

IEBC



2022 GROUP B PUBLIC COMMENT AGENDA

SEPTEMBER 14 - 21, 2022
KENTUCKY INTERNATIONAL CONVENTION CENTER
LOUISVILLE, KY

2022 Public Comment Agenda

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by

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PRINTED IN THE USA

Proposed Change as Submitted

Proponents: Gwenyth Searer, representing myself (gsearer@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Revise as follows:

[BS] DISPROPORTIONATE EARTHQUAKE DAMAGE. A condition of earthquake-related damage where both of the following occur:

1. The 0.3-second spectral acceleration at the building site for the earthquake in question, as estimated by the most recent algorithm of the United States Geological Survey for the point closest to the site or as determined from seismograph records from the site or from locations closer to the site than the algorithm-provided data points, ~~for the earthquake in question~~ is less than 40 percent of the mapped acceleration parameter S_S .
2. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 10 percent from its predamage condition.

Reason: Now that this upgrade trigger has been in the code for a cycle, it has been tested during recent earthquakes. A number of issues have been identified, including the following:

1. The United States Geological Survey (USGS) publishes spectral acceleration estimates that are generated by the USGS as well as estimates that are generated by regional entities that are not required to adhere to the most recent and up-to-date USGS algorithm.
2. The USGS algorithm is modified over time, and some of the regional entities that publish the estimates of spectral acceleration do not in fact use the most recent and up-to-date algorithm provided by the USGS.
3. The estimates of spectral acceleration for a given earthquake change over time as more and more data becomes available and is processed and aggregated.
4. In some cases, the data aggregated by the USGS may not include all seismographs that are close to the building site. For example, some buildings have seismographs on site, but the data from those seismographs may be owned by the property owner and is often not available to the USGS. In these cases, the USGS-based estimates (which combine both quantitative data from seismographs and qualitative/subjective results from Did You Feel It? surveys of lay people) may be dramatically different than what was actually recorded at or very close to the site.
5. The USGS has indicated that interpolation between their published grid points introduces additional uncertainties and is therefore not recommended. They recommend instead to use the data point closest to the site.

This proposal attempts to address Issues 1, 2, 4, and 5 by clarifying that it is the algorithm that is provided by the USGS that should be used, clarifying that the most recent version of the algorithm should be used, clarifying that the grid point closest to the site that should be used, and requiring that data from actual seismographs get preference when the seismographs are closer than the nearest USGS data grid point.

These are all commonsense changes that will improve the accuracy of determining whether or not a specific building has experienced disproportionate earthquake damage.

Note that Issue 3 is not addressed here, as we hope it is clear to all building officials and engineers that the most up-to-date estimates should be used as opposed to superseded results.

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

This proposal will alter the cost to comply with the disproportionate earthquake damage trigger. In some cases, this proposal may increase the cost of construction (e.g., where using less accurate estimates from a superseded algorithm -- or ignoring data from an on-site seismograph -- would have indicated that the earthquake had greater damage potential at the site than it actually had). This proposal could also decrease the cost of construction (e.g., where using less accurate estimates from a superseded algorithm -- or ignoring data from an on-site seismograph -- would have indicated that the earthquake had less damage potential at the site than it actually had). And it may result in larger or smaller construction costs on a building-by-building basis for the same earthquake, depending on the shaking that actually occurred at the site versus the estimates mandated by the currently existing language. For many if not most buildings, however, it won't make a difference at all, which is why the cost option "will not increase or decrease" is selected above.

Committee Reason: Disapproved based on concerns with the proposed wording since as phrased any close seismograph record could be utilized even if that record was not justified. The committee emphasized that the existing wording provided a clear direction. (Vote: 9-5)

Individual Consideration Agenda

Public Comment 1:

IEBC: SECTION 202

Proponents: Gwenyth Searer, representing myself (gsearer@wje.com) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

[BS] DISPROPORTIONATE EARTHQUAKE DAMAGE. A condition of earthquake-related damage where both of the following occur:

1. The 0.3-second spectral acceleration at the building site for the earthquake in question, as estimated by one of the following, is less than 40 percent of the mapped acceleration parameter S_s :
 - 1.1. The ~~the most recent algorithm of the~~ United States Geological Survey's algorithm for the data point closest to the site or
 - 1.2. As determined from peer-reviewed seismograph records from the site or from locations closer to the site than the algorithm-provided data points, is less than 40 percent of the mapped acceleration parameter S_s .
2. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load-carrying capacity of any story in any horizontal direction has been reduced by more than 10 percent from its predamage condition.

Commenter's Reason: Although the Committee appeared to be supportive of this proposal, and although no one testified against the proposal, the Committee and people who provided testimony requested several changes:

1. Make the various components of Item 1 into a list, which I have done.
2. For Item 1.2 make it clear that the data must be peer-reviewed in some fashion so that the data cannot be from an iPhone or other ad-hoc recording, which I have done by adding the words "peer-reviewed" to the words "seismograph records".
3. For Item 1.1 make it clear to use the USGS's algorithm map and data but not say "the most recent version". Although I have complied with the request to delete "the most recent version" from the proposal, the USGS revises its algorithms and its data over time, which means that the maps change over time. I must point out that this is an issue that neither the original proposal nor this public comment created. Although the maps largely stabilize as less and less incremental data is added, and changes are less and less significant; the maps do change over time -- this is a problem inherent in using the USGS data that was already a problem with the existing trigger.
4. I moved the language associated with the mapped acceleration parameter S_s before items 1.1 and 1.2 to ensure that the language applies to both items.

I have made all of the changes requested, and given that the Committee was supportive of the concept but first wanted to see these changes, I respectfully ask that the Assembly vote to approve this proposal as modified by this public comment. Thank you.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. As stated in the original proposal, the purpose of this proposal (and public comment) is to make the determination as to whether or not a building experienced disproportionate earthquake damage more accurate. Consequently, this may increase the costs of repair for some buildings and decrease the costs for others. For most buildings, the costs will remain the same, which is why I selected "not increase or decrease".

EB5-22

Proposed Change as Submitted

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com)

2021 International Existing Building Code

Add new definition as follows:

DISTINCT HAZARD. Any clear and evident condition that exists as an immediate danger to the safety of the occupants of a building or the adjacent public right of way. Conditions that do not meet the requirements of current regular codes and ordinances do not, of themselves, constitute a distinct hazard.

Reason: This code change proposal defines distinct hazard in order to facilitate application of the existing code provision 1203.2, where a distinct fire hazard 'as defined herein' is a condition of the use of an approved automatic fire-extinguishing system as an alternative to non-conforming construction requirements. There is no definition presently in the IEBC.

This is one of a series of 6 proposals intended to facilitate use of the code for historic building projects.

Bibliography: APT Building Codes and Historic Preservation

Webliography <https://www.apti.org/assets/Committees/technicalcommittees/CodesandStandards/2019/Building%20Codes%20and%20Historic%20Preservation%20-%20Webliography.pdf>

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

This should have no impact and potentially reduce cost as it is simply trying to clarify a term used within the IEBC and IFC which is often subject to wide interpretation.

EB5-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: This proposal was disapproved based upon concern with language such as "regular codes and ordinances." Specifically it is unclear whether this phrase references adopted or published codes. In addition, the use of the term in the IEBC is "distinct fire hazard" versus "distinct hazard." There are also implications to the IFC if this was included in the IEBC. (Vote: 12-1)

EB5-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 1203.2

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

1203.2 General. Every *historic building* that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard ~~as defined herein~~ shall be provided with an *approved* automatic fire-extinguishing system as determined appropriate by the *code official*. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.

Commenter's Reason: Section 1203.2 states "distinct fire hazard as defined herein" but no definition is provided. An attempt was made to define in the original proposal but there were concerns raised. In addition the term in Section 1203.2 is *distinct fire hazard* versus *distinct hazard*. More work

needs to be done to better understand how the term is intended to be applied in this section and Section 1203.12 but minimally it was felt necessary to delete the reference to a definition that is not provided.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This public comment and proposal was aimed at better clarifying what is meant by *distinct hazard* and *distinct fire hazard* and is not intended to increase cost. Potentially this proposal could decrease cost by providing more clarity of application. Section 1203.2 states that the term *distinct fire hazard* is defined but the code does not provide guidance. This PC is simply removing reference to a definition that is not provided in the code to start addressing this issue.

Public Comment# 3517

Proposed Change as Submitted

Proponents: Bruce Swiecicki, representing National Propane Gas Association (bswiecicki@npga.org)

2021 International Existing Building Code

Add new text as follows:

302.5 Building envelope modifications. Where the building envelope is modified in one or more of the following ways and the building has one or more gas appliances installed, a review of the combustion air supply and venting capability shall be conducted:

1. The building is modified under a weatherization program.
2. A building permit is issued for a building addition or exterior building modification.
3. Three or more window assemblies are replaced.
4. Three or more storm windows are installed over existing windows.
5. One or more exterior door and frame assemblies are replaced.
6. A building air barrier is installed or replaced.

302.5.1 Review of combustion air and venting of gas appliances. Where a building envelope is modified as described in Section 302.5, existing gas appliance installations shall be inspected to verify compliance with the provisions of Section 304 of the International Fuel Gas Code. Where the appliance installation does not comply with Section 304 of the International Fuel Gas Code, the installation shall be brought into compliance with Section 304 of the International Fuel Gas Code.

Reason: This new section provides requirements to address a problem that may be present when existing buildings are retrofit for energy conservation or other purposes. Specifically, changes to a building's envelope may result in insufficient air for complete combustion of fuel gas, and can cause chimneys and vents that were operating properly to operate improperly, possibly leading to the introduction of the products of combustion into the building. These conditions may result in a greater production of carbon monoxide.

Those who modify buildings should be made aware of this safety concern to prevent unsafe conditions resulting from building modifications and this proposal is the appropriate location in the IEBC to do just that.

Locating this new section within Chapter 3 ensures that it will apply to all compliance methods.

Cost Impact: The code change proposal will increase the cost of construction

This proposal would increase the cost of construction because it would require verification through either an analysis or through testing that the fuel gas appliances installed in the building would be able to function properly after the building envelope was modified.

EB11-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Disapproval of this code change was based upon several factors. There were questions related to applicability. Would this section be applicable, for example, if simply one window was replaced or was it intended to trigger compliance only when all windows in a building were replaced? Additionally, there was no data provided to justify that there is a hazard that needs to be addressed. Finally, the term "modified" is not consistent with the terminology of the IEBC. (Vote: 14-0)

EB11-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 302.5

Proponents: Bruce Swiecicki, representing National Propane Gas Association (bswiecicki@npga.org) requests As Modified by Public Comment

Replace as follows:

2021 International Existing Building Code

302.5 Building envelope alterations. Where the building envelope has been altered and the building has one or more gas appliances installed, the combustion air supply and venting capability of the appliances shall be inspected to verify compliance with Section 304 of the *International Fuel Gas Code*.

Commenter's Reason: This public comment to EB11-22 is based on the feedback provided in the Committee Reason for disapproval. The replacement text is more concise but it still provides the needed information to address a problem that has been recognized for some time. Specifically, changes to a building's envelope in the interest of conserving energy can inadvertently lead to safety and performance issues for existing gas appliances. The effects of those changes can be a reduction in air supply available for combustion, ventilation and dilution for fuel gas appliances, which may result in chimneys and vents operating improperly, with the possibility of flue gases entering the building or the production of excess carbon monoxide. Section 304 of the International Fuel Gas Code addresses combustion, ventilation and dilution air for gas appliances. It is important to add these requirements to the Existing Building Code to ensure that these safety concerns are addressed after alterations have been made to the building envelope.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction. The net effect of this public comment and code change proposal may increase the cost of construction due to the need for an evaluation of the effect of the alteration on the ability of gas appliances to function safely. This may result in further modifications to bring additional combustion, ventilation and dilution air into the building.

Public Comment# 3325

Proposed Change as Submitted

Proponents: Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); J Daniel Dolan, representing Seismic Code Support Committee (jddolan@wsu.edu); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Revise as follows:

[BS] 304.3.2 Compliance with reduced seismic forces. Where seismic evaluation and design is permitted to use reduced seismic forces, the criteria used shall be in accordance with one of the following:

1. The *International Building Code* using 75 percent of the prescribed forces. Values of R , Ω_0 and C_d used for analysis shall be as specified in Section 304.3.1 of this code.
2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A as specified in Items 2.1 through 2.4 and subject to the limitations of the respective Appendix A chapters shall be deemed to comply with this section.
 - 2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in *Risk Category* I or II are permitted to be based on the procedures specified in Appendix Chapter A1.
 - 2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in *Risk Category* I or II are permitted to be based on the procedures specified in Chapter A2.
 - 2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in *Risk Category* I or II are permitted to be based on the procedures specified in Chapter A3.
 - 2.4. Seismic evaluation and design of soft, weak or open-front wall conditions in multiple-unit residential buildings of wood construction in *Risk Category* I or II are permitted to be based on the procedures specified in Chapter A4.
3. Seismic evaluation and retrofit of seismic vulnerabilities in one- and two-family dwellings or townhouses of wood light-frame construction in Risk Categories I and II shall be permitted to be assessed and retrofitted in accordance with the procedures of ICC-1300, subject to its eligibility requirements.
- ~~4.~~ ASCE 41, using the performance objective in Table 304.3.2 for the applicable *risk category*.

Add new standard(s) as follows:

ICC

International Code Council, Inc.
500 New Jersey Avenue NW 6th Floor
Washington, DC 20001

1300-2023

Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings

Reason: The recently published document *Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings Volume 1 - Prestandard* (FEMA P-1100, 2018) is in the process of being converted to Standard ICC-1300 by the ICC Residential Assessment and Seismic Retrofit Standard Committee. The FEMA prestandard and the ICC standard have used state of the art analysis tools and performance-based methods to develop seismic retrofit provisions for cripple wall, living-space-over-garage, and hillside dwellings as well as residential brick masonry chimneys.

This proposal recognizes this seismic retrofit standard as providing seismic performance that is equivalent to the other methodologies listed in Section 304.3.2.

Bibliography: ICC-1300, *Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings*, Under development (ICC, 2022)

Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings Volume 1 - Prestandard (FEMA P-1100, 2018)

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

This proposal will not increase or decrease the cost of construction. It only provides a new alternative method for voluntary retrofit.

Staff Analysis: A review of the standard proposed for inclusion in the code, ICC 1300-2023 *Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings* with regard to some of the key ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 16, 2022.

