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NATURAL RESOURCES:

WATER EFFICIENCY FOR SUSTAINABLE LIVING

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Optimizing Water Efficiency in Plumbing Systems



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EBARA PUMPS MALAYSIA SDN BHD

- Part of EBARA Corporation JAPAN
- ISO 9001, 14001 EMS and OHSAS 18001 Accredited
- Fully equipped with spare parts, service, repair, testing, workshop and assembly facility
- Nationwide after-sales and support near you



Top 4 Common Problems in Building Water Supply Systems

- Water Leakages
- Too Low/Too High Pressure at water fittings
- Plumbing Design Issues – Water Hammer or Surge
- Piping Issues – Incorrect pipe Installation, pipe chattering, etc

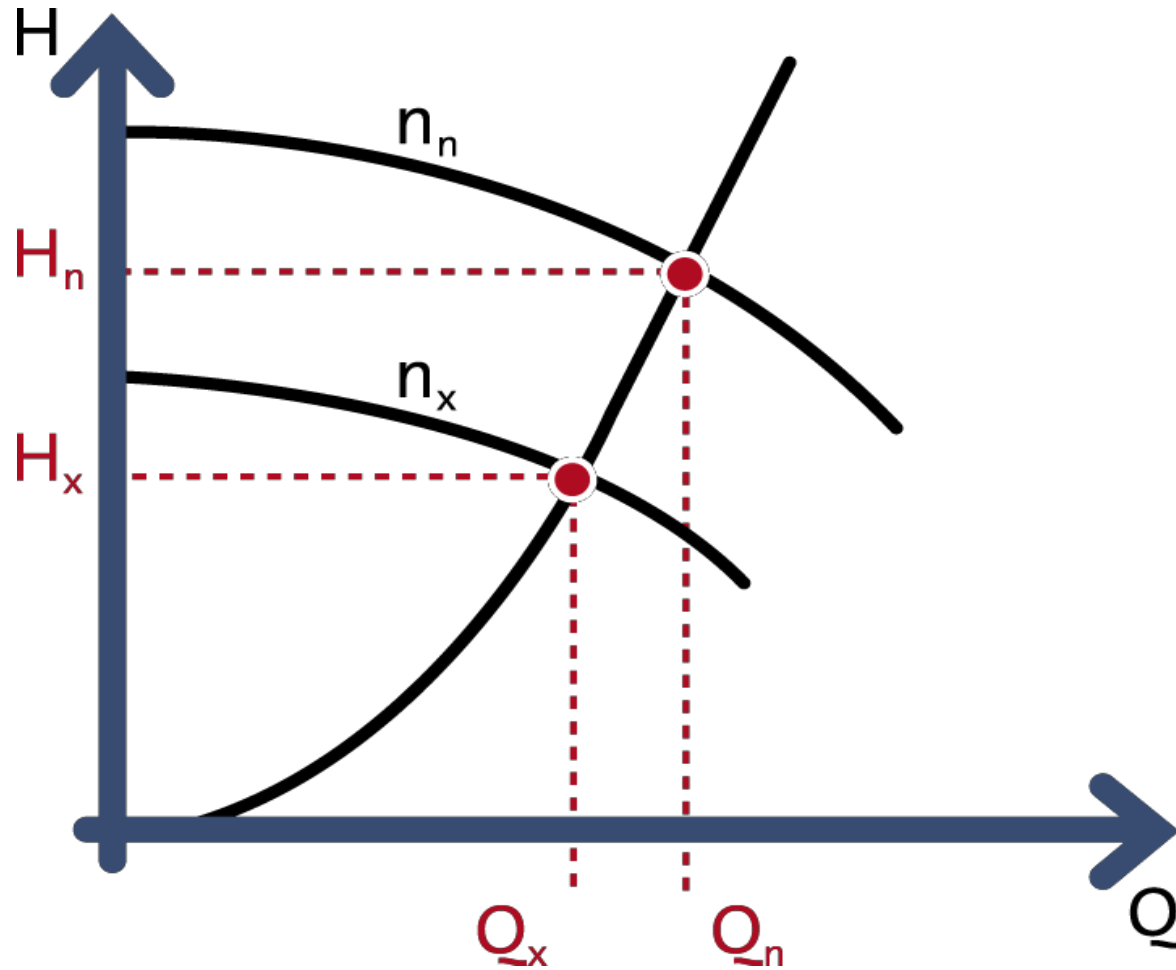




Main Points to Achieve a Water-efficient System in a Building

- *Pressure Control*
- *Right Plumbing Design*
- *Operational Considerations*
 - *Usage of Water Saving Fittings*
 - *Optimize Low Water Demand Periods*

