September 25, 2019

Brian Thompson, P.E.
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Via E-Mail: SBCC@des.wa.gov

Doug Orth
Washington State Building Code Council
1500 Jefferson Avenue SE
PO Box 41449
Olympia, WA 98504-1449

CR-102 / WSR 19-16-158 / IBC 909.6.3
WRITTEN COMMENT AND RE-ASSERTION OF APPEAL

Dear Mr. Orth:

This written comment is provided to publicly express **OBJECTION AND OPPOSITION** to SBCC rulemaking action presented in CR-102 – WSR 19-16-158, including extreme concern regarding apparent circumvention and violation of statutory obligations and rules with the proposed amendment to IBC Section 909.6.3 for smoke control systems.

PRIOR WRITTEN CORRESPONDENCE

My written testimony submitted November 29, 2018 (attached as Exhibit A), as well as the written appeal to SBCC action of July 26, 2019 (attached as Exhibit B) as submitted to Richard Brown on August 7, 2019, as signed by myself and City of Bellevue Assistant Fire Marshal Travis Ripley, are incorporated with this written comment as if fully set forth herein.

WAC 51-04-020

SBCC Rules for the consideration of proposed statewide amendments, as established by WAC 51-04-020, appear to be ignored with the subject CR-102 (WSR 19-16-158).

<u>WAC 51-04-020(3)</u>

Per WAC 51-04-020(1)(a), IBC (International Building Code) is a Group 1 code. Proposed changes to IBC Section 909.6.3 should have had two (2) public hearings with Group 1 per WAC 51-04-020(3). Proposed changes to IBC Section 909.6.3 in the

subject CR-102 (WSR 19-16-158) were not heard at either public hearing of Group 1 codes.

WAC 51-04-020(4)

Per WAC 51-04-020(4), *"Amendments to Group 1 codes during the Group 2 adoption shall be limited to code correlation, errors, language clarification and updated section references."* This rule provides for minor or incidental edits to Group 1 code language during Group 2 adoption without changing the meaning or scope, anticipating that the proposed amendment was heard during both Group 1 public hearings.

However, the proposed amendment to IBC Section 909.6.3, a Group 1 code, contained within the subject CR-102 (WSR 19-16-158) for Group 2 adoption, is not limited to merely a code correlation, error, language clarification, or updated section reference as provided for under WAC; it is a wholesale rewrite which substantially and substantively changes the meaning and scope of the amendment to Section 909.6.3 as had been presented with the Group 1 codes.

GROUP 1 PROPOSED AMENDMENT

The proposed amendment to IBC Section 909.6.3, dated February 20, 2018 and presented with the Group 1 codes, included striking "Section 909 (Smoke Control Systems)" and adding the sentence, "*Stairway pressurization shall not be construed as a smoke control system as required in other portions of the International Building Code or International Fire Code*." The amendment as proposed during Group 1 adoption did not seek specific relief for elevator hoistway pressurization systems.

CURRENT PROPOSED AMENDMENT

The amendment of IBC Section 909.6.3 as contained within the subject CR-102 (WSR 19-16-158) includes specific reference to numerous portions of Section 909 which regulates smoke control systems, thereby imposing certain smoke control system requirements on stairway pressurization which the Group 1 proposal sought to avoid.

In this way, the proposed code language being heard with Group 2 is contrary to the proposed amendment language as heard during the Group 1 hearings which stated, "*Stairway pressurization shall not be construed as a smoke control system*."

Additionally, the amendment of IBC Section 909.6.3 as contained within the subject Group 2 CR-102 (WSR 19-16-158) introduces language which explicitly eliminates

certain smoke control system requirements from elevator hoistway pressurization systems. Such specific language was not provided during either Group 1 public hearing.

Further, the inclusion and exclusion of various IBC Section 909 provisions proposed with Section 909.6.3 in the Subject CR-102 is arbitrary, unjustified, unsubstantiated, and creates conflicts which would not exist but for the proposed amendment; which adherence to WAC 51-04-020(4) should prevent.

Proposed amendments to IBC Section 909.6.3 with this CR-102 (WSR 19-16-158) constitute a material change which should have been heard with Group 1 per WAC 51-04-020(3) and are prohibited from being included with Group 2 per WAC 51-04-020(4).