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Proposal was disapproved based on concerns with the ICC 1300 standard still being in draft format. (Vote: 10-4)

EB17-22

Individual Consideration Agenda

Public Comment 1:

IEBC: [BS] 304.3.2, ICC Chapter 16

Proponents: Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov) requests As Modified by Public Comment

Replace as follows:

2021 International Existing Building Code

[BS] 304.3.2 Compliance with reduced seismic forces. Where seismic evaluation and design is permitted to use reduced seismic forces, the criteria used shall be in accordance with one of the following:

1. The *International Building Code* using 75 percent of the prescribed forces. Values of R , Ω_0 and C_d used for analysis shall be as specified in Section 304.3.1 of this code.
2. Structures or portions of structures that comply with the requirements of the applicable chapter in Appendix A as specified in Items 2.1 through 2.4 and subject to the limitations of the respective Appendix A chapters shall be deemed to comply with this section.
 - 2.1. The seismic evaluation and design of unreinforced masonry bearing wall buildings in *Risk Category* I or II are permitted to be based on the procedures specified in Appendix Chapter A1.
 - 2.2. Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in *Risk Category* I or II are permitted to be based on the procedures specified in Chapter A2.
 - 2.3. Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in *Risk Category* I or II are permitted to be based on the procedures specified in Chapter A3.
 - 2.4. Seismic evaluation and design of soft, weak or open-front wall conditions in multiple-unit residential buildings of wood construction in *Risk Category* I or II are permitted to be based on the procedures specified in Chapter A4.
3. ICC 1300 for one- or two-family dwellings or townhouses assigned to Risk Category I or II.
- ~~4. ASCE 41, using the performance objective in Table 304.3.2 for the applicable risk category.~~

ICC

International Code Council, Inc.
500 New Jersey Avenue NW 6th Floor
Washington, DC 20001

1300-2022

Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings

Commenter's Reason: The recently published document *Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings Volume 1 - Prestandard* (FEMA P-1100, 2018) has been converted to ANSI Standard ICC-1300 through the efforts of the ICC Residential Assessment and Seismic Retrofit Standard Committee. The FEMA prestandard and the ICC standard have used state of the art analysis tools and performance-based methods to develop seismic retrofit provisions for cripple wall, living-space-over-garage, and hillside dwellings as well as residential brick masonry chimneys. This proposal recognizes this seismic retrofit standard as providing seismic performance that is equivalent to the other methodologies listed in Section 304.3.2.

EB17 was disapproved at the committee action hearings based on the ICC 1300 standard still being in draft format. Since that time the standard has been submitted to the ANSI public ballot and is substantially complete. The wording in the proposal has been modified to match editorial changes to

this section made by EB15-22. It is intended that new Item 3 be incorporated into the overall list as modified per EB15.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. No new work is being required. The proposal and public comment simply add a new alternative method for complying with existing code provisions.

Staff Analysis: In accordance with Section 3.6.3.1.1 of ICC Council Policy 28, the new referenced standard ICC 1300-2022, must be completed and readily available prior to the Public Comment Hearing in order for this public comment to be considered.

Public Comment# 3138

Proposed Change as Submitted

Proponents: John-Jozef Proczka, representing Self (john-jozef.proczka@phoenix.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Add new text as follows:

304.4 Structural requirements for additions. Additions shall comply with Sections 304.4.1 and 304.4.2

Revise as follows:

[BS] ~~502-4~~ 304.4.1 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose vertical load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section ~~304.5.1~~ ~~503-3~~. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section ~~304.4.2~~ ~~502-5~~.

Exception: Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

[BS] ~~502-5~~ 304.4.2 Existing structural elements carrying lateral load. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the *existing structure* and its *addition* acting together as a single structure shall be shown to meet the requirements of Sections 1609 and 1613 of the *International Building Code* using full seismic forces.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is not more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.
2. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

Add new text as follows:

304.5 Structural requirements for alterations. Buildings undergoing alterations shall comply with Sections 304.5.1 through 304.5.10. Voluntary lateral force resisting system alterations shall comply with Section 304.5.11.

Revise as follows:

[BS] ~~503-3~~ 304.5.1 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design dead, live and snow loads including snow drift effects required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 503-4 304.5.2 Existing structural elements carrying lateral load. Except as permitted by Section ~~304.5.11~~ ~~503-13~~, where the *alteration* increases design lateral loads, results in a prohibited structural irregularity as defined in ASCE 7, or decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.

[BS] 503-5 304.5.3 Seismic Design Category F. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category F, the structure of the altered building shall meet the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

[BS] 503-6 304.5.4 Bracing for unreinforced masonry parapets on reroofing. Where the intended *alteration* requires a permit for reroofing and involves removal of roofing materials from more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F that has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.

[BS] 503-7 304.5.5 Anchorage for concrete and reinforced masonry walls. Where the *work area* exceeds 50 percent of the building area, the building is assigned to Seismic Design Category C, D, E or F and the building's structural system includes concrete or reinforced masonry walls with a flexible roof diaphragm, the *alteration* work shall include installation of wall anchors at the roof line, unless an evaluation demonstrates compliance of existing wall anchorage. Use of reduced seismic forces shall be permitted.

[BS] 503-8 304.5.6 Anchorage for unreinforced masonry walls in major alterations. Where the *work area* exceeds 50 percent of the building area, the building is assigned to Seismic Design Category C, D, E or F and the building's structural system includes unreinforced masonry bearing walls, the *alteration* work shall include installation of wall anchors at the floor and roof lines, unless an evaluation demonstrates compliance of existing wall anchorage. Reduced seismic forces shall be permitted.

[BS] 503-9 304.5.7 Bracing for unreinforced masonry parapets in major alterations. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category C, D, E or F, parapets constructed of unreinforced masonry shall have bracing installed as needed to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.

[BS] 503-10 304.5.8 Anchorage of unreinforced masonry partitions in major alterations. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category C, D, E or F, unreinforced masonry partitions and nonstructural walls within the *work area* and adjacent to egress paths from the *work area* shall be anchored, removed or altered to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces shall be permitted.

[BS] 503-11 304.5.9 Substantial structural alteration. Where the *work area* exceeds 50 percent of the building area and where work involves a *substantial structural alteration*, the lateral load-resisting system of the altered building shall satisfy the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.
2. Where the intended *alteration* involves only the lowest story of a building, only the lateral load-resisting components in and below that story need comply with this section.

[BS] 503-12 304.5.10 Roof diaphragms resisting wind loads in high-wind regions. Where the intended *alteration* requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the ultimate design wind speed is greater than 130 mph (58 m/s) in accordance with Figure 1609.3(1) of the International Building Code, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the International Building Code, including wind uplift. If the diaphragms and connections in their current condition are not

capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the International Building Code.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

[BS] ~~503-13~~ 304.5.11 Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be required to meet the requirements of Section 1609 or 1613 of the International Building Code, provided that all of the following apply:

1. The capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

Add new text as follows:

304.6 Structural requirements for changes of occupancy. Any building undergoing a *change of occupancy* shall comply with the requirements of Sections 304.6.1 through 304.6.4

Delete without substitution:

~~506.5 Structural.~~ Any building undergoing a *change of occupancy* shall satisfy the requirements of this section.

Revise as follows:

~~506.5-1~~ 304.6.1 Live loads. Structural elements carrying tributary live loads from an area with a *change of occupancy* shall satisfy the requirements of Section 1607 of the International Building Code. Design live loads for areas of new occupancy shall be based on Section 1607 of the International Building Code. Design live loads for other areas shall be permitted to use previously *approved* design live loads.

Exception: Structural elements whose demand-capacity ratio considering the *change of occupancy* is not more than 5 percent greater than the demand-capacity ratio based on previously *approved* live loads need not comply with this section.

~~506.5-2~~ 304.6.2 Snow and wind loads. Where a *change of occupancy* results in a structure being assigned to a higher *risk category*, the structure shall satisfy the requirements of Sections 1608 and 1609 of the International Building Code for the new *risk category*.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

~~506.5-3~~ 304.6.3 Seismic loads (seismic force-resisting system). Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the building shall satisfy the requirements of Section 1613 of the International Building Code for the new *risk category* using full seismic forces.

Exceptions:

1. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category IV*, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
2. Where a *change of use* results in a building being reclassified from *Risk Category I* or *II* to *Risk Category III* and the seismic coefficient, S_{DS} , is less than 0.33, compliance with this section is not required.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category III* and to Seismic Design Category A or B, shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of risk category, use of reduced seismic forces shall be permitted.

~~506.5-4~~ 304.6.4 Access to Risk Category IV. Any structure that provides operational access to an adjacent structure assigned to *Risk Category IV* as the result of a *change of occupancy* shall itself satisfy the requirements of Sections 1608, 1609 and 1613 of the International Building Code. For compliance with Section 1613, International Building Code-level seismic forces shall be used. Where operational access to the *Risk Category IV* structure is less than 10 feet (3048 mm) from either an interior lot line or from another structure, access protection from potential falling debris shall be provided.

Delete without substitution:

SECTION 706

STRUCTURAL

[BS] 706.1 General. Where *alteration* work includes replacement of equipment that is supported by the building or where a reroofing permit is required, the provisions of this section shall apply.

[BS] 706.2 Addition or replacement of roofing or replacement of equipment. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 706.3 Additional requirements for reroof permits. The requirements of this section shall apply to *alteration* work requiring reroof permits.

[BS] 706.3.1 Bracing for unreinforced masonry bearing wall parapets. Where a permit is issued for reroofing for more than 25 percent of the roof area of a building assigned to Seismic Design Category D, E or F that has parapets constructed of unreinforced masonry, the work shall include installation of parapet bracing unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.

[BS] 706.3.2 Roof diaphragms resisting wind loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the ultimate design wind speed, V_{ult} , determined in accordance with Figure 1609.3(1) of the *International Building Code*, is greater than 130 mph (58 m/s), roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code*.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

SECTION 805

STRUCTURAL

[BS] 805.1 General. Structural elements and systems within buildings undergoing Level 2 *alterations* shall comply with this section.

[BS] 805.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design dead, live and snow loads, including snow drift effects, required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is attributable to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 805.3 Existing structural elements resisting lateral loads. Except as permitted by Section 805.4, where the *alteration* increases design lateral loads, or where the *alteration* results in prohibited structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted.

Exception: Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.

[BS] 805.4 Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be required to meet the requirements of Section 1609 or Section 1613 of the International Building Code, provided that the following conditions are met:

1. The capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

SECTION 906 STRUCTURAL

[BS] 906.1 General. Where buildings are undergoing Level 3 *alterations*, the provisions of this section shall apply.

[BS] 906.2 Existing structural elements resisting lateral loads. Where work involves a *substantial structural alteration*, the lateral load-resisting system of the altered building shall be shown to satisfy the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.
2. Where the intended alteration involves only the lowest story of a building, only the lateral load resisting components in and below that story need comply with this section.

[BS] 906.3 Seismic Design Category F. Where the building is assigned to Seismic Design Category F, the structure of the altered building shall meet the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

[BS] 906.4 Anchorage for concrete and masonry buildings. For any building assigned to Seismic Design Category D, E or F with a structural system that includes concrete or reinforced masonry walls with a flexible roof diaphragm, the *alteration work* shall include installation of wall anchors at the roof line of all subject buildings and at the floor lines of unreinforced masonry buildings unless an evaluation demonstrates compliance of existing wall anchorage. Reduced seismic forces shall be permitted.

[BS] 906.5 Anchorage for unreinforced masonry walls. For any building assigned to Seismic Design Category C, D, E or F with a structural system that includes unreinforced masonry bearing walls, the *alteration work* shall include installation of wall anchors at the roof line, unless an evaluation demonstrates compliance of existing wall anchorage. Reduced seismic forces shall be permitted.

[BS] 906.6 Bracing for unreinforced masonry parapets. Parapets constructed of unreinforced masonry in buildings assigned to Seismic Design Category C, D, E or F shall have bracing installed as needed to resist the reduced *International Building Code* level seismic forces in accordance with Section 304.3, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces shall be permitted.

[BS] 906.7 Anchorage of unreinforced masonry partitions. Where the building is assigned to Seismic Design Category C, D, E or F, unreinforced masonry partitions and nonstructural walls within the *work area* and adjacent to egress paths from the *work area* shall be anchored, removed, or altered to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces shall be permitted.

SECTION 1006 STRUCTURAL

[BS] 1006.1 Live loads. Structural elements carrying tributary live loads from an area with a *change of occupancy* shall satisfy the requirements of Section 1607 of the International Building Code. Design live loads for areas of new occupancy shall be based on Section 1607 of the *International Building Code*. Design live loads for other areas shall be permitted to use previously *approved* design live loads.

Exception: Structural elements whose demand-capacity ratio considering the *change of occupancy* is not more than 5 percent greater than the demand-capacity ratio based on previously *approved* live loads.

[BS] 1006.2 Snow and wind loads. Where a *change of occupancy* results in a structure being assigned to a higher *risk category*, the structure shall satisfy the requirements of Sections 1608 and 1609 of the International Building Code for the new risk category.

Exception: Where the area of the new occupancy is less than 10 percent of the building area. The cumulative effect of occupancy changes

over time shall be considered.

[BS] 1006.3 Seismic loads. Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the building shall satisfy the requirements of Section 1613 of the International Building Code for the new *risk category* using full seismic forces.

Exceptions:

1. Where a *change of use* results in a building being reclassified from *Risk Category I* or *II* to *Risk Category III* and the seismic coefficient, S_{DS} , is less than 0.33, compliance with this section is not required.
2. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category IV*, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category III* and to Seismic Design Category A or B shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of *risk category*, use of reduced seismic forces shall be permitted.

[BS] 1006.4 Access to Risk Category IV. Any structure that provides operational access to an adjacent structure assigned to *Risk Category IV* as the result of a change of occupancy shall itself satisfy the requirements of Sections 1608, 1609 and 1613 of the International Building Code. For compliance with Section 1613 of the *International Building Code*, the full seismic forces shall be used. Where operational access to *Risk Category IV* is less than 10 feet (3048 mm) from either an interior lot line or from another structure, access protection from potential falling debris shall be provided.

[BS] 1103.1 Additional gravity loads. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in design dead, live or snow load, including snow drift effects, of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 805.2. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 1103.3.

Exception: Buildings of Group R occupancy with not more than five dwelling units or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

[BS] 1103.2 Lateral force-resisting system. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the *existing structure* and its *addition* acting together as a single structure shall meet the requirements of Sections 1609 and 1613 of the *International Building Code* using full seismic forces.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is not more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.