1) Pressure Control : Run Pumps in Variable Speed



When Do You Need to Control the SPEED of The Pump?

- 1. To maintain a constant set pressure in your system with varying flow conditions**
- 2. To reduce or eliminate the effects of shocks arising from sudden starting/stopping**
- 3. To tune and optimize your pump system to actual system characteristics**
- 4. To reduce pressure during low demand period**



Examples of Variable Speed Pumping

Cold Water Services



2) Right Plumbing Design to Reduce / Eliminate Water Leakages



Right Plumbing Design

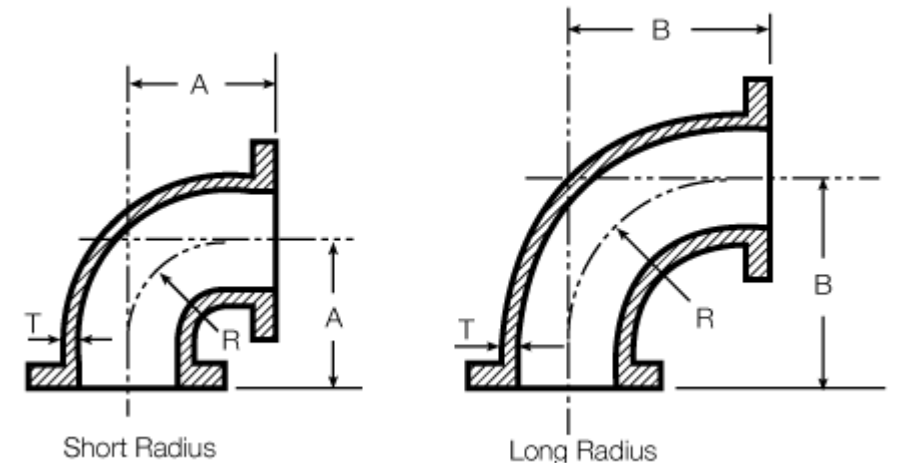
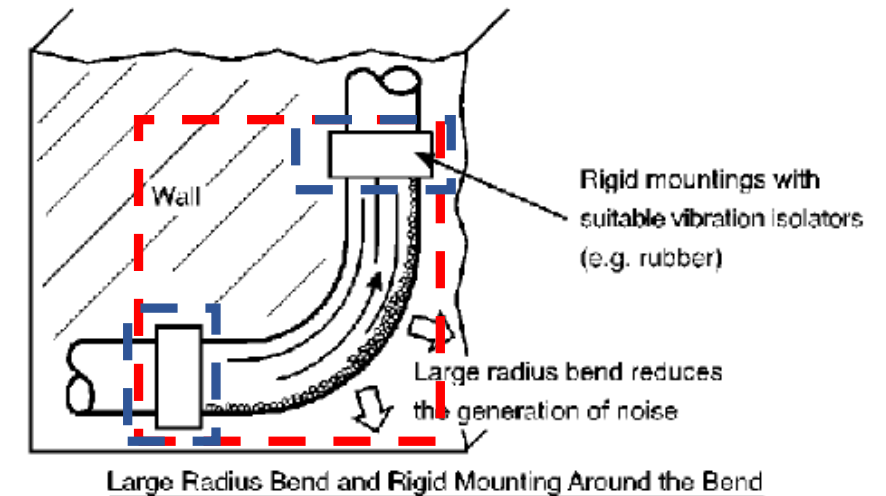
- Ensure pipe material, joints and fittings specifications conform to the pressure/Class required in the system also take into account temperature and pressure surges within the system
- Although customers want good water pressure, excessive pressure can damage fixtures and water appliances and contribute to more leaks in the distribution systems

