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Standard operating procedure

A proposed amendment to AS 1668.1:2015 has been released for public comment. *The use of ventilation and air conditioning in buildings – Fire and smoke control in buildings*. Brett Fairweather, M.AIRAH, explains the ins and outs of what is proposed.



Brett Fairweather, M.AIRAH

A real driver for the amendment to 1668.1-2015 has been the feedback received since the 2015 revision was published. The Standard's sub-committee has had the opportunity to talk to the industry about that revision.

AIRAH's Roadshow on the revised set of Standards last year was a big source of this feedback. Feedback has been generally positive regarding the changes made in the 2015 revision, but this new proposed amendment reflects requests from the industry for further clarifications. Timing wise, we hope the proposed amendment can be resolved in time for reference in NCC 2019.

Like the recent amendment to AS 1668.2, this update to AS 1668.1 is classified as a "revised text amendment". So while there are a number of refinements, there shouldn't be any significant technical changes.

OUTLINE OF PROPOSED AMENDMENTS

The amendments aren't set in stone yet. This is a proposed amendment and it is subject to the Public Comment process. Some notable proposals are:

1. During the amendment process, we discussed some misunderstandings in the application of Zone Pressurisation Systems (Section 8). We had received clarification that these systems were never intended to be applied horizontally between fire compartments, with the ABCB confirming that the BCA only requires this system between multi-storey (vertical) fire compartments, so we adjusted wording in the Standard to prevent any conflict with the BCA. This shouldn't be viewed as a retreat from any current practice, but as the clarification of what was originally intended when the strategy was introduced in the 1991 Standard. I encourage further debate in the industry regarding potential benefits of horizontal applications, but this will need to be supported with needs and evidence that changes are necessary. Appendix A remains as a guide to anyone trying to implement horizontal smoke control in the likes of health and aged-care buildings. Designers should also be aware that this smoke-control strategy relates only to fire compartments, not smoke compartments.
2. Terminology relating to "minor" and "major" systems has been improved. The Standard is very much focused on addressing the increased risk in the spread of smoke when the combined area of openings between fire compartments exceeds 0.1m². These changes exist in the definitions and in Section 5 – Miscellaneous Systems. These revisions in the 2015 edition were intended to establish a prescriptive limit on openings that may "... unduly contribute to the spread of smoke ...".
3. Subduct terminology has progressed again, making it clearer that these should only be used to exempt the use of fire dampers in some exhaust systems and only where these include an opening into fire-rated shafts or ducts. Air needs to continue to flow through subducts to prevent the back flow of smoke, so associated fans must continue to operate in a fire, and fire dampers cannot be installed in series with a subduct at any point through the system's airpath. Use of a subduct at the most upstream point of a smoke exhaust system is unnecessary.
4. We've narrowed the specification of ductwork materials and construction to those requirements relevant to fire and smoke control. While other Standards may specify aspects such as thermal breaks and labelling, this is outside the scope of AS 1668.1 and is best handled by the relevant Standard.
5. A requirement has been added to the clause for the location of external openings to incorporate the common-sense approach of separating fire-isolated exit pressurisation system (stair pressurisation) intakes, so that contamination of one intake doesn't immediately result in the shutdown of multiple exits. There are also some minor adjustments to the protection of electrical components associated with stair pressurisation systems.
6. Other than some minor clarifications in Section 4's diagrams, information relating to the protection of interfaces between the mechanical and fire-protection systems remains unchanged. I'm interested in the views of members regarding the potential reduction in content, to simply refer to AS 1670.1 for these requirements, which is actually the requirement of these clauses anyway. It's intended that this amendment will be published in conjunction with a similar update to AS 1670.1, while we work to eliminate any potential conflicts. A reduction in duplicated text between the Standards might actually make this clearer.
7. It's always good to remind the industry of the importance of baseline data in enabling routine service and performance verification of systems specified in the Standard, so commentary has been added to Clause 4.15, derived from the definition in the recently revised edition of AS 1851.

8. Limitations in the sharing of kitchen exhaust shafts (with another kitchen exhaust, or other ductwork) should now be clearer in Section 6.
9. A note has been added regarding the operation of kitchen hood exhausts in fire mode. While an operating hood must not be shut down in fire mode, it's accepted that an eventual loss of voltage will result in the system stopping anyway (unless the kitchen exhaust is designed to form part of the building's smoke control system).
10. The introduction to Shutdown Systems (Section 7) has been altered to reflect the intent that this section applies to systems that are not required to run in fire mode. A shutdown system in accordance with this Standard is in fact a very basic form of smoke control, with major openings automatically closed and fans stopping to prevent the spread of smoke through ventilation openings. Commentary is added in Section 5 to highlight that the shutdown override also applies to plant manually set to "ON".
11. The 1998 revision introduced the term "above/adjacent" for all doors associated with a stair pressurisation system. This was intended to require the opening of doors in one adjoining compartment for applicable systems, and the proposed wording makes this clearer. Again, I encourage further debate among stakeholders regarding the suitability of this requirement in light of modern research and applications. But suitably supported feedback is necessary before this strategy can be overhauled in a future revision.
12. There are a number of instances where the word "NOTE:" was applied when formatting the final 2015 revision, not as intended by the sub-committee. These have been corrected to prevent any inadvertent non-compliances.
13. Standards Australia has advised us that from this amendment, the publication will no longer be a joint Australian/New Zealand Standard, simply AS 1668.1. Members working in New Zealand will need to keep an eye out on any applicable changes in NZ legislation.

Clarifications should again make these existing requirements easier to follow. I encourage members to review a copy of the draft (available from Standards Australia's website). If any of the proposed wording still seems unclear, comments should be submitted to Standards Australia during the Public Comment period, so the technical sub-committee has the necessary feedback with which to work ■

Comments provided are the opinion of It's Engineered and do not represent advice from Standards Australia or technical sub-committee ME-062-01.