[BS] 1301.4.1 Structural analysis. The owner shall have a structural analysis of the *existing building* made to determine adequacy of structural systems for the proposed *alteration*, *addition* or *change of occupancy*. The analysis shall demonstrate that the building with the work completed is capable of resisting the loads specified in Chapter 16 of the International Building Code.

Reason: This proposal places all the structural requirements into Chapter 3, such that the same structural provisions are always applicable, regardless of which method of compliance is used.

The structural changes that have taken place recently to the IEBC show that this reorganization is the intent of the code, as the structural provisions have already been changed to not depend on the method of compliance used – except for the performance method.

Currently, the structural provisions of the IEBC are essentially the same in the prescriptive compliance method and work area compliance method.

The wording primarily varies as the work area must be described in the prescriptive method as it is not scoped out as it is for the work area method in Chapter 6.

The provisions are still appropriately scoped to the amount of work being done. This consolidation will make it clear how the IEBC regulates the structural portion of existing structures and helps eliminate small differences from method to method that aren't intended. This will help in future cycles to keep the requirements consistent.

The approach is to renumber the sections from the prescriptive method and delete the equivalent sections in the work area method.

As already stated, it is intended to address the structural aspect of existing buildings consistently for all three methods. This is why Section 1301.4.1 is proposed to be deleted. The core purpose of the performance method is focused on providing a non-structural fire and life safety scoring method. That method is intended to provide additional flexibility to existing buildings that may struggle to meet current requirements of the IBC or the prescriptive or work area methods. It is felt appropriate to no longer require full compliance with the IBC for structural integrity and to instead afford the same flexibility provided to the other methods in this code.

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

This code change will primarily relocate and consolidate existing structural provisions into one globally applicable spot within Chapter 3. This will likely make the code more straightforward to apply. In addition, the application of these requirements versus full compliance with the IBC as required currently by Chapter 13 would possibly decrease the cost of compliance.

EB19-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Disapproved as the committee felt that the proposal did not fit with the current organization of the IEBC. (Vote: 11-3)

EB19-22

Individual Consideration Agenda

Public Comment 1:

Proponents: John-Jozef Proczka, representing Self (john-jozef.proczka@phoenix.gov) requests As Submitted

Commenter's Reason: This proposal places all of the structural requirements into Chapter 3, such that the same structural provisions are always applicable, regardless of which method of compliance is used. This greatly shortens and simplifies the IEBC.

The structural requirements are already the same and repeated throughout the prescriptive and work area method chapters. This is a problem, as we shouldn't be restating code provisions again and again - additionally it makes including the necessary nuance into the code quite difficult. For example, the 5% gravity load rule needs much more nuance than it currently has, as seen in the issues with EB52-22 and EB53-22. That rule needs to be broken down based on the age of the existing building and the material of construction - however, that level of specificity is not capable of being described in one paragraph - so we should consolidate the structural provisions to allow future sections to delve into these specifics without greatly lengthening the code.

The committee's rationale for rejecting this proposal was that it did not follow convention for how the methods work separately. This is a fine goal and could be followed where it makes sense - for overall fire life safety. This breakdown of methods used for design does not make sense for structural design. The overall fire protection and egress features can play off each other to have some things give and some things take within a method to arrive at an appropriate minimum level of fire life safety - this is quite different from the performance of the structural members which does not have this give and take.

Please simplify these structural provisions and group them together by overturning the committee's rejection. This will cause more structural designers to actually read the one-stop-shop structural provisions and it will help for future code proposals so we can work to introduce the needed specifics into the IEBC's structural provisions.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
This proposal only reorganizes existing code provisions.

Proposed Change as Submitted

Proponents: Daniel Nichols, MTA Construction and Development, representing MTA Construction and Development (dnichols@mnr.org)

2021 International Existing Building Code

Add new text as follows:

306.6.1 Accessible Means of Egress. At least one accessible means of egress from the addition shall be provided where required by Section 1009.1 of the International Building Code. A second accessible means of egress shall be provided where an additional means of egress is required due to the addition.

306.6.1.1 Additions for Elevators. Where an addition is being constructed to accommodate the installation of an elevator or elevators to improve accessibility, an accessible means of egress in accordance with Section 1009.1 of the International Building Code is not required when all of the following conditions are provided:

1. Two-way communication is provided at all elevator landings that are part of the addition in accordance with Section 1009.8 of the International Building Code.
2. Each elevator landing is on floor level with access to an exit or a stairway with a minimum width of 36 inches (914 mm).
3. The elevator does not serve a required accessible floor or occupied roof more than four stories above or below the level of exit discharge.

Reason: In the 2015 Group A Code Development Cycle, code change proposal E34-15 was submitted to modify the requirements of Section 1009.1 regarding accessible means of egress in existing buildings. The proposal was modified at the committee action hearings and removed exception 1 that read "Accessible means of egress are not required to in existing buildings"

The proposal was submitted to address potential confusion with the removal of Chapter 34 in the IBC and making the IEBC the clearinghouse for all existing buildings undergoing work. Here is the reason statement from E34-15:

"This blanket exception should be removed from the IBC for two reasons. First, with the change to Chapter 34 of the IBC during the last code change cycle, all existing building requirements are now located in the IEBC. Exception 2 to IEBC Section 410.6 and exception 2 to IEBC Section 705.1 already contain this language, so it is simply redundant to be placed in the IBC. Second, the exception has been misused as a reason for eliminating existing accessible means of egress. Buildings which have been constructed since the adoption of the accessible means of egress provisions in the IBC (and some legacy codes) should be required to maintain these accessible means of egress elements and sections within the IEBC support that concept. By making a blanket statement in the IBC that they are simply not required because the building is "existing" can be construed as meaning that the accessible means of egress are no longer needed. This confusion should be removed from the IBC and allow the IEBC to note how this is supposed to be addressed in existing buildings."

This removal of the exception was approved (as modified by the committee), approved on the consent agenda, and the exception no longer exists since the 2018 IBC.

In the same Code Development Cycle, a reorganization of the IEBC placed all accessibility requirements in one location so there is consistent application regardless of compliance method.

Whereas we agree with the intent of these changes to minimize confusion for code users, it did create a technical change to the application of accessible means of egress requirements as in applies to additions. IEBC Section 306.6 states that "Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with the requirements in Section 306.7.1." Unlike the alteration section (IEBC 306.7.2) the has an exception that states "Accessible means of egress required by Chapter 10 of the International Building Code are not required to be provided in existing facilities," there is no such exception for additions.

This creates a disconnect between relative levels of safety provided by an accessible means of egress in alterations versus additions. If an elevator is placed through existing floor systems in an existing building undergoing an Alteration Level 3 rehabilitation, no accessible means of egress is required. However, the extension of the building footprint to place an elevator or an enclosed ramp outside the existing exterior walls is considered an addition and requires accessible means of egress.

The proposed language addresses two items regarding additions. The first proposed Section, 306.6.1, quantifies the number of accessible means of egress that needs to be provided. The baseline is one and is consistent with 1009.1. The second means of egress is based on if an additional means of egress is being added due to the addition, rather than relying on the new construction table. This is because an addition may already have sufficient exiting due to the addition.

The second section, 306.6.1.1, specifically addresses additions due to elevator installation. The allows for the use of existing exit and exit access stairways that meet minimum requirements, requires the same two-way communication system as found in 1009.1 for consideration of new exit and

exit access stairways, and retains the limit of numbers of floors above or below the level of exit discharge prior to needing an elevator with emergency power. The intent here is to utilize existing stairways that can be used for rescue assistance but require the two-way communication as an increased level of safety than was found in the previous versions of the IBC.

Cost Impact: The code change proposal will decrease the cost of construction

The decrease in construction is mainly due to limiting addition work to 1 AMOE, unless stairways are being added for other code requirements like addressing increased occupant loads. Providing two accessible means of egress in an existing building that is undergoing an addition is costly for materials, as well as the potential need for land purchases in urban areas for the additional building footprint or tenant revenue cuts due to leasable area losses. For an average cost of installing a new two-stop elevator in an existing below-grade rail station (excavation for one story below grade, EMR, landings, comms, and all other ASME A17.1 requirements) at \$16M, the accompanying stairway cost is a average of \$2.24M without consideration of excavation for below-grade application or built in area of refuge or enlarged landings. Even though the pricing is based on current public work values in the metropolitan NYC area, the addition of a stairway which was never previously required is an increase of 14% of construction costs.

For the additions for elevators sub-section, the decrease in construction is the same as recognizing the allowance to put in elective elevators without an approximately 14% increase in cost for an additional stairway. Additionally, the potential increase in construction costs due to the required two-way communication system is minimized due to the two-way communication system that is already required by ASME A17.1 and the accessible two-way system required in IBC Section 3001.2. The value of the head-end and monitoring connections are already required by these requirements.

EB24-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

306.3.1 Prohibited reduction in accessibility. An alteration or addition that decreases or has the effect of decreasing accessibility of a building, *facility* or element, thereof, below the requirements for new construction at the time of the alteration or addition is prohibited. The number of accessible elements need not exceed that required for new construction at the time of alteration or addition.

306.6.1 Accessible Means of Egress. ~~At least~~ Not less than one accessible means of egress from the addition shall be provided where required by Section 1009.1 of the International Building Code. ~~A second~~ An additional accessible means of egress shall be provided where an additional means of egress is required due to the addition.

306.6.1.1 Additions for Elevators. Where an addition is being constructed exclusively to accommodate the installation of an elevator or elevators to improve accessibility, an accessible means of egress in accordance with Section 1009.1 of the International Building Code is not required ~~when~~ where all of the following conditions are provided:

1. Two-way communication is provided at all elevator landings that are part of the addition in accordance with Section 1009.8 of the International Building Code.
2. Each elevator landing is on floor level with access to ~~an a horizontal~~ exit or to a stairway with a ~~minimum~~-width of not less than 36 inches (914 mm).
3. The elevator does not serve a required accessible floor or occupied roof more than four stories above or below the level of exit discharge.

Committee Reason: This proposal makes it clear that additions are new construction and some level of accessible means of egress is necessary. It also clarifies that where the addition triggers the need for an additional exit an additional accessible egress is required. Section 306.6.1.1 is necessary so that an addition that is only for the sake of adding accessibility should not trigger full compliance with the accessible means of egress requirements. The modifications address several issues. The modification to revise current IEBC Section 306.3.1 ensures that no reduction in accessible egress is possible in additions addressing applicability concerns based upon the language proposed for new Section 306.6.1. In Section 306.6.1 the use of the term "additional" versus "second" makes it more clear that a new means of egress is now required for the building due to the addition. The term "second" could be construed as not requiring if the building already had 2 means of egress. Item 2 of Section 306.6.1.1 was clarified to focus on access to a horizontal exit instead of more generally requiring access to an exit. Other modifications were simply related to preferred code terminology such as "when" to "where," as it is not time specific, or "not less than" versus "minimum." (Vote: 14-0)

EB24-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 306.6.1

Proponents: Ardel Jala, representing Washington Association of Building Officials Technical Code Dev Committee (ardel.jala@seattle.gov); Richard Williams, representing Washington Association of Building Officials Technical Code Dev Committee (richard@cwaconsultants.net); Micah Chappell, representing Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov) requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

306.6.1 Accessible Means of Egress. Not less than one accessible means of egress from the addition shall be provided where required by Section 1009.1 of the International Building Code. An additional accessible means of egress shall be provided where an additional means of egress is required due to the addition. Where an accessible means of egress serving the addition is within the existing building, the following are required:

1. An accessible route from the addition to the existing building shall be provided.
2. The accessible means of egress in the existing building shall comply with Section 306.7.1.

Commenter's Reason: While the charging language in Section 306.6 makes it clear that the requirements for new construction apply to additions, the committee supported adding a new Section 306.6.1 to clarify that as stated in the reason statement, "some level of accessible means of egress is necessary." The proposal as modified at the committee action hearings requires not less than one accessible means of egress from the addition where and an additional means of egress where required due to the addition.

This public comment further modifies this section to clarify that when the addition is served by an existing accessible means of egress, that an accessible route must be provided from the addition to the accessible means of egress and that alterations to the existing accessible means of egress shall comply with alterations Section 306.7.1. This is consistent with section 306.6 which also points to Section 306.7.1 for the addition.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This public comment is a clarification and has no cost impact.

Public Comment# 3298

Public Comment 2:

IEBC: 306.6.1.1

Proponents: Ardel Jala, representing Washington Association of Building Officials Technical Code Dev Committee (ardel.jala@seattle.gov); Richard Williams, Washington Association of Building Officials Technical Code Dev Committee, representing Washington Association of Building Officials Technical Code Dev Committee (richard@cwaconsultants.net); Micah Chappell, representing Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov) requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

~~**306.6.1.1 Additions for Elevators.** Where an addition is being constructed exclusively to accommodate the installation of an elevator or elevators to improve accessibility, an accessible means of egress in accordance with Section 1009.1 of the International Building Code is not required where all of the following conditions are provided:~~

- ~~1. Two-way communication is provided at all elevator landings that are part of the addition in accordance with Section 1009.8 of the International Building Code.~~
- ~~2. Each elevator landing is on floor level with access to a horizontal exit or to a stairway with a width of not less than 36 inches (914 mm).~~
- ~~3. The elevator does not serve a required accessible floor or occupied roof more than four stories above or below the level of exit discharge.~~

Commenter's Reason: It appears the intent of proposed section 306.6.1.1 is to make clear that when the sole purpose of an addition is to provide an elevator, that elevator is not required to be an accessible means of egress elevator, as long as the three conditions are met. However, section 306.6.1.1 refers to an accessible means of egress as not being required, not an accessible means of egress elevator, which is confusing because an accessible means of egress could be other components such as stairs, ramps and horizontal exits.

The committee reason statement states: "Section 306.6.1.1 is necessary so that an addition that is only for the sake of adding accessibility should not trigger full compliance with the accessible means of egress". This suggests there are those who interpret this section to mean that where only an elevator is installed then one or more accessible means of egress (such as a stair, ramp, or horizontal exits) would be required. Means of egress requirements apply to spaces in a building and occupants of those spaces. It is not clear how the addition of only an elevator would be interpreted as a requirement to provide an accessible means of egress. Further, the only time in the code where an accessible means of egress elevator is required is if it serves a story four or more stories above the level of exit discharge. There is no code requirement for an accessible means of egress elevator to be provided under any other condition. Therefore, this section is redundant and confusing because it attempts to clarify that an accessible means of egress elevator is not required when it fact the code already specifies this. We recommend this section be stricken from the proposal.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This public comment removes confusing language. The net result maintains the current requirements as for new construction when an accessible means of egress is required to be an elevator. There is no cost increase or decrease.