RCW 19.27.020

There are errors and obfuscations in the subject CR-102 (WSR 19-16-158) with regard to IBC Section 909.6.3 which, in addition to materially changing terms of the provision, are inconsistent with the state's interest established in RCW 19.27.074, that code adoption and amendment by this Council is obligated to maintain.

Page 2 of the subject CR-102 (WSR 19-16-158) summarizes the proposed changes to IBC Section 909.6.3 with the following discussion: "*Specifies which sections of section 909 apply for various conditions*." The sections specified in the proposed amendment to IBC Section 909.6.3 are inconsistent with subsections of RCW 19.27.020, effectively:

(1) Reducing accepted standards of engineering, fire and life safety.

(2) Deviating from nationally accepted standards.

(4) Creating conflicting and unnecessary regulations and requirements which could unnecessarily increase construction costs.

Without the benefit of regular public hearings with Group 1 according to SBCC rules, the proposed changes to Section 909.6.3 cheat the public of numerous protections currently afforded by the code and thereby <u>threaten critical life/safety needs</u>.

The following are bulleted excerpts of select IBC Section 909 provisions which have been adopted verbatim since the 2003 edition of the nationally accepted standards of the model building code, but are <u>disregarded</u> with the proposed 2018 amendment. Discussion of the significance and implications associated with provision follows:

- **909.4 Analysis.** A rational analysis supporting the types of smoke control systems to be employed, their methods of operation, the systems supporting them and the methods of construction to be utilized…

Smoke control systems are comprised of a combination of multiple systems, including electrical, mechanical and fire alarm systems, as well as the building construction itself. Section 909.4 requires a single rational analysis of these various systems which must work together to function as a smoke control system despite likely having each been designed and installed by a different subcontractor.

Lack of coordination, such as may occur in the absence of this nationally accepted standard, may reduce reliability of the life safety system, thereby reducing fire and life safety, or could increase construction costs, violating RCW.

- **909.4.3 Wind effect.** The design shall consider the adverse effects of wind…

Wind affects buildings regardless of height and is relevant to pressurization system design. *Handbook of Smoke Control Engineering* (Klote et al, 2012) (HSCE), published in cooperation with International Code Council, Inc. (ICC), considers the influence of wind regardless of building height.

Particularly considering that ICC is the authoring body of the IBC, HSCE represents accepted standards of engineering for fire and life safety, which are required minimum standards per RCW 19.27.020.

- **909.4.5 Climate.** … Air inlets and exhausts shall be located so as to prevent snow or ice blockage.

In many areas of Washington, seasonal conditions have the potential to block air inlets of the smoke control pressurization system equipment with snow or ice. Full or partial blockage of a pressurization fan inlet could reduce fire and life safety below nationally accepted standards, violating RCW 19.27.020.

- **909.4.6 Duration of operation.** All portions of active or engineered smoke control systems shall be capable of continued operation after detection of the fire event for a period of not less than either 20 minutes or 1.5 times the calculated egress time, whichever is greater.

In the code change proposal dated February 20, 2018, the proponent asserts "*there is no occupant load in the stair to calculate egress time*", such that calculating the duration of system operation is "*not necessary or applicable.*"

The absence of an occupant load in the stair at time zero (t=0) is irrelevant; egress time is calculated based on occupant load of the building. The design of such systems should operate for the required duration to support occupant egress from the building.

If there is no minimum duration of operation, the provisions of IBC Section 909.20.6.1 and 909.21.4.1, which are unmodified by the proposed amendment, and require fire-resistive protection of the equipment for 120 minutes, represent an unnecessary regulation which increase the cost of construction and therefore violate RCW 19.27.020. However, removing such fire-resistive protection would be inconsistent with accepted standards for fire and life safety, also a violation.

- **909.4.7 Smoke control system interaction.** The design shall consider the interaction effects of multiple smoke control systems for all scenarios.

When pressurized stairways and pressurized elevator hoistways open into a common atmosphere (e.g. corridor or lobby) there is an interaction between the systems for which HSCE provides design guidance. If the design does not consider such interaction, construction costs may unnecessarily increase, violating RCW 19.27.020.

- **909.5 Smoke barrier construction.** Smoke barriers required for passive smoke control and a smoke control system using the pressurization method shall comply with Section 709. The maximum allowable leakage shall be the aggregate area calculated using the following leakage area ratios:
  2. Interior exit stairways…

Interior exit stairways provided with a smoke control system using the pressurization method should be required to meet requirements for construction to limit leakage consistent with accepted standards of engineering, fire and life safety. Omitting this requirement violates RCW 19.27.020.

