

Water saving avenues

By
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As a water of fact !

- Women in Africa and Asia walk an average distance of 6 kms a day to collect water
- Half of the developing world's hospital beds are occupied by victims of unsafe water and sanitation
- Within 25 years, mankind could be using over 90% of all fresh water, leaving only 10% for all other living beings
- A third of the world's population live in areas where water consumption outstrips supply. If the current trend remains unchecked, this figure will double by 2025

Source : Water and world

Products focused

- Coupled closets
- European water closets
- Wash basins
- Taps
- Urinals

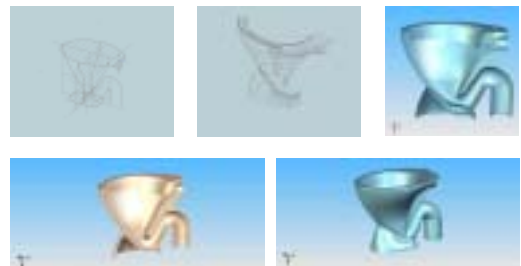
Avenues taken for water saving

- Closets >>> Design change in the product
- Cisterns >>>Dual flush
- Basins >>> Stainzfree
- Taps >>> Sensors, Aerators, Cartridges
- Urinals >>> Electronic sensor based

Use of Technology

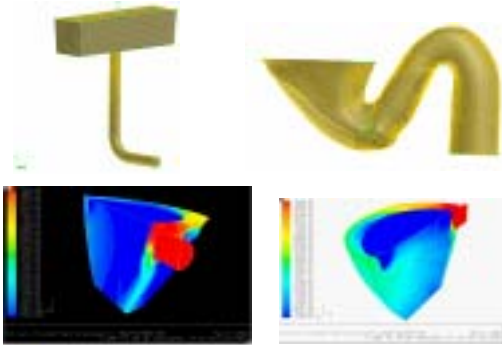
- Design of experiments and data base created
- 3 D solid Modeling software to design products First time Right
- Rapid Prototyping to ensure precise dimensions are maintained
- Computational Fluid Dynamics used to simulate flushing efficiency

Drawing Dev.



Critical dimensions for water efficient flushing are used

Application of CFD analysis



Design change- Elite EWC



Flushes with just 6 lits against 10 lits.
Saves approx 36 lits per Day/family of 3

Dual flush- Coupled closets



All coupled closets converted to Dual flush – designed to discharge 6 lit for the full flush and 3 lit for the short flush
Saves approx – 42 lit per day for a family of 4 (2 adults, 2 children)

How the savings in Coupled closets?



- Every day use 2 times urinal and 1 time solid waste, family of 4 members

Per person use

| | Before | After | Savings | No of uses | Total savings/day |
|---------------|----------|--------|--------------|------------|-------------------|
| • Urinal | 7.5 lits | 3 lits | 4.5 lits/use | 2 | 9lits |
| • Solid waste | 7.5 lits | 6 lits | 1.5 lits/use | 1 | 1.5 lits |

• **TOTAL SAVING PER PERSON PER DAY 10.5 LITS**

• **FOR 4 MEMBERS IN A FAMILY 42 LITS/DAY**

Dual flush - Polymer cistern



Adjustable water flow in single and dual flush – Versatile design for Indian water closets / EWC

How the savings in Plastic cistern?



- Every day use for 2 times urinal and 1 time solid waste, family of 4 members

Per person use

Case 1: Old closets with dual flush plastic cistern

Case 2 : Modified closet with dual flush plastic cistern

Water saving details

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CASE 1 OLD CLOSETS WITH PLASTIC DUAL FLUSH

| | Before | After | Savings | No of uses/day | Total savings/day |
|-------------|---------|----------|--------------|----------------|-------------------|
| Urinal | 10 lits | 4.5 lits | 5.5 lits/use | 2 | 11 lits |
| Solid waste | 10 lits | 9 lits | 1 lits/use | 1 | 1 lits |

TOTAL SAVING PER PERSON PER DAY FOR 4 MEMBERS IN A FAMILY 12 LITS 48 LITS/DAY

CASE 2: MODIFIED CLOSET WITH PLASTIC DUAL FLUSH

| | Before | After | Savings | No of uses/day | Total savings/day |
|-------------|---------|--------|------------|----------------|-------------------|
| Urinal | 10 lits | 3 lits | 7 lits/use | 2 | 14 lits |
| Solid waste | 10 lits | 6 lits | 4 lits/use | 1 | 4 lits |

TOTAL SAVING PER PERSON PER DAY FOR 4 MEMBERS IN A FAMILY 18 LITS 72 LITS

Taps- Sensor based

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Electronic Tap

- Touch Free operation
- Auto stop on prolonged sensing
- Spike buster provided
- Saves upto 300-400 ml of water for every use
- Comes with 2 years warranty