Public Comment# 3313

Proposed Change as Submitted

Proponents: Lee Kranz, representing Washington Association of Building Officials Technical Code Development Committee (lkranz@bellevuewa.gov); Micah Chappell, representing Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov)

2021 International Existing Building Code

Revise as follows:

306.7.1 Alterations affecting an area containing a primary function. Where an *alteration* affects the accessibility to, or contains an area of *primary function*, the route to the *primary function* area shall be accessible. ~~The accessible route to the *primary function* area shall include toilet facilities and drinking fountains serving the area of *primary function*.~~ Toilet facilities and drinking fountains serving the area of primary function, including the route from the area of primary function to these facilities, shall be accessible.

Exceptions:

1. The cumulative costs of providing the accessible route of travel, toilet facilities and drinking fountains are not required to exceed 20 percent of the costs of the *alterations* affecting the area of *primary function*.
2. This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration* of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

Reason: The current language in Section 306.7.1 related to the need to provide an accessible route of travel, accessible toilet facilities and drinking fountains for primary function areas being altered has been the source of confusion for many since it was added to the code. We believe that the current language, which attempts to combine a mandate to improve the accessible route to primary function areas, which is already addressed in the first sentence of this section, with improvements to existing restrooms and drinking fountains, is the source of this confusion. Is the current language intended to require just the path of travel to these facilities or improvements to them as well? This proposal clarifies the language in favor of the latter interpretation.

Separating these two distinct aspects of barrier-free access helps the reader to understand the intent of this provision which is: 1) provide an accessible route to the primary function area, and 2) make accessibility improvements to existing restrooms and drinking fountains serving the area of primary function. By removing the current language and replacing it with a separate and distinct sentence addressing the need to update restrooms and drinking fountains we are eliminating the ambiguity of the current code which will improve consistent enforcement.

Exception number one has also been modified to make it clear that the cumulative cost of these improvements are not required to exceed 20% of the construction budget. The current language can be interpreted to look at just the cost of the route of travel, which would not include the cost of upgrading toilet facilities or drinking fountains but ICC trainers teach that all improvements to accessibility are intended to be counted toward the 20% exception.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This proposal is intended to simply reflect what was intended that both the path and the facilities be accessible therefore will not change the cost of construction.

EB25-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: Approval was based upon the fact that the language will more clearly convey that the intent is to provide accessible toilet facilities and drinking fountains on the route to the primary function areas they serve. (Vote: 14-0)

EB25-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 306.7.1

Proponents: Richard Williams, , representing Washington Association of Building Officials Technical Code Dev Committee (richard@cwaconsultants.net); Micah Chappell, representing Washington Association of Building Officials (micah.chappell@seattle.gov) requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

306.7.1 Alterations affecting an area containing a primary function. Where an *alteration* affects the accessibility to, or contains an area of *primary function*, the route to the *primary function* area shall be accessible. Toilet facilities and drinking fountains serving the area of primary function, ~~including~~ and the route from the area of primary function to these facilities, shall be accessible.

Exceptions:

1. The cumulative costs of providing the accessible route ~~of travel~~, toilet facilities and drinking fountains are not required to exceed 20 percent of the costs of the *alterations* affecting the area of *primary function*.
2. This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or *alteration* of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.
5. This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

Commenter's Reason: This is a minor clean up to the language of our original proposal. We are replacing the word 'including' with 'and' for clarity. By removing the words 'of travel' in exception 1, we are using a defined term accessible route instead of accessible route of travel. We urge your approval.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This is a change to the wording of our original proposal and will not affect the cost of construction.

Public Comment# 3336

Proposed Change as Submitted

Proponents: Andrew Cid, representing BARRIER FREE SOLUTIONS FOR THE DEAF AND HARD OF HEARING

2021 International Existing Building Code

Revise as follows:

306.7.7 Elevators. Altered elements of existing elevators shall comply with ASME A17.1. Where the elevator emergency communication system is altered or replaced, that system shall comply with Section 3001.2 of the *International Building Code*. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

Reason: The proposed revision is in recognition that an alteration or modification to elevator emergency communication equipment in an existing elevator would be required to comply with the appropriate provisions of the International Building Code. The applicable provisions associated with elevators are noted in Chapter 30 (see code changes G177-21 AMPC1 and G178-21 AS). It is recognized that existing elevators that are modified or altered can include many elements associated with the elevator system such as control panels and emergency communication capabilities. The proposed revision for the reference to 3001.2 of the 2021 edition of the IBC (proposed 3001.6 of the 2024 edition) is to highlight that there are specific requirements related to emergency communication system that are required in the IBC. This is also to highlight that the current emergency communication requirements found in the ASME A17.1 are different and do not contain the updated and enhanced communication capabilities. This particular reference to the 3001.2 of the IBC is to establish a point of consistency between the various ICC documents as the IBC currently contains the specific requirements for emergency elevator communication that have been accepted by the ICC membership since the 2018 edition of the IBC. The elevator industry has started to incorporate the emergency communication provisions as referenced in the IBC as they have introduced new products in the marketplace in Las Vegas and Washington State plus several others related to emergency communication systems for new construction per 3001.2. It is recognized that this technology can be incorporated into existing elevators as they are modernized or updated as it is now time to move forward and incorporate this life safety feature into existing buildings.

Cost Impact: The code change proposal will increase the cost of construction
There will be a minimal cost increase in the cost of alterations of elevators.

EB27-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: The proposal was approved as the requirements are consistent with the language in the IBC and it was a reasonable trigger to communication equipment that will comply with Section 3001.2 when the existing communication is either altered or replaced. (Vote: 13-0)

EB27-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 306.7.7

Proponents: Kevin Brinkman, representing National Elevator Industry, Inc. (klbrinkman@neii.org) requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

306.7.7 Elevators. Altered elements of existing elevators shall comply with ASME A17.1. Where the elevator emergency communication system is altered, upgraded, or where a new elevator communication system is installed in the car replaced, that system shall comply with Section 3001.2 of the *International Building Code*. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

Commenter's Reason: NEII is concerned that the language approved during the CAH could result in confusion regarding component replacement versus replacement of the entire system. The proposed alternate language is in a format similar to other sections of the IEBC. NEII supports the requirement to include the updated communication system when the elevator is altered or when the whole system is upgraded or a new system is installed. The concern is that the use of "or replace" could cause confusion and trigger an upgrade to the whole system when replacing a component that was damaged, such as a pushbutton to activate the communication. This could result in significant costs to the building owner which could discourage repairs, resulting in reduced accessibility for all users.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. The change proposed by the public comment is for clarification only and therefore will not increase or decrease the cost of construction; however, it could prevent possible additional cost if the original approved language is misunderstood.

Public Comment# 3087

Proposed Change as Submitted

Proponents: Philip Oakes, representing National Association of State Fire Marshals (admin@firemarshals.org)

2021 International Existing Building Code

Add new text as follows:

309.2.1 Automatic sprinkler systems. Combustible exterior wall covering or combustible exterior wall envelopes shall not be added to an existing high-rise building that is not protected throughout with an automatic sprinkler system.

Exceptions:

1. Where such material is located on a single story and is less than 15 percent of the wall area on any side of the building.
2. Water-resistive barriers installed in accordance with Section 1402.5 of the International Building Code.

Reason: The proposal limits adding a combustible exterior wall covering to an existing high-rise building if the building is not protected with an automatic sprinkler system. It is understood that the IFC requires some existing high-rise buildings to be protected with an automatic sprinkler system. However, where such a requirement has not been enforced or in those instances in which the IFC does not require sprinkler protection in existing buildings, either the wall covering being added should be non-combustible or the building should be protected with an automatic sprinkler protection.

While a good fire test, it is recognized that the NFPA 285 fire test has some limitations. If the combustible exterior wall assembly contributes to fire spread in a high-rise building, the fire service will be challenged to address the fire scenario. Sprinkler protection within the building reduces the likelihood that a combustible exterior wall assembly will become involved in the fire as the result of an interior fire event.

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

This proposal will not require a building to be retro-fitted with interior fire sprinklers if exterior wall coverings or envelopes are contemplated, it will simply limit the type of materials to non-combustible types should an interior sprinkler system not be present.

EB33-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: The proposal was approved based upon concern for life safety in existing high-rise buildings where combustible cladding is added. The automatic sprinkler system will provide more time for evacuation and will increase life safety. (Vote: 9-5)

EB33-22

Individual Consideration Agenda

Public Comment 1:

Proponents: Eric Banks, representing North American Modern Building Alliance (NAMBA) (eric.banks@ewbanksconsulting.com); Marcelo Hirschler, representing GBH International (mmh@gbhint.com) requests Disapprove

Commenter's Reason: Eric Banks

The North American Modern Building Alliance requests Disapproval of EB33.

The proponent's reason statement, hearing testimony, and examples provided in support of the proposal contain several flaws.

1. Examples of large façade fires given in testimony were all outside the US in jurisdictions that do not enforce the IBC, the IEBC, or requirements for testing and compliance with NFPA 285.
2. The NFPA 285 test is highly effective at evaluating flame propagation of the exterior wall assembly.

- a. The fire scenario evaluated in the test is where an interior fire has breached the exterior wall opening of the room of origin without sprinkler coverage; providing the worst-case scenario where vertical and lateral flame propagation is limited only by the construction, composition, and configuration of the exterior wall assembly itself.
- b. The acceptance criteria of NFPA 285 limits allowable flame propagation to the area directly above the wall opening of approximately 100 sq-ft (10-ft x 10-ft).

3. Exception 2 of EB 33 is problematic. It is confusing at best and compliance with it is either impossible or incentivizes the use of certain designs or products. Exception 2 of the proposal states, "...[WRBs] installed in accordance with Section 1402.5 of the [IBC].," however, Section 1402.5 (to become 1402.6 based on FS122-21 [Approved as Modified]) does not prescribe WRB installation or design requirements – it requires testing and compliance with NFPA 285 when the wall contains a combustible WRB. Additionally, based on the proponent's Reason Statement, it appears the intent of EB33 Exception 2 is to refer back to the exceptions to 1402.5 [2021 IBC] / 1402.6 [2024 IBC] prescribing conditions when NFPA 285 is not required based the exterior wall's configuration or small-scale data (ASTM E1354 and ASTM E84). In effect, the proposed change, as submitted, incentivizes certain wall constructions and a certain class of WRBs because of these exceptions to requirements to testing and comply with NFPA 285.

4. As pointed out by a committee member, the proposed language results in one of two compliance scenarios: (1) prohibit, or create confusion about, repairs or replacement of materials in an existing combustible exterior wall covering or wall envelope with like materials thereby posing an enforcement problem, or (2) require the retrofit installation of automatic sprinkler systems is included within the scope of projects to install energy efficient exterior wall coverings and envelopes to these sort of existing buildings.

Our members urge you to overturn the committee and Disapprove EB33.

The North American Modern Building Alliance (NAMBA) is focused on addressing fire safety through the development and enforcement of building codes. Members of NAMBA are: ACC Center for the Polyurethanes Industry, ACC North American Flame Retardant Alliance, Atlas Roofing Corp., BASF Corporation, Carlisle Construction Materials, Covestro, DuPont, EIFS Industry Members Association, GAF, Huntsman, Kingspan Insulation LLC, Metal Construction Association, Owens Corning, Polyisocyanurate Insulation Manufacturers Association, Rmax - A Business Unit of the Sika Corporation, and the EPS Industry Alliance.

Marcelo Hirschler:

The proposal contains several flaws:

1. NFPA 13 (standard for sprinklers) deals with fires in the interior of the building and not in the exterior (including exterior wall coverings and exterior wall envelopes). Therefore, the flame spread upwards and sideways along the exterior will be unaffected whether the building is sprinklered or not.
2. No building where the exterior wall envelope has been tested to NFPA 285 (which is required by section 309.2 of the IBC when revisions or additions are done) has ever had a severe fire with loss of life. All the examples described during testimony were buildings outside the US that had not been tested to NFPA 285. NFPA 285 is a test that presents a worst-case scenario, since it tests without sprinklers inside the building. Therefore, a system that passes the test does not need sprinklers to help out.
3. Section 1402.5 of the IBC does not have any requirement for water resistive barriers. It requires that an NFPA 285 test be conducted. The section of the 2021 edition of the IBC stated that testing to NFPA 285 is required for exterior wall envelopes (or exterior wall assemblies). It included an exception that says that NFPA 285 testing is not required if the only combustible is a water resistive barrier and such a water resistive barrier meets certain fire properties. Therefore it is impossible to meet exception 2 of this proposal. In the IBC 2024, that section is now IBC 1402.6, and the wording is shown below.
4. As pointed out by a committee member, this proposal would prohibit the repair of an existing exterior wall assembly that already contains combustibles with like materials.
5. This new language would increase the cost of construction and prohibit the use of safe fire tested cladding systems.

Section 1402.5 of IBC 2021, which is now 1402.6 of IBC 2024:

1402.5 Water-resistive barriers. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. Combustibility shall be determined in accordance with Section 703.3. For the purposes of this section, fenestration products, flashing of

fenestration products and water-resistive-barrier flashing and accessories at other locations, including through wall flashings, shall not be considered part of the water-resistive barrier.

Exceptions:

1. Walls in which the water-resistive barrier is the only combustible component and the exterior wall has a wall covering of brick, concrete, stone, terracotta, stucco or steel with minimum thicknesses in accordance with Table 1404.2.

2. Walls in which the water-resistive barrier is the only combustible component and the water-resistive barrier complies with the following:

2.1. A peak heat release rate of less than 150 kW/m², a total heat release of less than 20 MJ/m² and an effective heat of combustion of less than 18 MJ/kg when tested on specimens at the thickness intended for use, in accordance with ASTM E1354, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m².

2.2. A flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723, with test specimen preparation and mounting in accordance with ASTM E2404.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction

Eric Banks

No change to code.

Marcelo Hirschler

If the code proposal is disapproved there is no change to the code and no increase in cost. The proposal itself would increase the cost of construction.

Public Comment# 3390

Proposed Change as Submitted

Proponents: Jeffrey Shapiro, representing Self (jeff.shapiro@intlcodeconsultants.com)

2021 International Existing Building Code

Add new definition as follows:

ACCESSORY DWELLING UNIT. An additional, subordinate dwelling unit on the same lot, that is entirely within a dwelling unit, attached to a dwelling unit, or in a detached structure.