**TIP : KEEP WATER PRESSURE CONSTANT
AND NOT EXCESSIVELY HIGH AT ALL TIMES**



Plumbing Installation Techniques

- Use pipes with larger radius bends to reduce abrupt velocity change that can cause water hammer and minimize vibration of pipe walls
- Use rigid mountings around the bend with suitable vibration isolators such as rubber inserts
- Use larger diameter pipe to adjust water flow velocities below 2.0 m/s



Plumbing Installation Techniques

- Use vibration spring isolators for attaching pipes to walls, ceilings or floors
- Isolate pipes where they penetrate the slabs and walls with compressible materials (eg rubber sleeve or glass fibre packing)
- Reduce water hammering through pump and velocity control

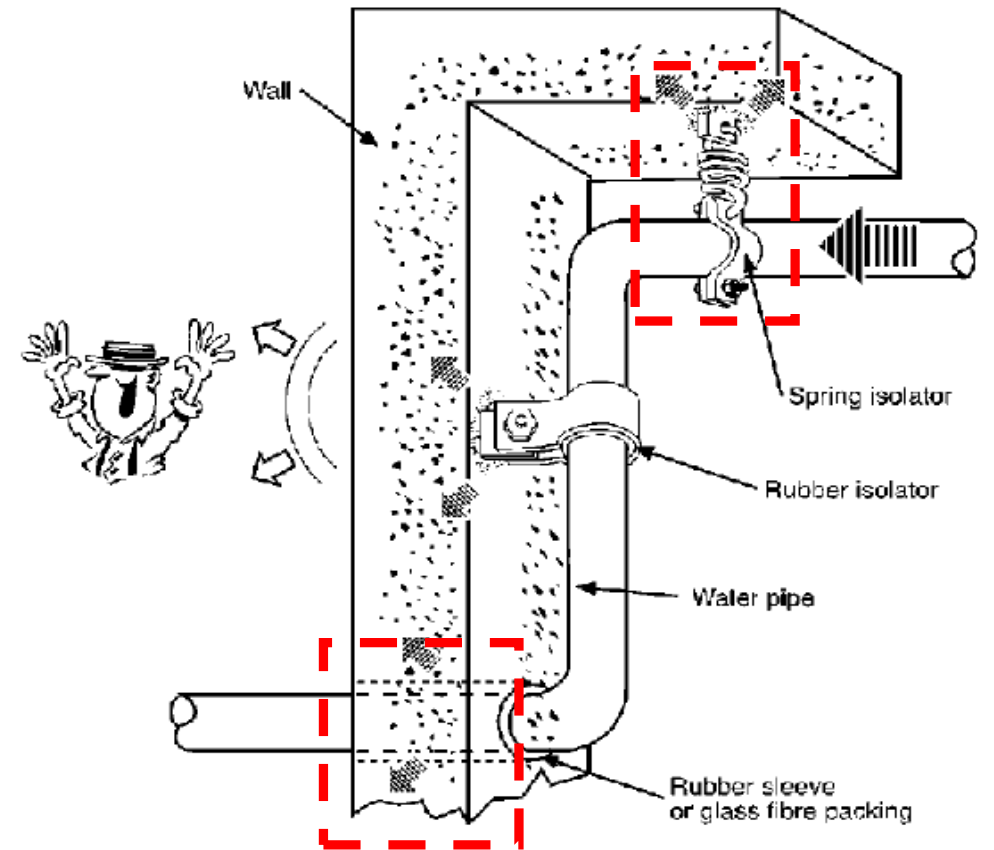


Figure 5 : Vibration Isolation of Pipes

3) Usage of Water Saving Fittings



Standard	10L/ minute	15L/ minute	>6L/ flush	7L/ hour/ bowl	58L/ wash cycle
Efficient	6L/ minute	9L/ minute	4.5L/ flush	0L/ hour/ bowl	39L/ wash cycle
Reduction	40%	40%	25%	100%	30%



Types of Water Saving Fittings

- Self Closing Delayed Action Taps
- Dual Flush Low Capacity Flushing Cisterns
- Sensor Operated Flush Valves
- Water Efficient Urinals