- **909.10.3 Equipment, inlets and outlets.** Equipment shall be located so as to not expose uninvolved portions of the building to an additional fire hazard. Outside air inlets shall be located so as to minimize the potential for introducing smoke or flame into the building.

Section 909.21.1 recognizes the risk of blowing contaminated air into the building during a fire and prescribes 20 feet separation between elevator hoistway inlets and other air outlets. No similar protection is prescribed for stairway pressurization, save Section 909.10.3. Omitting this requirement violates RCW.

- **909.16.2 Smoke control panel.** The fire fighter's control panel shall provide control capability over the complete smoke control system equipment within the building as follows:
  1. ON-AUTO-OFF control over each individual piece of operating smoke control equipment that can also be controlled from other sources within the building. This includes stairway pressurization fans; smoke exhaust fans; supply, return and exhaust fans; elevator shaft fans and other operating equipment used or intended for smoke control purposes.

> Among the individual pieces of smoke control equipment identified are "*stairway pressurization fans*" and "*elevator shaft fans*." Accordingly, it is clearly within the requirements of nationally accepted standards for a smoke control panel to be provided, consistent with RCW 19.27.020.

FLAWED PREMISE

The explicit identification of certain sections and sub-sections, and exclusion of others, appears to be an effort, albeit flawed, to delineate which specific provisions are applicable for a particular building. However, this is wholly unnecessary and in large part redundant. Further, it will not ensure consistent requirements across the state.

UNNECESSARY

Section 909.2 of the IBC, which the proposed amendment even retains, already states that smoke control systems need only be "*designed in accordance with the applicable requirements of Section 909.*" Therefore, parsing the building code as proposed with IBC Section 909.6.3 in this CR-102 (WSR 19-16-158) is completely unnecessary.

For example, in accordance with IBC Section 909.2, the current building code already permits design of a stair pressurization system without evaluation of a design fire, because a design fire is not an applicable requirement. Accordingly, the problem the proponent cites in his February 20, 2018 proposed code amendment is non-existent; it is not needed to address a critical life/safety need nor to correct an error or omission.

The proposed amendments to IBC Section 909.6.3 are unnecessary.

CONTRADICTORY

Section 909.2 of the IBC also requires that smoke control systems be in accordance with "*generally accepted and well-established principles of engineering relevant to the design.*" HSCE Figure 10.1 presents a "simple" apartment building with stair pressurization only. Many buildings applying the allowance per Section 504.4 of the Building Code for an extra story of wood-frame construction include a degree of complexity which exceeds that which HSCE deems a "simple" building.

Further, "The design of pressurized elevators is much more complicated than design of pressurized stairwells" (HSCE, p. 247)." Usually buildings where elevator hoistway pressurization is present will also be equipped with stairway pressurization. Chapter 11 of HSCE devotes its focus to "both of these pressurization systems operating together."

Referencing Section 909.2 while excluding other provisions, particularly Section 909.4.7, is flagrantly contradictory. Higher construction costs have been incurred by projects which failed to properly account for the interaction of these systems.

INCONSISTENCY

The Building Code adopted by the state establishes only a minimum standard which may be amended by individual jurisdictions. Written public testimony submitted July 11, 2019 by Travis Ripley, City of Bellevue Assistant Fire Marshal, indicates that local amendments multiple jurisdictions could be anticipated "to combat the State changes." Such local amendments would be necessary to maintain the level of fire and life safety prescribed with smoke control systems since the first edition of the IBC was adopted in Washington, versus accepting the reduction contained in 2018 rule making.

The result of adopting the proposed amendment to IBC Section 909.6.3 would be inconsistent smoke control provisions throughout the state, and inconsistent levels of fire and life safety.

Not only does this lessen the level of fire and life safety in jurisdictions enforcing only the minimum Building Code provisions to less than that seen in decades, but will also increase the cost to small businesses who work in multiple jurisdictions and would be navigating inconsistent smoke control system requirements.

CONSIDERATION

Smoke control systems involve performance-based design and are not one-size-fits-all. Section 909.2 of the IBC as previously adopted by this Council with the 2003, 2006, 2009, 2012, as well as the current 2015 IBC, only requires provisions of Section 909 be applied to the extent applicable to the individual smoke control system. This provision persists in the 2018 IBC.