Add new text as follows:

SECTION 310 **ACCESSORY DWELLING UNITS**

310.1 General. Where an accessory dwelling unit or second dwelling unit is added to an existing dwelling, the dwelling units shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E119, UL 263 or Section 703.2.2 of the International Building Code. Such separation shall be provided regardless of whether a lot line exists between dwelling units. Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

Exceptions:

1. A fire-resistance rating of 1/2 hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904 of the International Residential Code.
2. Wall assemblies need not extend through attic spaces where the ceiling is protected by not less than 1/2-inch (12.7 mm) Type X gypsum board, an attic draft stop constructed as specified in International Residential Code Section R302.12.1 is provided above and along the wall assembly separating the dwellings and the structural framing supporting the ceiling is protected by not less than 1/2-inch (12.7 mm) gypsum board or equivalent.
3. A fire-resistance rated separation is not required where one of the dwelling units is an accessory dwelling unit and the other is an owner-occupied dwelling unit.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

E119-2018B

Standard Test Methods for Fire Tests of Building Construction and Materials

UL

UL LLC
333 Pfingsten Road
Northbrook, IL 60062

723-2018

Test for Surface Burning Characteristics of Building Materials

Reason: In Group A, Code Change Z1-21 added a new definition of Accessory Dwelling Unit, or ADU, with the apparent intent of formally recognizing what has become an increasingly common practice of adding additional dwelling unit(s) to a property or building that was originally intended and limited to function as a single family dwelling unit. The proliferation of ADUs in many jurisdictions as a means of increasing available housing has had an undiscussed consequence of often creating buildings that essentially constitute illegal two-family dwellings / duplexes, in that such buildings do not meet adopted IRC provisions for a two-family dwelling.

The trend essentially allows construction of a single-family dwelling, issuance of a certificate of occupancy, then subdividing the floorplan to provide an additional dwelling unit, completely circumventing the fire safety considerations in the IRC, particularly the requirement for a fire-rated separation. There is no logic behind requiring a building permitted as a two-family dwelling to provide a suitable fire barrier between units, but not requiring that separation for a building permitted as a one-family dwelling that immediately or thereafter adds an ADU. This proposal will return parity between the fire separation requirements for two-family dwellings and dwellings with an ADU.

An exception is provided for ADUs in owner occupied housing because, like lodging houses, these situations at least provide some level of on-site oversight of the ADU. To those who might argue that "owner occupied" is not something that's enforceable under the IRC, IEBC or otherwise, note that the concept of using this as a limitation is already baked into other portions of the IRC for lodging houses (see R101.2, Exception 2 and R320.1). The intent here is to simply duplicate that precedent for ADUs. A similar change has been submitted to the IRC, and the intent of this proposal to the

IEBC is to prevent the IEBC from becoming a loophole to escape the IRC requirement.

Cost Impact: The code change proposal will decrease the cost of construction

The IRC currently requires all two-family dwellings to have a fire separation between dwelling units, and there is currently no differentiation that applies to dwelling units with an added ADU. This proposal provides a limited reduction in the code requirements by allowing an ADU to be unseparated when the primary dwelling unit is owner-occupied, thereby reducing the cost of construction for such cases.

Staff Analysis: ASTM E119 and UL723 are already referenced in the IBC. This is simply a new occurrence of the references in the I-Codes

EB34-22

Public Hearing Results

This proposal includes unpublished errata

ASCE/SEI

7—16 with Supplement 1-22: Minimum Design Loads and Associated Criteria for Buildings and Other Structures

Committee Action:

Disapproved

Committee Reason: Though the reason for the proposal was understood there were various concerns. First, this was viewed as more of a zoning issue. Questions were raised as to how these separations would affect aspects such as ceiling heights. Although these proposed fire safety related requirements and allowances are important there are others aspects including structural safety that need to be addressed. Generally, there were reservations about specifically promoting a practice that is not permitted by the current codes and such situations should be treated as a duplex. Others voiced a concern that although this issue needs to be addressed that this will not target those creating current violations to the code and instead will simply encourage this concept. There was also concerns with the applicability of the definition as it calls out detached structures in addition to the dwelling unit. (Vote: 10-4)

EB34-22

Individual Consideration Agenda

Public Comment 1:

IEBC: APPENDIX E (New), E101 (New), E101.1 (New), E101.1.1 (New), E101.2 (New), E201 (New), E201.1 (New), E301 (New), E301.1 (New), E401 (New), E401.1 (New), E401.2 (New), E401.3 (New), E401.4 (New), E501 (New), E501.1 (New), E501.2 (New), E501.3 (New), E501.4 (New)

Proponents: Mike Nugent, representing Building Code Action Committee (bcac@iccsafe.org) requests As Modified by Public Comment

Replace as follows:

2021 International Existing Building Code

APPENDIX E **ACCESSORY DWELLING UNITS (ADU)**

E101 **GENERAL**

E101.1 Scope. ADUs proposed within existing one- and two-family dwellings or townhouses shall be in accordance with this appendix and other applicable requirements in this code except as specified in this Appendix. The existing building together with the ADU shall be a one- or two-family dwelling or townhouse not more than three stories above grade plane in height.

E101.1.1 Prohibited Conditions. An ADU shall not be permitted within:

1. Live/work units located in townhouses.
2. Owner-occupied lodging houses with five fewer guestrooms.

3. A care-facility with five or fewer persons receiving medical care within a *dwelling unit*.
4. A care-facility with five or fewer persons receiving care within a single-family dwelling.

E101.2 Conditions. ADUs shall be permitted without requiring a *change of occupancy* where in compliance with all of the following:

1. An ADU shall be permitted within an existing single-family detached dwelling or within an existing townhouse unit not more than three stories above grade plane in height with a separate means of egress for each dwelling unit.
2. Only one ADU shall be permitted for each dwelling unit.
3. The owner of a property containing an ADU shall reside in either the primary dwelling unit or the ADU, as of the date of permit approval.
4. An ADU shall have a separate house number from the primary dwelling unit.
5. ADUs shall be secondary in size and function to the primary dwelling unit and shall comply with all of the following limits.
 - 5.1. Not less than 190 square feet (17.65 m) in area.
 - 5.2. Not more than 50 percent of the area of the primary dwelling unit.
 - 5.3. Not more than 1,200 square feet (111 m) in area.
6. An ADU shall be provided with a separate entrance than that serving the primary dwelling unit either from the exterior of the building or from a common hallway located within the building.
7. An ADU shall have a maximum number of two bedrooms.
8. The location of a detached ADU shall comply with the requirements of the *International Existing Building Code*.
9. An ADU shall be provided with adequate provisions for electricity, water supply and sewage disposal.

E201 **DEFINITIONS**

E201.1 Definitions. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein.

ACCESSORY DWELLING UNIT (ADU). An *addition* or *alteration* that is an additional, subordinate dwelling unit on the same lot, that is entirely within a dwelling unit, attached to a dwelling unit, or in a detached structure.

E301 **PERMITS**

E301.1 Required. Any owner or owner's agent who intends to construct an ADU within an existing or proposed building or structure shall first make application to the building official and obtain the required permit.

E401 **ADU PLANNING**

E401.1 Design. Except as modified by this section, building planning and the building structure shall be in accordance with the *International Existing Building Code*.

E401.2 Means of egress. The path of egress travel from an ADU to a public way or to a yard or court that opens to a public way shall be independent of, and not pass through the primary dwelling unit.

E401.3 Fire separation. For ADUs adjoining the primary dwelling unit, the 1-hour fire-resistance rated wall and floor assembly provisions of the *International Existing Building Code* shall not be required provided that both of the following conditions have been met:

1. The interconnection of smoke alarms activates the smoke alarms in both the primary dwelling unit and the ADU.
2. The interconnection of carbon monoxide alarms activates the carbon monoxide alarms in both the primary dwelling unit and the ADU.

E401.4 Smoke and carbon monoxide alarms. For ADUs adjoining the primary dwelling unit, the interconnectivity of smoke alarms and carbon monoxide alarms may be independent for the primary dwelling unit and the ADU provided that a 1-hour fire-resistance rating is provided for walls and floor assemblies in accordance with the *International Existing Building Code*.

E501 **UTILITIES**

E501.1 Heating, ventilation and air-conditioning systems. A primary dwelling unit and an ADU shall be provided with:

1. A separate heating system.
2. Separate ducting for heating and cooling systems. Return air openings for heating, ventilation and air-conditioning shall not be taken from another dwelling unit.
3. Separate climate controls.

E501.2 Electrical systems. A primary dwelling unit and an ADU shall be provided with:

1. Ready access to the service disconnecting means serving the dwelling unit.
2. Ready access for each occupant to all overcurrent devices protecting the conductors supplying the dwelling unit in which they reside.

E501.3 Gas piping. A primary dwelling unit and an ADU shall be provided with:

1. Ready access to shutoff valves serving the dwelling unit in which they reside.
2. Ready access to appliance shutoff valves serving appliances in the dwelling unit in which they reside.

E501.4 Water service. A primary dwelling unit and an ADU may share a common potable water system provided that there are separate, accessible main shutoff valves allowing the water to be turned off on one-side without affecting the other.

Commenter's Reason: This public comment creates an Appendix in the International Existing Building code that applies to ADU's in one-, two-story, and townhouse residential dwellings. This correlates the IEBC with the same proposed appendix that was approved for the IRC. Because one- and two-story dwellings and townhouses may comply with either the IRC or the IEBC, it is appropriate to have the same appendix in both documents.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This proposal does not increase nor decrease the cost of construction. The proposal creates a voluntary appendix allowing someone to build an accessory dwelling unit within the scope of the specified residential building types. no one is under any obligation to build an ADU, nor are they required to plan for the construction of a future ADU.

For someone choosing not to construct and ADU, these code provisions will not be applicable; there are no cost implications.

For someone choosing to construct and ADU, these code provisions are applicable; the cost of construction will increase proportionally to the size of the project. According to an article titled *Calculating the Costs of Building an ADU*, published on the BuildinganADU.com blog, the average cost for an ADU from 2016-2019 based on their research is as follows:

- Detached New Construction: \$305/SF
- Basement ADU: \$265/SF
- Attached ADU: \$300/SF
- Garage Conversion: \$297/SF
- Detached New Construction Above a Garage: \$212/SF

Public Comment# 3123

Proposed Change as Submitted

Proponents: David Bonowitz, representing FEMA-ATC Seismic Code Support Committee (dbonowitz@att.net); Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov)

2021 International Existing Building Code

Add new text as follows:

401.4 Demolition and replacement. Where a building is effectively demolished by damage or where the intended method of repair is demolition and replacement, the replaced building, including its remaining or replaced foundation, shall comply with requirements for new construction in the International Building Code or the International Residential Code, as applicable. Where a portion of a building is effectively demolished by damage or where the intended method of repair is partial demolition and replacement, the replaced portion shall comply with requirements for additions in this code or the International Residential Code, as applicable.

Reason: This proposal addresses a question raised, but not resolved, in the last cycle with proposal EB41-19: If a repair is essentially a replacement of the whole building (or a whole building wing), shouldn't the replacement be considered a new building? Answer: Yes, it should. And more to the point: The IEBEC makes a number of allowances, including the use of "like materials" for repairs, but those allowances should not apply if the project is essentially new construction.

Currently, the code relies on building officials to manage these hopefully rare cases, but that results in inconsistency from jurisdiction to jurisdiction and even from building to building or event to event.

- Some jurisdictions apply a "50 percent replacement cost" threshold adapted from legacy codes, but requiring the building official to calculate replacement costs and account for changing real estate markets was explicitly rejected for the IEBEC some years ago (though it is still used in flood hazard areas as *substantial damage* in coordination with the National Flood Insurance Program).
- EB41-19 tried to define a triggering loss level as damage "to the foundation," but that left too many loopholes (e.g. where a nominal portion of the superstructure – just a few feet of framing, or even just a sill plate – remains).
- EB41-19 also suggested treating this situation as a Level 3 alteration, but that would not have invoked "new construction" requirements and would have left open questions about how to define the work area.
- Other proposals have been floated for definitions of "complete damage" that explicitly rely on code official judgment, or for adapting the current IEBEC definition of *substantial structural damage* or similar measures of the affected area, but none proved satisfactory.

This proposal offers a uniform approach consistent with current IEBEC principles. Nearly all agree that where the entire building is destroyed by a damaging event (fire, flood, earthquake, etc.), the replacement structure should be designed and built as new construction. More difficult questions arise in two cases, both of which are addressed with this proposal:

- The damage itself is not complete, but the owner chooses to demolish and rebuild from scratch (possibly hoping to take advantage of the IEBEC's allowances for like repairs).
- The damage or demolished portion can be demolished and replaced while leaving substantial other portions to be repaired.

To address the first case, the proposal clarifies that the same rules should apply whether the loss was caused directly by the damage or whether the demolition was at the owner's discretion.

To address the second case, the proposal takes advantage of current code provisions for additions, which already cover similar issues. First, it avoids quibbling over how much loss/demolition is enough to trigger the "like new" requirement. Beyond that benefit, thinking of the replacement portion as an addition is a convenient way to allow the code to address:

- Criteria for the replaced portion, since additions themselves are already required to satisfy the code as new construction.
- Whether the replaced portion and the remaining portion are structurally independent, including cases of vertical combinations of lateral systems (as in podium construction).
- Whether the two portions share access, egress, life safety systems, etc.
- Whether any part of the remaining portion needs to be evaluated, altered, or upgraded to accommodate the replaced portion.

Replacing the foundation is expensive. Why must it also be replaced? Nothing in the proposal prevents an adequate foundation in good condition from being re-used with the approval of the code official. But new superstructure framing, as required, generally needs an equally compliant foundation. Plus, any attempt to write a provision that would allow foundation re-use would inevitably end up having to parse obviously deficient conditions. Again, better to set an enforceable rule, as proposed, and rely on the judgment of design professionals and code officials for case-by-case variances.

Cost Impact: The code change proposal will increase the cost of construction

Since the current code is not clear about how to address cases of repairs that are as extensive as new construction, whether the proposal will increase the cost of construction will vary depending on how a given jurisdiction is enforcing the incomplete code. Where a jurisdiction is making the same common sense interpretation as this proposal, there will be no cost increase. Where a jurisdiction is allowing any number of obsolete or deficient conditions to be rebuilt under the name of "repair," the proposal could represent a cost increase. At least with this proposal, owners will know the requirements that will apply if they choose to demolish and rebuild, as opposed to repairing what remains of a heavily damaged building.

