

CHAPTER 2 - CONSERVATION AND EFFICIENCY: BUILDING SYSTEMS

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502.21 COOLING WATER PURIFICATION TO ENHANCE COOLING EFFICIENCY



INTENT

Purify cooling water to avoid fouling, corrosion and formation of scales in pipelines thereby enhancing efficiency and energy savings.

REQUIREMENT

For all new buildings other than villas, chilled water system shall include water purification unit to prevent any calcification in the system. This shall also enhance the heat exchanger performance.

SIGNIFICANCE

The poor water quality in the chilled water network will lead to microbiological fouling, corrosion and scale formation on the internal surface of pipes, cooling coils and valves. This result in wastage of energy, deteriorate system performance and sometimes leads to early replacement of equipment and components.

The cooling water purification is to ensure that chilled water systems (chillers, air handlers, heat exchangers, etc.) maintains its efficiency and achieves or extends its life expectancy.

APPLICABILITY

This regulation is applicable to all building types except villas. Refer to Table 101.07(1) in Section One - Administration for detailed applicability levels.

IMPLEMENTATION

This regulation aims to control the water quality of cooling water used in closed water system by implementing an appropriate chemical water treatment programme.

A typical chilled water system constitutes a wide range of metallic and non-metallic components. Generally, most of the metallic components are prone to microbially influenced corrosion and pitting corrosion. The non-metallic components such as seals, diaphragms and linings may subject to chemical attack which could cause swelling, softening and cracking etc.

Therefore, it is required to implement a chemical treatment programme for water treatment in a closed water system (i.e. chemical dosing), which is intended for automatic monitoring and controlling of the concentration of chemical dose based on the chilled water quality.

The chemicals used in the system shall have properties of inhibiting corrosion, scale and biofouling. The dosages and target concentrations must be specified and documented by the product supplier.