Since adoption of the 2003 IBC it has been the responsibility of the smoke control system designer to determine which provisions are applicable, and for the cognizant official to enforce those provisions. This would survive without amendment to 909.6.3.

The first appearance of Section 909.6.3 in the 2015 IBC was not a code change, but rather a clarification. This provision was specifically considered by the TAG with the 2015 code cycle and appropriately adopted by this Council. As presented with Exhibit A, applicable provisions of IBC Section 909 for stair pressurization systems in the 2012 and 2015 Editions of IBC are consistent.

It would be reckless to reduce pressurization requirements in the 2018 edition.

What this proposed rulemaking does demonstrate is that it is critical not only for design of smoke control systems, including stairway and elevator hoistway shaft pressurization systems, to be prepared by a professional engineer experienced in smoke control engineering, but that these systems should be reviewed by someone knowledgeable and experienced in smoke control engineering.

CONCLUSION

The proposed amendment to IBC Section 909.6.3 in CR-102 (WSR 19-16-158) contradicts the SBCC conditional decision at the first public hearing for Group 1 in 2018 and extends far beyond editorial revisions to a single sentence suggested at the second Group 1 public hearing in July. Additionally, the proposed text of IBC Section 909.6.3 is contrary to the state's interest and the public welfare.

Accordingly, the proposed amendment to IBC Section 909.6.3 as presented for rule making in the subject CR-102 (WSR 19-16-158) is an abomination of the state's code adoption process, **evasion of rule** (WAC 51-04-020), **violation of law** (RCW 19.27), and a **threat to public welfare** upheld by this Council since adoption of the 2003 IBC.

As the intent of the proposed amendment to Section 909.6.3 is already addressed by IBC Section 909.2, the provisions of **IBC Section 909.6.3 in the 2018 code should remain identical to that adopted by this Council in the 2015 IBC.**

Respectfully submitted,

Brian C. Thompson, P.E.
Fire Protection Engineer
(425) 745-4700 x105

Digitally signed by Brian C. Thompson
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Attachments

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EXHIBIT A

November 29, 2018

VIA E-MAIL: sbcc@ga.wa.gov

Washington State
Building Code Council
1500 Jefferson Ave SE
PO Box 41449
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CODE AMENDMENT PROPOSAL B14-2018
LETTER OF OPPOSITION

Honorable Council:

Please accept this written public comment, submitted in advance of the November 30, 2018 hearing, in opposition of Log Number B14-2018, "Stair-enclosure pressurization increase." This letter is offered consistent with WAC 196-27A-020(1).

Firstly, as a point of fact, the proposal should be deemed incomplete as each of the 3 editions of the form submitted by the proponent as provided with the meeting agenda is incomplete. In every proposal form provided, not a single box in Question 1 is checked to identify the applicable code. The form states, "All questions must be answered to be considered complete. Incomplete proposals will not be accepted."

Secondly, as a point of order, the initial form of the proposal sought only to amend IBC Section 504.4.1, and was therefore administered by the Building Code TAG. The submitted proposal form was later revised to add Section 909.6.3, which should be heard by the Fire Code TAG. The description of the proposal, "Stair-enclosure pressurization increase" is misleading, as the proposed amendments to Section 909.6.3 reduce the diligence prescribed for design and construction of high-rise buildings.

While this opponent appreciates the proponent's long-standing service to the Council, including our prior service together on the Fire Code TAG over 10 years ago, it is essential that the rules and standards be applied consistently. As every proposal presented with Log Number B14-2018 is incomplete, according to the terms of the proposal form itself, it should not have been accepted.

The forgoing findings notwithstanding, the following explanation is offered to express specific opposition to the subject code amendment proposal, demonstrating:

- ✓ Denial of this amendment is needed to address a critical life/safety need.
- ✓ Denial of this amendment is needed to address a specific state policy or statute.
- ✓ Denial of this amendment avoids errors and omissions.

HISTORY

The proponent acknowledges that the 2015 IBC TAG, of which this opponent was a member as a Fire Protection Engineer representative, recommended to revise the language in IBC Section 504.4.1 to simply refer to Section 909. This issue was debated and settled by the 2015 IBC TAG with the resulting recommendation. The proposed amendment, submitted by an individual, effectively undoing the work of the 2015 IBC TAG, should be denied.