EB36-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Though the overall concept to clarify repairs from new construction was supported, more detail and better terminology focused more on the damage is needed. Concern particularly focused upon the provisions relating to a portion of the building needing replacement as an addition and how that would be applied. There was also some question as to who is responsible to determine applicability of this section. (Vote: 8-7)

EB36-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 401.4

Proponents: David Bonowitz, representing FEMA-ATC Seismic Code Support Committee (dbonowitz@att.net); Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

401.4 Demolition and replacement. Where a building is ~~effectively demolished by damage~~ deemed to be damaged beyond repair or where the intended method of repair is demolition and replacement, the replaced building, including its remaining or replaced foundation, shall comply with requirements for new construction in the *International Building Code* or the *International Residential Code*, as applicable. ~~Where a portion of a building is effectively demolished by damage or where the intended method of repair is partial demolition and replacement, the replaced portion shall comply with requirements for additions in this code or the International Residential Code, as applicable.~~

Commenter's Reason: This comment makes two changes to the original proposal, which was very narrowly disapproved. During committee discussion, at least one member suggested revision by public comment.

First, the comment replaces some vague wording in the first sentence with the words "deemed to be damaged beyond repair." This change was suggested by floor mod Bonowitz-2 at the hearings with no opposition, and it did not figure in the committee's deliberation. As for the question of "who does the deeming?", the default answer is that, as usual, the code official has discretion in all such interpretations. In addition, the proposal already acknowledges the role of the owner in the phrase "intended method of repair." Thus, the owner generally has discretion over whether to repair or demolish, but the code official can make a superseding judgment that the building is damaged beyond repair. This is an important part of the proposal, one purpose of which is to prevent owners from applying allowances normally reserved for repairs to what should be better understood as a complete replacement due to "damage beyond repair."

Second, the comment removes the problematic second sentence of the original proposal. As noted in the committee's reason statement, the primary opposition to the proposal (from code experts Tim Ryan and Bill Koffel) was that the first sentence was good, but the second sentence involving a "portion of a building," while well-intended, was not clear enough and could lead to unintended interpretations. As proponents, we acknowledge that the second sentence requires ample code official judgment, and we accept the committee's view that, as submitted, it might have called for more judgment than is appropriate. This comment therefore leaves the question of partial damage and at least resolves the main question of whole buildings damaged beyond repair, on which there was broader consensus at the hearings.

Finally, a question was asked at the hearing about the impact of EB36 on urban sites with near-zero lot lines. Chicago and San Francisco were acknowledged as examples of cities that routinely face this issue. As discussed then, the appropriate way to address such local conditions and practices is with a local amendment. For a general rule in the model code, however, the IEBC should clarify -- as EB36 does -- that a replacement

project with essentially the value and longevity of new construction should meet the standards of new construction.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction

Please see the original proposal's cost statement, which applies to this public comment as well. As noted there, the actual cost impact might be zero, depending on how the current code is being interpreted.

Public Comment# 3151

Proposed Change as Submitted

Proponents: David Bonowitz, representing FEMA-ATC Seismic Code Support Committee (dbonowitz@att.net); Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov)

2021 International Existing Building Code

Revise as follows:

401.1 Scope. *Repairs* shall comply with the requirements of this chapter. *Repairs to historic buildings* need only comply with Chapter 12. Maintenance within the scope of the *International Property Maintenance Code* and repairs exempt from permit in accordance with Section 105.2 shall not be subject to the requirements of this chapter.

Reason:

This proposal restores a useful provision from the 2015 IEBC Prescriptive and Work Area methods that was lost when repair provisions were consolidated into what is now Chapter 4.

The provision in question was not intentionally deleted when that consolidation was made by EB10-15, whose reason statement does not mention it at all. Rather, it was inadvertently dropped when the EB10-15 proponents selected the Work Area method as the basis for the new Repairs chapter, because that method was more complete in general. The loss of this useful provision came to light only in 2019 when the 2018 IEBC started to be adopted and used.

The proposal adds back the prior clarification that exempts maintenance and minor repairs from Chapter 4. The proposed wording comes from 2015 IEBC Section 404.1, excerpted below for reference.

It's true that even repairs (or other work) exempt from permitting still must comply with the code generally -- for example, may not create a dangerous condition or use prohibited materials. Still, It makes sense that these minor repairs (e.g. painting, papering, replacing lamps; see Sec 105.2) should not be subject to Chapter 4, since there is no way to track them without a permit application. If necessary, the proposed reference to Section 105.2 could be omitted by floor modification, even though it is no different from the 2015 and prior codes.

For reference, here is the text of 2015 IEBC Section 404.1:

404.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with Sections 401.2 and 404. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. **Routine maintenance required by Section 401.2 [sic], ordinary repairs exempt from permit in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.**

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

The proposal merely reflects the common interpretation of the current code, one that was explicit in the IEBC through the 2015 edition and removed inadvertently in 2018. If anything, the proposal could decrease the cost of some repairs where building officials are interpreting the current code differently.

EB37-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Disapproval was based upon concerns that regardless of whether a permit is required compliance with this code is still required. (Vote: 13-1)

EB37-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 401.1

Proponents: Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov) requests As Modified by Public Comment

Replace as follows:

2021 International Existing Building Code

401.1 Scope. *Repairs* shall comply with the requirements of this chapter. *Repairs to historic buildings* need only comply with Chapter 12. Maintenance within the scope of the *International Property Maintenance Code* shall not be subject to the requirements of this chapter.

Commenter's Reason: This proposal restores a useful provision from the 2015 IEBC Prescriptive and Work Area methods that was lost when repair provisions were consolidated into what is now Chapter 4. This provision was not intentionally deleted, it was inadvertently dropped when the EB10-15 proponents selected the Work Area method as the basis for the new Repairs chapter, because that method was more complete in general. The loss of this useful provision came to light only in 2019 when the 2018 IEBC started to be adopted and used. EB37 was disapproved at the committee action hearings because work exempt from permit per Section 105.2 is still required to meet applicable IEBC requirements. In response to this committee concern, the wording "and repairs exempt from permit in accordance with Section 105.2" has been struck from the proposal. We request approval as further modified.

For reference, here is the text of 2015 IEBC Section 404.1:

404.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with Sections 401.2 and 404. Work on nondamaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by Section 401.2 [sic], ordinary repairs exempt from permit in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. The cost statement has not changed from the original code change proposal.

Public Comment# 3204

Proposed Change as Submitted

Proponents: Stephen Szoke, representing American Concrete Institute (steve.szoke@concrete.org); Scott Campbell, representing NRMCA (scampbell@nrmca.org); Peter Barlow, representing Contech Services, Inc. (petebarlow@protonmail.com); Gene Stevens, , representing J.R. Harris & Company (gene.stevens@jrharrisandco.com); Randy Shackelford, representing Simpson Strong-Tie Co. (rshackelford@strongtie.com); David Whitmore, Vector Corrosion Technologies, representing Vector Corrosion Technologies (davidw@vector-corrosion.com); Matt Miltenberger, VCS Inc., representing VCS Inc. (mattm@vcservices.com); Bill Horne, NDT Corporation, representing NDT Corporation (BHorne@ndtcorporation.com); Dave Tepke, representing SKA Consulting Engineers, Inc. (dgtepke@skaeng.com); Jason Coleman, representing International Concrete Repair Institute (jcoleman@wje.com); Dave Fuller, representing International Concrete Repair Institute, (ICRI) (davef@icri.org); Justin Long, representing Baltimore-Washington ICRI (justinl@skaengineers.com); Mark DeStefano, representing ICRI (markd@destefanoengineering.com); Bryan Heery, representing ICRI (bryanh@everclearenterprises.com); Matthew Hansen, representing Euclid Chemical Company (mhansen@euclidchemical.com); Jim Baker, representing Myself (jim@wmbakerco.com); Doug Qualey, representing Arizona ICRI (dqualey@euclidchemical.com); Mark Meighan, representing ICRI Delaware Valley (mmeighan@crlpa.com); Jeff Jezzard, Vector Construction, representing Vector Construction (jeffj@vector-construction.com); Elena Bradway, representing Aquafin Inc (elena@aquafin.net); Michael Payne, representing Pittsburgh ICRI (mike.payne@becsmd.com); John Catlett, representing BOMA International (catlettcodeconsulting@gmail.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

[BS] **405.1 General.** Structural *repairs* shall be in compliance with this section and Section 401.2.

Add new text as follows:

405.1.1 Structural Concrete. Repair of structural concrete in accordance with ACI 562 Section 1.7 is deemed to comply with Section 405.1, except where Section 405.2.2, 405.2.3 or 405.2.4.1 requires compliance with Section 304.3.

-

Add new standard(s) as follows:

ACI

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331-3439

ACI 562-21. Assessment, Repair, and Rehabilitation of Existing Concrete Structures - Code Requirements

Reason: Concept – This code change proposal adds ACI CODE 562: *Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures*, to establish minimum requirements for the evaluation, design, and construction of repairs, and rehabilitation of concrete structural elements in buildings for various levels of desired performance as deemed appropriate for the project. In addition to improved life safety, the requirements clearly define objectives and anticipated project performance for the code official, owners, designers, contractors, and installers. While the proposed language is mandatory, alternative means and methods remain permitted in accordance with Section 104.11 “Alternative materials, design and methods of construction, and equipment.” This addition to the IEBC is also especially important as it includes references to standard specifications for materials used to repair concrete elements that are not addressed elsewhere in the family of International Code Council Codes. Consistent with the language in ACI CODE 562, and the proposed language clearly communicates that use of 562 is not permitted where either the disproportionate earthquake damage (Section 405.2.2), substantial structural damage (Section 405.2.3) or lateral force resisting elements (Section 405.2.4.1) provisions triggered strengthening. Such work would more appropriately be done using ASCE-41 or other similar resources.

Background – In 2006, the repair industry approached ACI asking for a concrete repair and rehabilitation code that would improve the overall quality of concrete repairs by establishing minimum requirements while establishing clear responsibilities between owners, designers, and contractors to improve public safety. Further, although ACI has made available many guides, manuals, reports and standards on concrete repairs for voluntary use, studies show that the current failure rate of repairs to structural concrete is inconsistent with ACI 562 Committee’s views regarding a reasonable level of life safety. The studies [See Hyperlink 1] show that 50 percent of repairs to structural concrete fail within 10 years and 20 percent fail within 5 years. This code provides building code officials with a reference by which to evaluate repairs and rehabilitation of concrete structures.

Scope – ACI 318 provides specific requirements for structural concrete in the International Building Code, similarly, ACI CODE 562 complements the IEBC by providing specific direction on how to evaluate, design and conduct concrete repairs and how to handle the unique construction problems associated with repairs to concrete elements. This standard provides more in-depth requirements needed by most entities addressing the repair of concrete structural elements than is provided in the IEBC. Further, the standard provides the requirements that bridge the inconsistencies and gaps in acceptable criteria that occur from the two following situations that a designer must solve: 1) repairing a structure according to the original building code used at the time it was built using today’s construction methods and materials; or 2) repairing a structure built according to an

older building code but repaired according to a more recent building code. ACI CODE 562 includes specifications and requirements for products commonly used for repairs, but not addressed elsewhere in the building codes, including but not limited to fiber-reinforced polymers and polymer concrete.

Benefits – There are many benefits that ACI CODE 562 provides for the designer, owner, contractor, materials providers, building code official and the public. A few of these benefits are:

- **Life Safety:** Provides a level of expectation of life safety to the public in buildings where repairs or rehabilitation is performed on concrete structural elements.
- **Improved Infrastructure:** Many concrete structures are in need of repair and it is crucial that repairs as remedial action for deficiencies in structural elements must be done properly and not simply be cosmetic repairs. This requires minimum levels of evaluation, design, and repair. While not unique to Pittsburgh or parking structures, there is a common theme about the need to properly rehabilitate and repair existing concrete structures.
- **Uniform Requirements:** Provides clearly defined, uniform requirements aimed at extending the service life of existing structures.
- **Quality Repairs:** Provides minimum requirements for efficiency, safety, and quality of concrete repair.
- **Clear Responsibilities:** Establishes clear responsibilities between owners, designers, and contractors.
- **Clear Path for Approval:** Provides building code officials with a means to evaluate rehabilitation designs.
- **Affordable Repairs:** Where appropriate, while helping to ensure an acceptable level of risk, permits specific repair requirements that often result in less costly repairs compared to repairs required to meet requirements for new building construction.
- **Flexibility:** Permits flexibility in evaluation, design, construction and repair materials to provide economies while establishing expected performance for the service-life of the rehabilitation or repairs.
- **Sustainability** - Improve owner, developer, and public confidence regarding effective repairs, upgrades, and reuse of existing buildings in lieu of demolition and replacement (energy, disposal, new materials and construction costs), by appropriately extending the life of existing buildings.
- **Consistent Language:** Several jurisdictions have adopted or are considering adoption of ACI CODE 562. These include but are not limited to Florida, Hawaii, Massachusetts, North Carolina, Ohio, and South Carolina. Inclusion of language in the model building code for existing buildings will improve consistency of language and location of the requirements within the codes of the authorities having jurisdiction adopting ACI CODE 562 by reference.

Resources – Also, there many resources that complement ACI 562. Two ACI documents are provided in the bibliography.

These resources are readily available to provide greater understanding of assessment, repair and rehabilitation of concrete structural elements. ACI MNL-3 provides case studies demonstrating the ease of use of ACI 562. Numerous technical notes, reports, guides, and specifications that provide background information and technical support are available through other organizations, such as American Society of Civil Engineers, British Research Establishment, Concrete Society, International Concrete Repair Institute, National Association of Corrosion Engineers, Post-Tensioning Institute, Society for Protective Coatings, and US Army Corps of Engineers. Many of these organizations' publications related to concrete repair can be found in the Concrete Repair Manual.

Adoptions –

- *2020 Florida Building Code, Existing Buildings, 7th Edition* Section 301.3.4.
- *2018 Hawaii State Building Code* Item (53) Section 3401.6. • *2017 Ohio Building Code with Aug 2018 Updates & Errata 02-08-19* Section 3401.6.
- *2018 North Carolina Existing Building Code* Section 606.1.1.
- *City of Los Angeles California Design Guide Volume 1 City of Los Angeles Mandatory Earthquake Hazard Reduction in Non-Ductile Concrete Buildings (NDC)*, including Section 4.1 Retrofit Design Process.
- New York City Department of Buildings cites ACI 562 in *BUILDINGS BULLETIN 2017-015*.
- Design and construction specifications for the City of Austin, Texas Section 410S

Recommendation – ACI, a professional technical society, has developed ACI CODE 562 in response to industry needs and to help assure acceptable minimum levels of life safety, health, and welfare for the public. For this reason and the other benefits identified in this reason statement, ACI recommends this code change proposal for committee approval as submitted.

