- Two main documents have been used to create this presentation

*The Code for Sustainable Homes*
- Code for Sustainable Homes:
  - ISBN: 9781859463307
- The Code for Sustainable Homes:
  - Case Studies Volume 2 - March 2010
  - ISBN: 9781409822127
- BREEAM Reference
  - www.breeam.org

Free web download
Bibliography

- Two main documents have been used to create this presentation

**Building Regulations Approved Doc G**
- Approved Document G
  - Sanitation, hot water safety and water efficiency
  - ISBN: 978 1 85946 323 9

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