Taps- Water savings

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- Aerator flow
- Saves 30% water
- Avoids splash
- Very cost effective
- Ease of handling
- Quarter turn (90*)and half turn taps (180*)

Wash basins- Stainz free coating

Parryware

Parryware
STAINZFREE
SPECIAL CERAMIC SURFACE



Ceramic surface repels water and hence does not collect dirt
EASY TO CLEAN- Definite saving but difficult to quantify

Avenues for Saving – Urinals

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Sensor Based and Waterless Urinals



Concealed



Retrofit



Integrated



Waterless

Water saving in urinals

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Consumption trend/use

- Conventional urinal : 1.5 lits
- Concealed sensor : 600-800 ml
- Integrated sensor : 400-600 ml
- Waterless urinal : 0 ml

| SUMMARY OF WATER SAVINGS | No of uses | Savings | Savings | Savings | Equal to no of trucks 10000 ltr cap |
|-----------------------------------|-------------|---------|-----------|----------|---|
| | per day | per day | per month | per year | |
| Coupled closets | Family of 4 | 42 ltr | 1260 | 15120 | 1.5 |
| Normal EWC with plastic cistern | Family of 4 | 48 ltr | 1440 | 17280 | 1.75 |
| Modified EWC with plastic cistern | Family of 4 | 72 ltr | 2160 | 25920 | 2.5 |
| Electronic taps | 100 uses | 40 ltr | 1200 | 14400 | 1.44 |
| Sensor based urinals | 100 uses | | | | |
| a. Concealed | | 80 ltr | 2400 | 28800 | 2.8 |
| b. Integrated/retrofit | | 100 ltr | 3000 | 36000 | 3.6 |
| Waterless urinals | 100 uses | 150 ltr | 4500 | 54000 | 5.4 |

Magnitude of water saving only in closets

- Average savings per closet is 17200 ltr (17 kl) equal to 1.7 truck/year
- Average sale Parryware EWC alone in a year is 3 lacs units

Hence total savings through Parryware closets alone is **5 lac trucks in a year or 5 million kl of water**

If we consider all the closet manufactures then the total amount of water saved is tremendous

Latest development

- Power flush Closets which can flush with just **4 / 2 litres**



WATERLESS URINAL

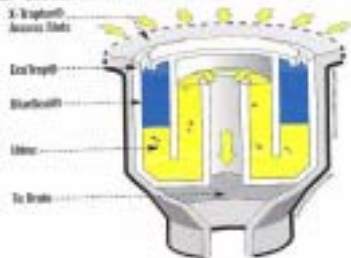


Fibre make



Ceramic make

Cross - Section of the Patented Vertical Eco Trap®



ADVANTAGES

- Eco friendly- GREEN
- Innovative product, first time in India, in collaboration with WATERLESS INC USA
- Touch free and hence Hygiene
- Zero Serviceability and hence relative cost saving
- Easy Installation
- Can be used for temporary arrangements also
- Better aesthetics as the outlet is completely concealed

What are the savings?

- Saves water which is becoming a rare commodity
- On Electricity which is required to pump the water to the overhead tank
- Does not require Bottle trap, waste coupling and spreader
- No Deodorant cakes or Naphthalene balls required
- Eliminates usage of Acids or any other chemicals for cleaning
- Waterline to the point of urinal
- Angle valve or sensor unit

Consumable cost analysis between Conventional Vs Waterless urinals Per month details

| | | | | |
|---|-------------|-------------|--------------|--------------|
| Total no of Male personnel in an establishment | 30 | 60 | 120 | 240 |
| Total no of uses per day (2 times a day/person) | 60 | 120 | 240 | 480 |
| Total no of uses per month (25 working days) | 1500 | 3000 | 6000 | 12000 |
| Water required for one flush (in lits) | 2 | 2 | 2 | 2 |
| Total water required per month (in lits) | 3000 | 6000 | 12000 | 24000 |
| Cost of water/Rl (in paise) | 0.07 | 0.07 | 0.07 | 0.07 |
| Total cost of water/month (in Rs) | 210 | 420 | 840 | 1680 |
| Approx No of urinals required (Can change as per client) | 2 | 3 | 4 | 7 |
| Cost of Deodorant cakes/month @ Rs 15 per urinal | 30 | 45 | 60 | 105 |
| Cost of pumping the water either from the ground or from the sump to the tank/month | 10 | 20 | 40 | 80 |
| Cost towards Repair, service, part change etc | 50 | 75 | 100 | 175 |
| Cost of chemicals for cleaning the urinal @ Rs 25/month | 50 | 75 | 100 | 175 |
| Total cost in water based Urinals/month | 350 | 635 | 1140 | 2215 |
| Standard : Consumable cost of waterless urinal for 1500 uses is Rs 200 | | | | |
| Total consumable cost of waterless /month | 200 | 400 | 800 | 1600 |

THANKYOU