Manually-operated Sensor-operated
Self-Closing-Delayed-Action Tap

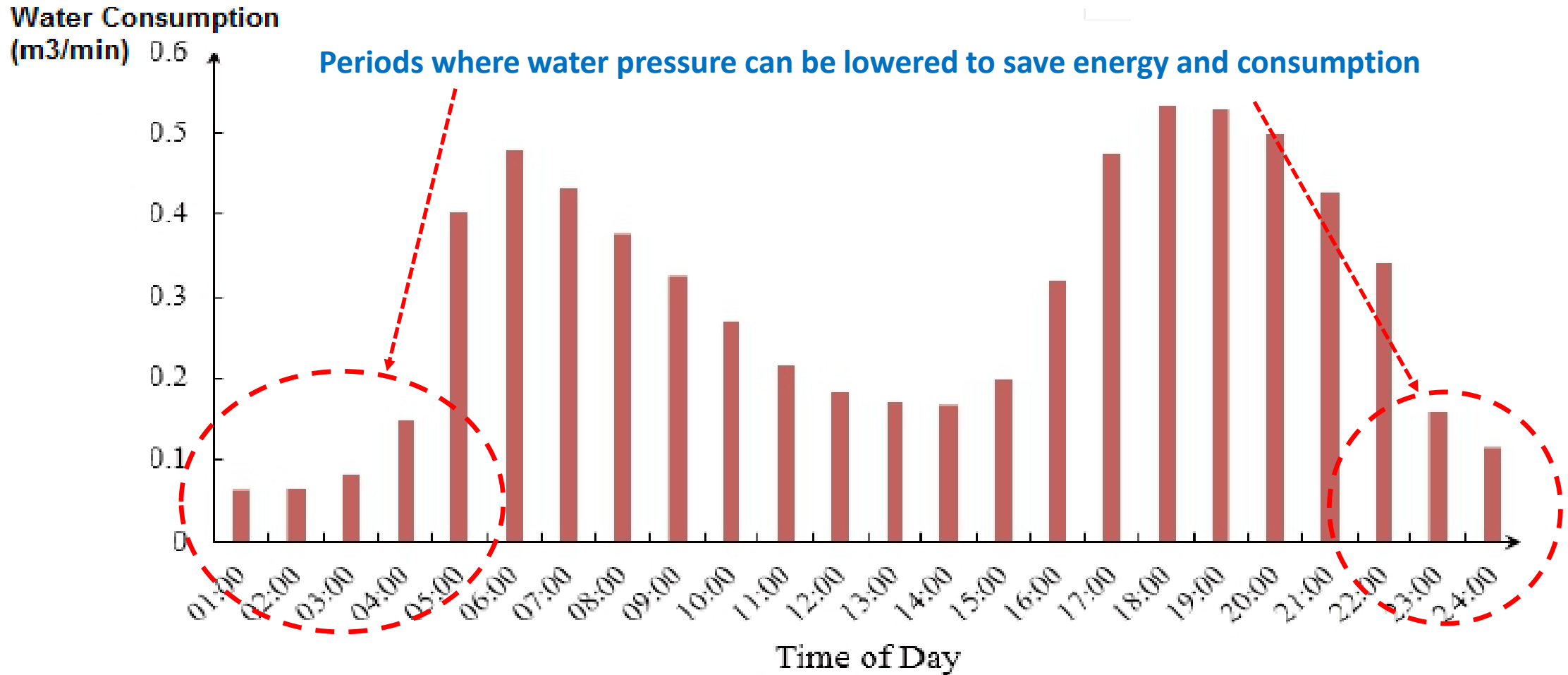


Sensor-operated
Flush Valve
With Sensor Faceplate



Dual Flush LCFC

4) Control Pressure in relation to Water Consumption Pattern



Typical Water Consumption Pattern in a Commercial Building

PUMPS are the HEART of the water system in a building

- Choosing the right pump is the start to a **GOOD** and **COMFORTABLE** water system
- Select pumps from reputable manufacturers that place high emphasis on performance, energy efficiency and quality construction





Questions?

Please take a minute to fill in our Survey by scanning the QR code from screen OR click the link in the Chat column



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