CREDENTIALS

A relatively small subset of professional engineers hold the title Fire Protection Engineer, and their knowledge and experience can be varied. Opposition to B14-2018 presented in this letter draws upon my expertise in design and special inspection of smoke control systems, including stair pressurization systems.

In 2006 I founded AEGIS Engineering and serve as Principal Fire Protection Engineer with professional registration throughout the western United States. My education includes a Master's Degree in fire protection engineering from Worcester Polytechnic Institute in Massachusetts. Prior employment includes fire protection engineering consultancies in Chicago and San Francisco, and I have complimentary experience in firefighting, forensic investigation, and civil engineering.

In 2008 I spoke at the NFPA World Safety Conference and Exposition on the topic of smoke control. Since that time, multiple jurisdictions throughout the Puget Sound region have engaged AEGIS Engineering to provide technical assistance in review of smoke control system construction documents, including stairway pressurization systems. Last month I was a presenter at the Fire and Evacuation Technical Modeling Conference.

I was a member of the Fire Code TAG for the 2009 Edition, the Building Code TAG for the 2015 Edition, and currently serve on the L&I Elevator Safety Advisory Council. I am also a professional member of ICC, NFPA (and NFPA Architects, Engineers and Building Officials Section (AEBO)), SFPE (and SFPE COA Public Policy Task Group).

2015 CODE REVISIONS

That revision recommended by the 2015 IBC TAG addressed a critical life/safety need created by the inconsistent application of standards by designers and local authorities, and assured consistency with IBC Section 909.6.3, a new provision in the 2015 Edition.

Section 909.6.3 entered via ICC Code Change No. F189-13, see attached. This code change brought Section 909.6.3 to the Fire and Building Code (and Section 513.6.3 of the Mechanical Code) in the 2015 Edition. This code change was approved by the committee as submitted, and no dissent was recorded from the assembly. This provision was not modified with the 2018 Edition, and appears unchallenged with the 2021 Edition as well.

The cost impact identified in ICC Code Change No. F189-13, as submitted by a public fire authority, is none; zero. Therefore, as ICC recognizes no cost burden associated with this language, there should be no monetary relief to evading it. This point is further clarified in the Economic Impact section below.

CRITICAL LIFE/SAFETY NEED

The form submitted with B14-2018 asserts that this amendment is needed to address a critical life/safety need. This claim is false; this amendment is not needed to satisfy this criteria. The life/safety need is better served by keeping 504.4.1 and 909.6.3 as-written, without amendment. The proposed amendment should be denied.

The provisions for stairway pressurization in Section 909.20 cannot simply be divorced from all other provisions of Section 909 without jeopardizing the life/safety of the public. Pressurized interior exit stairways and elevator hoistways help protect occupants in high-rise buildings, as well as in combustible structures which enjoy an additional story, in the event of a fire, but only if they function when needed. Requirements for the fan equipment to serve these systems cannot be found in either Section 909.20 or 909.21.

Rather, fan equipment requirements to ensure reliable and stable performance critical to the life/safety need they support are found in IBC Section 909.10.5. This is but one example of how the other provisions of Section 909, as prescribed by Section 909.6.3 in its original form, are necessary to provide the degree of life safety intended by Sections 909.20 and 909.21.

STATE POLICY OR STATUTE

WAC 51-50-0504 increases the allowable number of stories permitted in Type VA (combustible, wood frame) construction occupied by Groups R-1 and R-2 (e.g. hotels,

apartments, residential condominiums). State Building Code Interpretation 17-17 extends this provision to licensed care facilities (Group I-1 Condition 2).

Absent stair pressurization as provided for in Section 504.4.1, such a building would need to be of wholly non-combustible construction in order to remain the same number of stories. Therefore, to the extent that the installation of stair pressurization is allowing the substitution of wood framing for steel, such stair pressurization systems must be reliable for the State policy or statute to not jeopardize the public welfare.

B14-2018 erodes such reliability and should be denied.

ERRORS AND OMISSIONS

The individual proponent suggests that current language is in error. As discussed above, the acceptance of the model language in Section 909.6.3 and revised language in Section 504.4.1 was purposefully and dutifully considered by the 2015 IBC TAG. These provisions were subject to public hearings and Council approval prior to adoption.

No error or omission exists with the existing language; B14-2018 should be denied.

ECONOMIC IMPACT

The proponent's assertion that there is an economic impact contradicts the record established with ICC Code Change No. F189-13. There should be no cost impact to retaining the language from the 2015 Edition.

There is no cost impact because the code already intends for pressurization systems serving interior exit stairways and elevator hoistways of Sections 909.20 and 909.21, respectively, to comply with the provisions of Section 909. Examples of this are found within the following provisions, excerpted below:

> **909.1 Scope and purpose.** "This section applies to mechanical or passive smoke control systems when they are required by other provisions of the code. The purpose of this section is to establish minimum requirements for the design, installation and acceptance testing of smoke control systems that are intended to provide a tenable environment for the evacuation or relocation of occupants."

The heading of Section 909 is, "Smoke Control Systems." Therefore, systems described in Section 909 are "smoke control systems." Accordingly, the pressurization systems in IBC Sections 909.20 and 909.21 are smoke control systems.

The heading of Section 909.20 is "Smokeproof enclosure." Certainly the intent of an interior exit stairway which is a "Smokeproof Enclosure" is to provide a tenable environment for the evacuation or relocation of occupants. Therefore, by prescribing that pressurization be provided in accordance with Section 909.20, a smoke control system is prescribed.

> **909.2 General design requirements.** "...in accordance with the applicable requirements of Section 909 and the generally accepted and well-established principles of engineering relevant to the design."

In 2012, a reference text was published by ASHRAE, in cooperation with ICC, NFPA and SFPE, titled, Handbook of Smoke Control Engineering. Involvement of ICC is remarkable, the organization could have abstained. The text provides design guidance for pressurization systems in both "simple buildings" and "complicated buildings."

Just because a building is only 5 stories tall does not mean it is a "simple building." A design professional component in smoke control engineering should assure compliance with IBC Section 909.2 for pressurization systems described in Sections 909.20 and 909.21. Special attention is often warranted, such as when a pressurized shaft has openings to differing atmospheric or building conditions, or where multiple pressurized shafts open into a common space, such as a lobby or corridor. Failure to account for these nuances of a building jeopardizes the life/safety the system is intended to afford.

> **909.16.2 Smoke control panel.** "The fire fighter's control panel shall provide control capability over the complete smoke control system equipment... This includes stairway pressurization fans; ...elevator shaft fans and other operating equipment used or intended for smoke control purposes."

Section 909.16.2 specifically identifies fans employed for pressurization systems of Sections 909.20 and 909.21 as smoke control system equipment. Further, this indicates that the provisions of Section 909.16 are all applicable, and accordingly the provisions of Section 909.12 through 909.12.4 must also be applicable.

Further substantiation that stair pressurization systems were intended by ICC to be treated as smoke control systems prior to the revisions with the 2015 Edition is found in the 2012 Commentaries to the IBC. Attached is a highlighted selection of commentary with Section 909.20.5 which clearly indicates that smoke control provisions of Section 909 are applicable to stair pressurization systems.

CONCLUSION

Log Number B14-2018, "Stair-enclosure pressurization increase," reaches far beyond the allowance of IBC Section 504.4.1. The proposed language alters Section 909.6.3, eroding the level of life/safety intended with pressurized stairways, whether in a 5-story wood-frame building or 50-story high-rise tower. B14-2018 should be denied.

Prescribing that stairway pressurization systems comply with all requirements of Section 909 ensures consistent application of the applicable codes and standards by designers and code officials. This contributes to the reliability of the systems and maintains the level of safety intended by the code. Code changes in the 2015 Edition were made to clarify the minimum standard for safety and promote common and consistent application and enforcement of the applicable standards. The proposal erodes this progress and jeopardizes the level of safety currently assured. B14-2018 should be denied.

For the reasons presented in this letter, the Council is urged to deny B14-2018.

Please contact me at (425) 745-4700 or via e-mail at BrianT@AEGISengineering.com for clarification or questions regarding the information presented in this letter.

Sincerely,

AEGIS ENGINEERING, PLLC

Brian C. Thompson, P.E

Attachments

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Code Change No: F189-13

Original Proposal

Section(s): 909.6.3 (New) [IBC [F] 909.6.3 (New), IMC [F] 513.6.3 (New)]

Proponent: Bob D. Morgan, P.E., Fort Worth, TX Fire Department representing Fire Advisory Board to North Central Texas Council of Governments

Revise as follows:

909.6.3 (IBC [F] 909.6.3, IMC [F] 513.6.3) Pressurized stairways and elevator hoistways. When stairways or elevator hoistways are pressurized, such pressurization systems shall comply with Section 909 as smoke control systems, in addition to the requirements of the Building Code Sections 909.20 and 909.21.

