Microbial Control

Aim of the Credit

To recognise projects that implement systems to minimise the impacts associated with harmful microbes in building systems.

Credit Criteria

1	**Legionella Impacts in Refrigeration Systems**	1 point is awarded where the building either: • is naturally ventilated; • has waterless heat-rejection systems; or • has a water-based heat rejection system that includes measures for Legionella control and a Legionella Risk Management Plan has been provided

Compliance Requirements

1 - Legionella Impacts in Refrigeration Systems

Natural Ventilation and Waterless Heat Rejection

The project meets the requirements of this credit as the building is either naturally ventilated or the cooling systems do not contain water.

Water-Based Heat Rejection System

As an alternative to natural ventilation or Waterless Heat Rejection, a Water-Based Heat Rejection System may be designed to mitigate risks from Legionella in certain climates.

Where water-based heat rejection systems are present, they must be designed and built according to AS 3666.1:2011 and the Victorian Public Health and Wellbeing Act 2008. In addition the system must include the following features

- The water contained in the system is not stored at a temperature between 20°C and 50°C;
- The system does not release an aerosol spray during operation; and
- The system is designed and built to maintain constant movement in the system to prevent water stagnation.

Legionella Risk Management Plan

A Legionella Risk Management Plan shall be provided to the building owner / operator as part of the Building Users Guide. The Legionella Risk Management Plan must meet the requirements of the *Victorian Public Health and Wellbeing Act 2008,* or most recent version of this act.

The Legionella Risk Management Plan must, as a minimum, contain provisions for:

- Regular and periodic inspections (at least monthly) and maintenance of the system(s) (at least every three months) as per AS/NZS 3666.2:2002 or AS/NZS 3666.3:2000;
- Flushing of the system(s) where the system(s) is not in operation for more than three days; and
- Inspection, cleaning and flushing of the system(s) prior to reactivation.

Legionella Growth
Water that is stored at a temperature between 20ºC and 50ºC has a direct impact on the growth of Legionella. The design of the system, and the ongoing maintenance, must ensure that the temperature of the water is not within this range.

Non-compliant Solutions
Disinfection systems, such as ultraviolet light, chlorination, heat or any other method, are not an equivalent method for meeting the Credit Criteria. Drift eliminators are not an acceptable solution to claim the elimination of aerosol spray during operation or maintenance. An aerosol spray is defined as droplets which are suspended in the air. Typically, these droplets are less than five micrometres.

Disclaimer
While the steps outlined in the Credit Criteria and Compliance Requirements have been developed to ensure that the risk of Legionella is eliminated as far as reasonably practicable, achieving this point does not guarantee that the risk of Legionella has been entirely eliminated from the water-based heat rejection system(s), as eliminating it requires constant operational maintenance. The award of points under this credit, confirms only that the system meets this Credit Criterion.

Innovation Opportunities

Innovation Challenge - Microbial Control in Hot Water Systems

A project team may claim an Innovation point where it is demonstrated that hot water systems have also been designed to manage the risk of microbial contamination. This may be done in association with operational practices that are to be implemented, as long as there are also design features that facilitate the achievement of the aim of the credit.

Project teams must contact the Green Building Council of Australia prior to claiming this Innovation Challenge, as compliance requirements are to be developed in collaboration with the project team.

Guidance

Standards Noted in this Credit

- AS/NZS 3666.1:2002 Air-handling and water systems of buildings - Microbial control - Design, installation and commissioning.
- AS/NZS 3666.2:2002 Air-handling and water systems of buildings - Microbial control - Operation and maintenance.
- AS/NZS 3666.3:2002 Air Handling & Water Systems of Buildings – Microbial Control Performance-Based Maintenance.

Other standards can be submitted for approval through a Credit Interpretation Request. For a standard to be recognised, this standard must:

- Have been developed by an industry organisation;
- Demonstrated uptake by the general construction industry; and
- Be specific to address Legionella. The standards must set out detection and recovery mechanisms, or in the case of Legionella, design and management practices.

Documentation Requirements

‘Design Review’ Submission

Project teams are required to submit the documentation marked with an asterisk* for ‘Design review’

As Built Submission

All project teams are to submit the following documentation:

Submission Template*

- Description of the building’s cooling systems*
- Description of Legionella mitigation measures, including system design and maintenance*
    - The operating temperature range or how the system avoids creating an aerosol spray
    - Summary of how the system prevents water stagnation
    - Description of the maintenance process for the system

Project teams are required to provide documentation supporting credit compliance. The following documents may be used to demonstrate compliance:

- **As built drawings of Cooling System** indicating the type and location of all components containing refrigerants and their heat rejection methods.

- **Legionella Risk Management Plan** Demonstrating compliance with AS/NZS 3666.2:2002 or AS/NZ 3666.3:2000; showing the inspection and maintenance periods; and outlining the requirements for flushing and cleaning when the system(s) are not in operation.

- **Extract(s) from the Commissioning Report** demonstrating that the air-conditioning system(s) has been commissioned and found to operate as intended by the design. Where the refrigeration equipment does not use a water based heat rejection system to demonstrate compliance with the Legionella criterion.

Please provide feedback on the technical content of this credit: