

Advisory

A service to A.G.Coombs Group clients

note

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Green Fire – Ten Key Principles for Sustainable Fire Protection Systems

Fire Protection Services are one particular area of buildings that has not been fully explored with respect to sustainable design, maintenance and management. There is significant opportunity to reduce the amount of water they use over their life, to substantially lessen the extent of materials and other environmental impacts required for their installation and ownership, and to lessen the limitations that fire services can sometimes place on achieving broader sustainability solutions and outcomes.

Ten key principles for "Green Fire" are put forward below, grouped for convenience into the categories set out in the Green Building Council of Australia's Green Star Office Design Rating Tool

Water

The most obvious positive impact resulting from environmentally conscious fire services design is reduction in the consumption of the potable water supply. This can come from design consideration of both the automatic fire sprinkler system and hydrant system and is especially important where automatic pumps are used.

1. Fire pumps configured to incorporate either a recirculating test water tank or discharge test water to grey water recycle system to minimise the amount of water used in testing.
2. Sprinkler system drain down arrangements to drain to grey water storage systems where installed.
3. Sprinkler system drain down valves to be located and arranged to allow the isolation and drain down of systems on a floor by floor basis or by zones for larger floor plates.

Materials

4. Where possible reduce the use of PVC sheathed cables and incorporate the selection of cables sheathed in low environmental impact materials such as low halogen type materials.
5. Where possible limit or preclude the use of chromium plated sprinkler heads and incorporate the selection of natural brass or painted finish sprinkler heads
6. Where possible limit or preclude the use of ionisation detectors and use alternative photoelectric types.

7. Likely future modifications to tenancy layout to be considered in design of sprinkler head grid and pipework to maximise adaptability of system and minimise extent of change needed to meet requirements of future layout changes.

8. The installation of flexible sprinkler droppers to be considered to maximise adaptability of the sprinkler system and minimise extent of change needed to meet requirements of future layout changes.

9. Consideration should be given where appropriate to the combination of pipework elements of the fire sprinkler and hydrant systems to minimise the extent of the pipework installation

Management

10. Applying a fire safety engineering approach to determine the most appropriate fire and life safety solution for the building while cognisant of the total environmental impact and environmental design.

In addition, prescriptive fire and life safety solutions can be barriers to the implementation of some broader ESD design solution concepts and a fire safety engineering approach can offer a way to deal with this problem code requirements.

Whilst the key elements set out above are not an exhaustive list of the possible sustainability initiatives in the fire protection services field they do demonstrate that there is considerable opportunity to lessen the environmental impact of the installation and ownership of these systems.

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