Reason: Section 909.6.3 specifically requires that stairway pressurization systems must comply as smoke control systems. Currently, Sections 909.20 and 909.21 of the Building Code are not copied into the Fire Code, leading to inconsistency with regards to design and controls for such systems, as well as, uncertainty on the part of designers as to the appropriate authority with regards to such. These are complicated systems and involve coordination between fire alarm systems and mechanical components – such should be a coordinated effort between Building and Fire Code Officials.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing Results

Committee Action: **Approved as Submitted**

Committee Reason: The committee agreed with the proponent's reason statement that the code change provides needed correlation with the IBC.

Assembly Action: **None**

Final Hearing Results

F189-12 **AS**

to be available when all doors are closed. This pressure difference is lower than that required by the stair pressurization alternative. This would not be considered a pressurized stair. This pressure difference would need to be tested to obtain approval once constructed.

909.20.5 Stair pressurization alternative. Where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the vestibule is not required, provided that interior *exit stairways* are pressurized to a minimum of 0.10 inches of water (25 Pa) and a maximum of 0.35 inches of water (87 Pa) in the shaft relative to the building measured with all *stairway* doors closed under maximum anticipated conditions of stack effect and wind effect.

❖ This method is allowed only when the building is fully sprinklered. This is partially related to the fact that these pressure differences were developed based upon a sprinklered fire. It should be noted that smokeproof enclosures are not required to be in fully sprinklered buildings, but the areas where smokeproof enclosures are required are often sprinklered buildings (i.e., high-rise buildings). This alternative would not require vestibules or an exterior exit balcony. The criteria for smoke control design is provided in terms of minimum and maximum pressure differences of 0.10 inch (37 Pa) of water and 0.35 inch (87 Pa) of water, respectively, between the shaft and the building. This pressure difference is to be achieved when all doors are closed and maximum conditions of wind and stack effect have been taken into account. It should be noted that additional limitations may be placed on the maximum pressure differences for pressurized stairs due to the lower opening forces required in order to comply with Section 1008.1.3. If the maximum pressure difference of .35 would exceed the requirements of Section 1008.1.3, the maximum pressure difference would need to be lowered. Also note that Section 404.2.8 of ICC A117.1 would not require opening forces to be lowered for accessibility purposes if the door is a fire door. Finally, as with all other smoke control systems addressed in Section 909, such systems need to be designed through a rational analysis, tested and documented as such.

909.20.6 Ventilating equipment. The activation of ventilating equipment required by the alternatives in Sections 909.20.4 and 909.20.5 shall be by smoke detectors installed at each floor level at an *approved* location at the entrance to the smokeproof enclosure. When the closing device for the *stair* shaft and vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall activate and operate at the required performance levels. Smoke detectors shall be installed in accordance with Section 907.3.

❖ This section clarifies that the activation mechanism for both mechanical means of smoke management for interior exit stairways in Sections 909.20.4 and 909.20.5 should be via a smoke detector located at each level outside the door leading into the vestibule and stairway, respectively. For systems that use automatic-closing devices on the doors, whether for vestibules in smokeproof enclosures or for pressur-

August 5, 2019

EXHIBIT B

Via E-Mail: richard.brown@des.wa.gov

Richard Brown
Managing Director
Washington State Building Code Council
1500 Jefferson Avenue SE
PO Box 41449
Olympia, WA 98504-1449

RE: APPEAL TO B14-2018 RULEMAKING ACTION

Dear Mr. Brown:

This written appeal is provided to formally express **OBJECTION** to SBCC action as occurred July 26, 2019 by both authors of written public testimony to B14-2018, including IBC/IFC 909.6.3.

Action at the July 26, 2019 SBCC committee meeting on B14-2018 with IBC/IFC 909.6.3, as well as IBC 403.5.4, 405.7.2 and 412.2.2.1, was inconsistent with established rules, including WAC 51-04-020.