Hyperlink 1: Studies: <https://projects.bre.co.uk/conrepnet/pdf/newsletter3.pdf>

Bibliography: ACI 563-18, Specifications for Repair of Structural Concrete in Buildings
MNL-3(16) Guide to the Code for Assessment, Repair, and Rehabilitation of Existing Concrete Structures, ACI and ICRI 2016.

Cost Impact: The code change proposal will decrease the cost of construction
Generally, the use of ACI CODE 562 will reduce the cost of repair, by allowing a level of repair amicable to both the owner and the building code official, while maintaining an acceptable level of safety for occupants. Without this option, often there is a demand to conduct repairs that meet the requirements of the most recent adopted building code for new construction. This standard increases the options available for repair and provides the acceptance criteria necessary to permit these options. A case study that illustrates this point: "ACI CODE 562 has been referenced in expert reports for litigation cases, resulting in significantly reduced financial settlements. Denver-based J. R. Harris & Company recently used the code as a standard in several litigation reports assessing damages in existing concrete structures. As an approved consensus standard, according to American National Standards Institute (ANSI) procedures, ACI CODE 562-13 has been accepted as the source standard to use for damage assessment and repair on individual projects by Greenwood Village and Pikes Peak Regional Building Departments in Colorado. Based on this acceptance, the consulting engineer was able to cite the code in their recommendation for structural remediation and determination of damages. In one case involving rehabilitation work on four buildings with faulty construction, J.R. Harris was able to reduce the repair costs from \$12 million to \$3 million, with a repair plan based on the lesser of the demand-capacity ratio based on either the original or current building code per ACI 562."

Staff Analysis: A review of the standard proposed for inclusion in the code, ACI 562-21 Assessment, Repair and Rehabilitation of Existing Concrete Structures- Code Requirements, with regard to some of the key ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before March 16, 2022.

EB39-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: Approved as the updated consensus standard addresses previous committee concerns. The committee did express concerns with the 'deemed to comply' language and that the provided reason statement says 'mandatory'; however, in-person testimony was to the contrary. (Vote: 9-5)

EB39-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 405.1.1

Proponents: Jonathan Siu, representing Washington Association of Building Officials Technical Code Development Committee; Micah Chappell, representing Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov); Stephen Szoke, representing American Concrete Institute (steve.szoke@concrete.org) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

405.1.1 Structural concrete repairs. Repair of structural concrete ~~in accordance shall be permitted to comply~~ with ACI 562 Section 1.7 ~~is deemed to comply with Section 405.1~~, except where Section 405.2.2, 405.2.3 or 405.2.4.1 requires compliance with Section 304.3.

Commenter's Reason: This public comment addresses a comment made by a member of the Structural Committee at the Committee Action Hearings. Specifically, the member had concerns with the "deemed to comply" language in the proposal. This public comment removes the troublesome language, which could be construed as overriding the other provisions in the IEBC despite the language in Section 1.7 of ACI 562. This does not change the intent of the proposal, as use of ACI 562 is still permitted for concrete repairs as long as the repairs are not for seismic

purposes.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction

The original cost impact statement says this proposal will decrease the cost of construction. This public comment will have no effect on the original cost impact statement.

Public Comment# 3100

Proposed Change as Submitted

Proponents: Gwenyth Searer, representing myself (gsearer@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Add new text as follows:

405.2.1 Repair of water damage. The removal and replacement of water-damaged finishes as part of a repair need not be considered damage that reduces the lateral load-carrying capacity of a structure.

Reason: After a structural fire, gypsum board and other architectural finishes are often removed to address staining and to reduce or eliminate the potential for mold growth. Oftentimes, architectural finishes are removed wholesale due to the concern that the potential for mold growth is a significant liability. It is also often easier for a restoration contractor to simply remove all of the architectural finishes during the emergency cleanup rather than removing just the water-damaged portions. In many older structures, however, gypsum board sheathing is used to resist lateral loads. During the time between removal and replacement of these gypsum board finishes, the loss of lateral load-carrying capacity can appear to be total in the affected areas. Since these finishes are being removed to address water staining and to mitigate the potential for mold, it makes sense to exclude the transitory removal and replacement of these elements in any calculation of loss of lateral load-carrying capacity. This proposal adds this commonsense interpretation into the provisions of the IEBC between Section 405.2 and what is currently 405.2.1. This would cause Section 405.2.1 to become 405.2.2, Section 405.2.2 to become 405.2.3, etc.

Note that this proposal does not eliminate structural damage to gypsum board from being considered in a loss-of-lateral-load-carrying-capacity calculation (e.g., damage from an earthquake); it only addresses elements that are removed and replaced due to water damage.

Cost Impact: The code change proposal will decrease the cost of construction

This change will reduce the cost of repairs to water-damaged structures that rely on architectural finishes such as gypsum board for their lateral force resisting system. Previously, the proper treatment of finishes that are removed due to water damage, water staining, and/or mold has been unclear in the calculation of loss of lateral load-carrying capacity when the structure relies on those finishes for lateral bracing. This proposal would make it clear that water damage to those components need not be considered in the calculation of loss of lateral load-carrying capacity. With a reduced repair scope for these structures, the cost of repair will necessarily be reduced.

EB40-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Disapproved as the proposal needs to be more specific than just 'water-damaged finishes'. The committee noted that the proposal needed to provide guidance on damage due to other situations. (Vote: 11-3)

EB40-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 405.2.1

Proponents: Gwenyth Searer, representing myself (gsearer@wje.com) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

405.2.1 Repair of ~~water damage~~ from smoke and fire-suppression efforts. The removal and replacement of wall and floor sheathing ~~water-~~

~~damaged finishes that is damaged by smoke or by fire-suppression foam or water during a fire as part of a repair~~ need not be considered damage that reduces the lateral load-carrying capacity of a structure.

Commenter's Reason: While all of the committee comments regarding the initial proposal were positive, one member wanted the word "finishes" to be clarified so that it is clear that gypsum board sheathing used as part of the lateral force resisting system is included; another member wanted fire-fighting foam to be included; and another wanted fire-fighting water to be included but not damage due to a fire sprinkler break during an earthquake. This public comment addresses all three desires and still maintains the intent as documented in the original reason statement.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction. The original proposal would reduce costs associated with fires because it will trigger fewer upgrades as a result of fire-fighting efforts. When combined with the public comment, costs of repairing fire damage will also decrease, because removal and replacement of finishes due to smoke damage or due to fire-fighting efforts (which includes sprinkler-water and hose-water during a fire) will not be considered damage that reduces the lateral capacity of a building.

Public Comment# 3372

Proposed Change as Submitted

Proponents: Daniel Nichols, representing MTA Construction and Development (dnichols@mnr.org)

2021 International Existing Building Code

Revise as follows:

502.1 General. *Additions* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* to the *existing building* or structure shall be made to ensure that the *existing building* or structure together with the *addition* are not less complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *addition*. An *existing building* together with its *additions* shall comply with the height and area provisions of Chapter 5 of the *International Building Code*.

Exception: Where an addition is an exit or exit access stairway or to provide an accessible route, the addition shall not be considered an area increase for compliance with this section.

1102.2 Area limitations. An *addition* shall not increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings unless fire separation as required by the *International Building Code* is provided.

~~**Exception-Exceptions:**~~

1. In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the *International Building Code*.
2. Where an addition is an exit or exit access stairway or to provide an accessible route, the addition shall not be considered an area increase for compliance with this section.

1102.3 Fire protection systems. Existing fire areas increased by the *addition* shall comply with Chapter 9 of the *International Building Code*.

Exception: Where an addition is an exit or exit access stairway or to provide an accessible route, the addition shall not be considered an area increase for compliance with this section.

1301.2.3 Additions. *Additions* to *existing buildings* shall comply with the requirements of the *International Building Code* or the *International Residential Code* for new construction. The combined height and area of the *existing building* and the new *addition* shall not exceed the height and area allowed by Chapter 5 of the *International Building Code*. Where a fire wall that complies with Section 706 of the *International Building Code* is provided between the *addition* and the *existing building*, the *addition* shall be considered a separate building.

Exception: Where an addition is an exit or exit access stairway or to provide an accessible route, the addition shall not be considered an area increase for compliance with this section.

Reason: Due to constraints within an existing building footprint, many buildings that wish to add vertical circulation methods to provide accessibility to upper or lower levels need to create an "addition" to the existing building. In doing so, the addition of an elevator shaft attached to the exterior wall, the placement of a covered ramp, or the addition of an exterior stairway with a roof will usually trigger an evaluation of building areas and fire protection systems within existing fire areas. The general addition areas of these locations can be in the 100-300 sf per story for a single cab elevator, or run of a covered ramp.. Because of the definition of a building area and fire areas being modified over the past few IBC and IFC development cycles (see projection requirements for "area, building" and "fire area" in IBC Section 202 , these specialized additions are now considered the same as an addition looking to increase occupiable floor area.

Regarding building area- Width the limited space that an elevator, stairway, or ramp takes in regards to building area, the increase in nonconformance is minimal. The most nonconforming situation that could be realized is no greater than 10% (existing 3 story nonsprinklered group R Type 5B). However, the addition of an elevator doesn't completely increase the occupiable or usable floor area of a story in the same way fire flows and fire suppression methods have been evaluated to determine building area sizing for over a century. This was also previously supported by the "125% increase" that was found in the base "rehab" codes regarding area increases for additions.

Fundamentally, the addition of a stairway or ramp is always a benefit from upper levels for egress purposes. The placement of a covering to protect against the weather (or excavation if you are underground) should not be the trigger for an evaluation of the building area and all fire protection systems. Additionally, these types of additions also require an accessible means of egress to be provided which greatly increases the safety and (sometimes) requires additional fire separations or automatic sprinklers to meet AMOE requirements.

Since this code change proposal is an exception to building area and fire area requirements, a change has been placed in all three compliance method sections to ensure consistency of accessibility upgrades. It was felt it is not appropriate for code users to place in the all-accessibility section IEBC Section 306, but would take direction from the committee if so desired.

Cost Impact: The code change proposal will decrease the cost of construction

The removal of building area and fire area consideration from accessible route upgrades will decrease the cost of construction. Currently in the metropolitan NYC area, the installation in an existing rail station of a two stop elevator from street level to one level below grade (excavation, elevator installation, space reconfiguration, EMR placement, MEP work, and com work) is an average of \$16M. To continue to outfit an existing rail station with an automatic sprinkler system is an additional \$2.234M for the first 5,000 sf of fire area. As an example of the savings, this code change proposal will decrease the cost of elevator projects by a minimum of 13.9% and does not include greater coverage areas, smoke detection requirements, and upgrades to construction due to building area increases.

EB45-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

502.1 General. *Additions* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* to the *existing building* or structure shall be made to ensure that the *existing building* or structure together with the *addition* are not less complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *addition*. An *existing building* together with its *additions* shall comply with the height and area provisions of Chapter 5 of the *International Building Code*.

Exception: ~~In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the International Building Code. Where an addition is an exit or exit access stairway or to provide an accessible route, the addition shall not be considered an area increase for compliance with this section.~~

1102.2 Area limitations. An *addition* shall not increase the area of an *existing building* beyond that permitted under the applicable provisions of Chapter 5 of the *International Building Code* for new buildings unless fire separation as required by the *International Building Code* is provided.

Exceptions:

1. In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the *International Building Code*.
2. ~~Where an addition is an exit or exit access stairway or to provide an accessible route, the addition shall not be considered an area increase for compliance with this section.~~

1102.3 Fire protection systems. Existing fire areas increased by the *addition* shall comply with Chapter 9 of the *International Building Code*.

Exception: ~~In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the International Building Code. Where an addition is an exit or exit access stairway or to provide an accessible route, the addition shall not be considered an area increase for compliance with this section.~~

1301.2.3 Additions. *Additions* to *existing buildings* shall comply with the requirements of the *International Building Code* or the *International Residential Code* for new construction. The combined height and area of the *existing building* and the new *addition* shall not exceed the height and area allowed by Chapter 5 of the *International Building Code*. Where a fire wall that complies with Section 706 of the *International Building Code* is provided between the *addition* and the *existing building*, the *addition* shall be considered a separate building.

Exception: ~~In-filling of floor openings and nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the International Building Code. Where an addition is an exit or exit access stairway or to provide an accessible route, the addition shall not be considered an area increase for compliance with this section.~~

Committee Reason: This approval clarifies that a designer or owner should not be penalized for additional building area when adding egress or increasing accessibility. The modification simply uses existing exception language from Section 1102.2 to replace the proposed language. That wording already allows infilling for elevators and exit stairways to permit the addition of more exiting and accessibility without contributing to building area. (Vote: 14-0)

EB45-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 1102.3

Proponents: Daniel Nichols, representing MTA Construction and Development (dnichols@mnr.org) requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

1102.3 Fire protection systems. Existing fire areas increased by the *addition* shall comply with Chapter 9 of the International Building Code.

Exception: ~~In filling of floor openings and nonoccupiable~~ Nonoccupiable appendages such as elevator and exit stairway shafts shall be permitted beyond that permitted by the International Building Code.

Commenter's Reason: This public comment is to address an unintended exemption as is applies to fire protection systems. The application of 1102.3 for fire protection systems is different than the height and area increases that are in the changes for the 3 compliance methods. The public comment removes the general in-filling of floor openings since this could create a substantial increase in fire area and/or occupant loading without any limitations. However, it does keep the elevator and stairway addition exception that were substantiated by the original reason statement and supported by the committee.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction. This public comment maintains the same cost savings listed in the original code change proposal.

Public Comment# 3245

Proposed Change as Submitted

Proponents: Stephen Thomas, representing Self (sthomas@coloradocode.net)

2021 International Existing Building Code

Revise as follows:

502.1 General. *Additions* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* to the *existing building* or structure shall be made to ensure that the *existing building* or structure together with the *addition* are not less complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *addition*. An *existing building* together with its *additions* shall comply with the height and area provisions of Chapter 5 of the International Building Code. Where a new occupiable roof is added to a building or structure, the occupiable roof shall comply with the provisions of the International Building Code.

