

Section 8 - Bounding Conditions

Clause G8.1 Definition

“Bounding Conditions” is defined in Part A meaning a set of fire safety provisions that must be maintained as a result of a performance-based approach to the fire safety design and that if altered will invalidate the performance-based fire safety design.

Commentary

Definition of the same term in the International Code Council Performance Code for Buildings and Facilities⁶ (IPCBF) as:

Conditions, which if exceeded, invalidate the performance-based design. These could be maximum allowable conditions such as fuel load or type and arrangement of fuel load that must be maintained throughout the life of a building to ensure that design parameters are not exceeded.

In the Users Guide to the IPCBF⁶, it is stated that as:

Bounding conditions, which establishes limitations on changes to the building or facility systems or components, maintenance, and operation features which are identified as critical or necessary preventative features to provide a safe environment for occupants. Bounding Conditions are established by the design professional and have concurrence of the Code Official for performance-based designs. Essentially, Bounding Conditions establish the sensitivity of a design to change.

Clause G8.2 Application

For a project where an Alternative Solution has been developed, the authorized person should document a draft list of Bounding Conditions.

He should include the draft list for submission as part of the general building plans. The final Bounding Conditions will then be specified in the approved general building plans, the fire safety management plan and the DMC as described in Part F.

Commentary

The approach described in this section provides a framework for control of alterations and additions and maintaining fire safety throughout the lifetime of a building designed under a performance-based regime. The Bounding Conditions provide a practical means by which maintenance and management can be undertaken and provided for such a building. Any future additions, alterations or changes of use and all maintenance for active and passive fire safety provisions can be checked against the recorded Bounding Conditions. The Bounding Conditions should be checked to be current and up to date at least annually by building management or owners.

⁶ International Code Council Performance Code for Buildings and Facilities, International Code Council, USA, 2009.

Clause G8.3 Example of Information for Bounding Conditions

The following list is a sample showing information that should be listed for Bounding Conditions and specific information will be required to tailor for buildings adopting performance-based approach on a case-by-case basis:

- (a) Number of floors
- (b) Design occupancy/Use Classification
- (c) List of non-compliances with the Deemed-to-Comply provisions
- (d) Maximum design population
- (e) Maximum design travel distance
- (f) Design number and width of required staircases
- (g) Expected fire load energy density (design upper limit)
- (h) Fire compartment limit(s)
- (i) FRR to structures
- (j) FRR to fire compartments
- (k) Design internal finishes
- (l) Installed fire safety provisions and relevant installation standards
- (m) Others

Commentary

The Bounding Conditions listed in the approved general building plans, fire safety management plan and the DMC can be used for the basis of checking the detailed documentation for the installed fire safety provisions to continuously check for compliance throughout the lifetime of the building.