B14-2018 PUBLIC HEARINGS

The subject language was brought before its first public hearing at the SBCC meeting November 30, 2018. One written public comment in opposition to B14-2018 was submitted by Brian Thompson, P.E. in advance of that meeting.

Minutes of that meeting record vocal opposition to the proposed language by multiple fire department officials and private consultants. The SBCC action in response to this discussion approved the proposed language, subject to running through the positives and negatives of the proposed language in B14-2018 so there would be an opportunity to deal with it as a group at the next public hearing.

No record of such scrutiny as called for by SBCC is apparent. The proposed language was unchanged before the second hearing on July 12, 2019. In advance of that hearing, Travis Ripley (Asst. Fire Marshal, City of Bellevue) submitted written public testimony in opposition to the proposed language. SBCC acknowledged at the July 12, 2019 meeting that previous written comments (e.g. from Brian Thompson, P.E.) still stand, and need not be re-entered.

No running through of the positives and negatives of B14-2018 proposed language occurred at the public hearing. Therefore, the condition for approval established by SBCC at the first public hearing was unfulfilled. Accordingly, the proposed amendment to IBC/IFC 909.6.3 should not be approved.

Eric Vander May characterized his comments offered during the second public hearing as “editorial in nature.” Vander May stated a need only to revise the first sentence of 909.6.3 to clarify 909.20 of the IBC versus the IFC, and 909.21 of both codes.

B14-2018 COUNCIL ACTION

At the July 26, 2019 SBCC meeting B14-2018, including IBC/IFC 909.6.3 was on the agenda for council action and closed for public comment.

Substantial changes, which were stated to have been developed by one individual (not a committee or TAG) the day after the last public hearing, reach far beyond what was discussed at the last public hearing and without running through the positives and negatives upon which SBCC conditioned its acceptance of B14-2018 at the first meeting.

Drastic changes to IBC/IFC 909.6.3 as acted upon by SBCC were developed outside a consensus process involving a committee or TAG were approved without opportunity for public comment, far in excess of what was indicated at the final public hearing, and contradictory to SBCC’s decision and action after the first public hearing.

CR-102 INTERNAL CONFLICT

It is asserted in the CR-102 document for 2018 IBC rulemaking that the amendment to IBC/IFC 909.6.3, “Returns the design requirements of a stairwell pressurization system to what was allowed under the 2012 model code.” The language approved by SBCC on July 26, 2019 fails to do this.

Based on evidence from ICC, the model code organization responsible for the IBC and IFC, as submitted with Thompson’s written testimony, IBC/IFC 909.6.3 as adopted by SBCC with the 2015 codes is identical to the design requirements of a stairwell pressurization system allowed under the 2012 model code.

Therefore, consistent with the discussion presented in the CR-102 and both public hearings, any amendment of IBC/IFC 909.6.3 should be limited to that involving the first (and only) sentence of the model code language.

CONCLUSION

With the first public hearing, SBCC conditioned its acceptance of the language proposed with B14-2018 upon running through the positives and negatives so that it could be dealt with at the public hearing.

At the second public hearing, only changes to the first sentence of IBC/IFC 909.6.3 were discussed, which were characterized as "editorial in nature."

Contradicting SBCC action decided at the first public hearing, extending far beyond editorial revisions to a single sentence identified at the second public hearing, and in conflict with the discussion presented in the CR-102, the amendatory language to IBC/IFC 909.6.3 as accepted July 26, 2019 by SBCC is an abomination of the consensus process and public involvement ensured by WAC 51-04-020.

Please ensure the process is upheld, and strike amendatory language of B14-2018 which:

1. Failed to satisfy the condition set by SBCC with the first public hearing,
2. Involves language which was not vetted by a committee or TAG,
3. Involves language which was not provided in time for public comment, and
4. Contradicts the corresponding discussion statement in the CR-102.

Consistent with the discussion presented in the CR-102 and SBCC action at both public hearings, amendment of IBC/IFC 909.6.3 should be limited to that involving the first (and only) sentence of the model code language:

> Where stairways or elevator hoistways are pressurized, such pressurization systems shall comply with Section 909 as smoke control systems, in addition to the requirements of Sections 909.20 of this code <u>for stairway pressurization</u> and 909.21 of <u>this code and</u> the *International Fire Code* <u>for elevator hoistway pressurization</u>.

or nothing at all.

Feel free to contact authors of this appeal with any questions.

Very respectfully,

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Very respectfully,

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