

# Standards Alert

## Technical Specification – Mechanical has been updated.

The specification covers minimum technical requirements for the design, supply and installation of mechanical equipment across Sydney Water assets, including sewage, water, recycled water and stormwater pumping stations, wastewater treatment and water filtration plants, water and recycled water reservoirs. This update introduces enhancements that improve safety, sustainability, and cost efficiency of mechanical components.

### Why has the standard been revised?

Since the last version was released in 2022, over 100 deviations have been recorded, with 50 identified for incorporation into the standard. In addition, feedback from 21 internal and external stakeholders has also been received.

A total of nine major and eight minor improvement areas have been identified, driven by recent innovations and lessons learned from projects. Key focus areas include

- pump vibration testing requirements,
- valves and valve installation,
- dismantling joints,
- sump pumps,
- lobe pumps,
- ventilation,
- surge vessels,
- clarifiers,
- equipment installation

The new revision:

- improves usability by resolving conflicts and ambiguities, and updating references
- enables innovation by expanding the scope to include new equipment and sustainability initiatives, such as carbon footprint considerations.
- improves integration through removing duplicated requirements

### What has changed from the previous version?

Key changes from the previous version include:

- Fall restraint system – new requirements for purlin-mounted metal roof anchor points.
- Bearings minimum basic rating lives aligned with existing codes and industry practice.
- Variable speed pumps vibration tests speed increments requirements defined.
- Valves:
  - installation and supporting requirements,
  - restricted use of resilient seated gate valves in inclined and vertical pipelines,
  - tapped lugged butterfly valves allowed in treatment sites.
- Pneumatic valve actuator section reinstated and expanded.
- Centrifugal pumps and progressive cavity pumps design lives added and factory tests requirements amended.
- New clauses for:
  - segmented ball and gate valves,
  - lobe pumps,
  - sump pumps,
  - drum screens, and
  - surge vessels.
- Pipe materials schedule revised and expanded.
- Ventilation section revised.
- Rotary drum thickener, sludge dewatering and waste gas burner sections deleted – now covered in separate standalone specifications.

- Equipment installation requirements revised and rewritten.

## What are the key benefits and impact to users?

### Faster Design and Lower Costs:

- Aligns with current codes and industry standards.
- Reduces need for deviations and simplifies procurement.
- Enables quicker design cycles and lowers upfront costs.

### Examples:

- eased valve pressure ratings and butterfly valve restrictions → cost-effective selections without performance compromise.
- rationalised pump testing and increased portable actuator speeds → shorter lead times and improved efficiency.

### Improved Safety and Maintainability:

- New provisions for:
  - Non-return valves.
  - Dry-well pump air-bleed arrangements.
  - Lifiable diffuser systems.
- Reduces maintenance risks and improves ergonomics.
- Eliminates hazardous tasks (e.g. working at height, handling compressed gases).
- Enables quicker, safer interventions.

### Sustainability Gains:

- Lighter components and reduced material use → lower carbon footprint.
- Adoption of FRP and PVC-U dampers.
- Rationalised puddle flange requirements.
- Innovative products:
  - Segmented ball valves.
  - PE-ready gate valves → improved flexibility and reduced transition complexity.

### Overall Impact

- Cost savings.
- Safer operations.
- Reduced carbon footprint.

Detailed impact assessment has shown that:

- 56% of the changes reduce lifecycle costs.
- 8% marginally increase capital costs, in each case justified by long term value through

improved safety, performance and reduced O&M costs.

- 40% reduce design/construction time,
- 19% improve safety, and
- 27% deliver positive sustainability outcomes (e.g., lower carbon footprint or less material).

## When can I start using the new standard?

When new or updated engineering standards are published, they apply to projects commenced after the publication date. There is no requirement to apply them retrospectively.

Project managers, however, have the discretion to apply new requirements to in-flight projects where they see benefit.

## Where can I find the new standard?

The guideline is available on [iConnect](#) (for SW staff), [SWDelivery Portal](#) (for SW contractors), and the [Sydney Water website](#).

## How can I provide feedback?

If you have any feedback on this guideline, please contact the author by email at:

[standards@sydneywater.com.au](mailto:standards@sydneywater.com.au).