CHAPTER 11 ADDITIONS

SECTION 1101 GENERAL

1101.1 Scope. An *addition* to a building or structure shall comply with the International Codes as adopted for new construction without requiring the *existing building* or structure to comply with any requirements of those codes or of these provisions, except as required by this chapter. Where an *addition* impacts the *existing building* or structure, that portion shall comply with this code.

1101.2 Creation or extension of nonconformity. An *addition* shall not create or extend any nonconformity in the *existing building* to which the *addition* is being made with regard to accessibility, structural strength, fire safety, means of egress or the capacity of mechanical, plumbing or electrical systems.

1101.3 Other work. Any *repair* or *alteration* work within an *existing building* to which an *addition* is being made shall comply with the applicable requirements for the work as classified in Chapter 6.

1101.4 Enhanced classroom acoustics. In Group E occupancies, enhanced classroom acoustics shall be provided in all classrooms in the *addition* with a volume of 20,000 cubic feet (565 m³) or less. Enhanced classroom acoustics shall comply with the reverberation time in Section 808 of ICC A117.1.

Add new text as follows:

1101.5 Occupiable Roofs. Where a new occupiable roof is added to a building or structure, the occupiable roof shall comply with the provisions of the International Building Code.

Revise as follows:

1301.2.3 Additions. *Additions* to *existing buildings* shall comply with the requirements of the *International Building Code* or the *International Residential Code* for new construction. The combined height and area of the *existing building* and the new *addition* shall not exceed the height and area allowed by Chapter 5 of the International Building Code. Where a fire wall that complies with Section 706 of the International Building Code is provided between the *addition* and the *existing building*, the *addition* shall be considered a separate building. Where a new occupiable roof is added to a building or structure, the occupiable roof shall comply with the provisions of the International Building Code.

Reason: The purpose of this proposed language is to provide guidance to the use of the code as to what is required when an occupiable roof is added to a building. The proposal would confirm that the occupiable roof will need to comply with the provisions of the International Building Code. This could include the means of egress, accessibility and live load requirements. Many roofs are not designed to support the loads imposed when an occupiable roof is added to a building. This would require that the structure be upgraded to support the additional loads, that a means of egress is provided in accordance with Chapter 10 of the IBC and that an accessible route be provided if one is required by Chapter 11 of the IBC, to just name a few requirements.

The new language has been added to each of the three different options for compliance. The definition of an addition is "An extension or increase in floor area, number of stories, or height of a building or structure". I would argue that the new occupiable roof is an increase in the floor area. It is not an increase in building area, but is increasing the floor area for the purpose egress and accessibility.

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

The intent of this proposal is to clarify that a new occupiable roof must comply with the provisions of the building code. The requirements are essentially already in the code, but this change clarifies the requirement.

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: There was concern that without this proposed language occupiable roofs can create significant life safety and emergency responder safety hazards. Occupiable roofs can have significant occupant loads as they are often assembly occupancies. This proposal prevents an owner from constructing a building that is not initially classified as a high-rise then once occupied adding an occupiable roof with a high occupant load, which based upon the requirements of the 2024 IBC, would be considered a high-rise building. (Vote: 10-4)

EB46-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 502.1, 1101.5, 1301.2.3

Proponents: Stephen Thomas, representing Colorado Chapter ICC (stthomas@coloradocode.net) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

502.1 General. *Additions* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* to the *existing building* or structure shall be made to ensure that the *existing building* or structure together with the *addition* are not less complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *addition*. An *existing building* together with its *additions* shall comply with the height and area provisions of Chapter 5 of the International Building Code. Where a new occupiable roof is added to a building or structure, the occupiable roof shall comply with the provisions of the International Building Code.

Exception: Where construction of a new occupiable roof on an existing building results in a high rise building classification and the occupiable roof has an occupant load less than 50, compliance with Section 403 of the International Building Code shall not be required.

1101.5 Occupiable Roofs. Where a new occupiable roof is added to a building or structure, the occupiable roof shall comply with the provisions of the International Building Code.

Exception: Where construction of a new occupiable roof on an existing building results in a high rise building classification and the occupiable roof has an occupant load less than 50, compliance with Section 403 of the International Building Code shall not be required.

1301.2.3 Additions. *Additions* to *existing buildings* shall comply with the requirements of the *International Building Code* or the *International Residential Code* for new construction. The combined height and area of the *existing building* and the new *addition* shall not exceed the height and area allowed by Chapter 5 of the International Building Code. Where a fire wall that complies with Section 706 of the International Building Code is provided between the *addition* and the *existing building*, the *addition* shall be considered a separate building. Where a new occupiable roof is added to a building or structure, the occupiable roof shall comply with the provisions of the International Building Code.

Exception: Where construction of a new occupiable roof on an existing building results in a high rise building classification and the occupiable roof has an occupant load less than 50, compliance with Section 403 of the International Building Code shall not be required.

Commenter's Reason: Proposal EB46-22 was approved as submitted by the committee. Proposal EB94-22 added an exception to Section 1002.1. That proposal places the requirements under a Change of occupancy. This proposal considers new occupiable roofs as an addition. Therefore, there will be a conflict in the code and create confusion. The definition of an addition states, "An extension or increase in floor area, number of stories, or height of a building or structure. When an owner creates an occupiable roof, decking is typically added over the top of the existing roof and therefore increasing the height of the building/structure. Therefore, it meets the definition of an addition. The definition of Change of Occupancy states the following:

Any of the following shall be considered as a change of occupancy where the current International Building Code requires a greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current building or structure:

1. Any change in the occupancy classification of at building or structure.

2. Any change in the purpose of, or a change in the level of activity within, a building or structure.

3. A Change of use.

The creation of an occupiable roof does not fall under any of those conditions. So, it cannot be a change of occupancy. It is our position, that the correct location is within the addition requirements.

The committee approved a modified exception to EB94-22 stating that occupiable roofs with an occupant load of less than 50 would not need to comply with the high-rise provisions in IBC Section 403. We have taken the revised exception approved by the committee and relocated it within this public comment to maintain the intent of the committee. The revised exception will be maintained, just in the proper location.

This will maintain the original proponent's and committee's intent. It is important that a new occupied roof be considered an addition and not a change of occupancy. If it is considered a change of occupancy, the provisions of Section 306.7.1 would apply and the 20% limitation on improving the accessibility would be applicable. Therefore, there would be little likelihood that an elevator would be provided to an occupiable roof. An addition does not fall under this limitation and full accessibility would be required to the roof.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction
If an occupiable roof is added to a building, additional improvements will need to be provided to the building.

Public Comment# 3079

Proposed Change as Submitted

Proponents: David Bonowitz, representing FEMA-ATC Seismic Code Support Committee (dbonowitz@att.net); Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Add new text as follows:

502.1.1 Risk category assignment. Where the addition and the existing building have different occupancies, the risk category of each existing and added occupancy shall be determined in accordance with Section 1604.5.1 of the *International Building Code*. Where application of that section results in a higher risk category for the existing building, such a change shall be considered a change of occupancy and shall comply with Section 506 of this code. Where application of that section results in a higher risk category for the addition, the addition and any systems in the existing building required to serve the addition shall comply with the requirements of the *International Building Code* for new construction for the higher risk category.

1101.3 Risk category assignment. Where the addition and the existing building have different occupancies, the risk category of each existing and added occupancy shall be determined in accordance with Section 1604.5.1 of the *International Building Code*. Where application of that section results in a higher risk category for the existing building, such a change shall be considered a change of occupancy and shall comply with Section 506 of this code. Where application of that section results in a higher risk category for the addition, the addition and any systems in the existing building required to serve the addition shall comply with the requirements of the *International Building Code* for new construction for the higher risk category.

Reason: This proposal clarifies how risk category should be assigned where the addition and the existing building have different uses. It creates identical provisions in the Prescriptive and Work Area methods.

IBC Section 1604.5.1 already covers conditions like this for new buildings. Generally, IEBC users would use IBC Section 1604.5 to find the risk category where any IEBC provision calls for it, but there is no general IEBC provision that explicitly points there. The case of additions, where the IEBC already requires the addition to be designed and built as new construction, is of particular interest, so this proposal provides a common sense interpretation.

As background and precedent, it is worth noting the other cases where the current codes address mismatched uses:

- IEBC Section 302.5 points to IBC Chapter 3 to assign occupancies, and Chapter 3 points in turn to Section 508 for buildings with mixed occupancies.
- IEBC Section 304.3 points to IBC Section 1604.5 to assign risk categories, and Section 1604.5.1 addresses mixed use buildings, requiring each portion of a new building to be assigned to the highest risk category of any portion on which it is structurally or functionally dependent. This proposal creates new IEBC sections to make that reference more direct and explicit for the case of additions.
- IEBC Section 1101.2 prohibits deficiencies in existing buildings from being extended into additions. (We are separately proposing a similar provision for the Prescriptive method.)
- IEBC Sections 506.5.4 and 1006.4 address operational access to RC IV facilities that might be affected by a change of occupancy project, but there is no similar provision for additions. This proposal would address that situation in a different way, by acknowledging that a dependent addition to a RC IV building must itself be assigned to RC IV, and that a RC IV addition changes the occupancy of a dependent non-RC IV existing building.

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

The proposal merely provides a more explicit interpretation of the current code for the special case of additions.

EB47-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

1101.3 Risk category assignment. Where the addition and the existing building have different occupancies, the risk category of each existing and added occupancy shall be determined in accordance with Section 1604.5.1 of the *International Building Code*. Where application of that section results in a higher risk category for the existing building, such a change shall be considered a change of occupancy and shall comply with ~~Section 506~~ **Chapter 10** of this code. Where application of that section results in a higher risk category for the addition, the addition and any systems in the existing building required to serve the addition shall comply with the requirements of the *International Building Code* for new construction for the higher risk category.

Committee Reason: Approved as modified as this provides consistency between the IEBC and the IBC for Risk Category assignments. The modification correctly adds a pointer to Chapter 10. (Vote: 14-0)

EB47-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 502.1.1, 1101.3

Proponents: Jonathan Siu, representing Self requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

502.1.1 Risk category assignment. Where the addition and the existing building have different occupancies, the risk category of each existing and added occupancy shall be determined in accordance with Section 1604.5.1 of the *International Building Code*. Where application of that section results in a higher risk category for the existing building compared with the risk category for the existing building before the addition, such a change shall be considered a change of occupancy and shall comply with Section 506 of this code. Where application of that section results in a higher risk category for the addition compared with the risk category for the addition by itself, the addition and any systems in the existing building required to serve the addition shall comply with the requirements of the *International Building Code* for new construction for the higher risk category.

1101.3 Risk category assignment. Where the addition and the existing building have different occupancies, the risk category of each existing and added occupancy shall be determined in accordance with Section 1604.5.1 of the *International Building Code*. Where application of that section results in a higher risk category for the existing building compared with the risk category for the existing building before the addition, such a change shall be considered a change of occupancy and shall comply with Chapter 10 of this code. Where application of that section results in a higher risk category for the addition compared with the risk category for the addition by itself, the addition and any systems in the existing building required to serve the addition shall comply with the requirements of the *International Building Code* for new construction for the higher risk category.

Commenter's Reason: This public comment is being submitted to clarify the application of the proposed change, in response to comments from a Structural Committee member at the Committee Action Hearings. As submitted, the text of the code will address changes to "a higher risk category," but does not establish any baseline for comparison. This begs the question, "higher than what?"

The intent of the second sentence in both sections in the code change is that if Section 1604.5.1 triggers a change to the existing portion of the building, either with or without the addition taken into consideration, the provisions for change of occupancy get applied to the existing portion of the building.

Similarly, the third sentence in both sections is intended to trigger compliance with the IBC for new construction in the addition should Section 1604.5.1 trigger a change to the risk category for the addition. This sentence also triggers changes within the existing portion of the building, should the existing portion and the addition share building systems (sprinklers, fire alarms, mechanical systems, etc.)

This public comment establishes the baselines for comparison as follows:

- For the existing portion of the building, the "end-result" risk category gets compared to the risk category of the building before the addition was proposed. If Section 1604.5.1 requires the risk category to be higher than it was previous to the addition, the existing portion of the building is subject to the change of occupancy provisions.
- For the addition, the "end-result" risk category gets compared to the risk category of the addition if it were a standalone or separated portion of the building. Again, if Section 1604.5.1 triggers the risk category of the addition to be higher than would ordinarily be required, the addition must comply with new construction requirements for the higher risk category. If any building systems are shared between the addition and the existing portion of the building, the existing building will be required to be upgraded to meet the requirements for new construction for the higher risk category as well.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. The cost impact statement for the original proposal says there will be no change to the cost of construction, since it is merely a clarification of what is required by the existing code language. Given that this public comment is a further clarification of the original code change, it will have no effect on the original cost impact statement.

Public Comment# 3187

Proposed Change as Submitted

Proponents: David Bonowitz, representing FEMA-ATC Seismic Code Support Committee (dbonowitz@att.net); Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov)

2021 International Existing Building Code

Add new text as follows:

502.1.1 Creation or extension of nonconformity. An addition shall not create or extend any nonconformity in the existing building to which the addition is being made with regard to accessibility, structural strength, supports and attachments for nonstructural components, fire safety, means of egress or the capacity of mechanical, plumbing or electrical systems.

Exception: Nonconforming supports and attachments for nonstructural components that serve the addition from within the existing building need not be altered to comply with International Building Code Section 1613 unless the components are part of the addition's life safety system or are required to serve an addition assigned to Risk Category IV.

Revise as follows:

1101.2 Creation or extension of nonconformity. An addition shall not create or extend any nonconformity in the existing building to which the addition is being made with regard to accessibility, structural strength, supports and attachments for nonstructural components, fire safety, means of egress or the capacity of mechanical, plumbing or electrical systems.

Exception: Nonconforming supports and attachments for nonstructural components that serve the addition from within the existing building need not be altered to comply with International Building Code Section 1613 unless the components are part of the addition's life safety system or are required to serve an addition assigned to Risk Category IV.

Reason: This proposal clarifies the current intent of the IEBC for cases where an addition relies on the existing building for certain systems or services – or vice versa.

The code already requires that any addition should itself be designed and built as new construction. This proposal ensures that the new addition is provided with suitable support from the existing building, consistent with the code's current intent. Examples:

- An addition might get its hot water from mechanical systems in the existing building, or might rely on a stair tower in the existing building for egress. In these cases, the addition is new and ought to have mechanical systems and egress capacity that are like new as well.
- A horizontal addition will include an elevator and new HVAC equipment meant to serve both the addition and the existing building. If the existing building is assigned to Risk Category IV, then the new systems should meet requirements for RC IV buildings even if the addition itself contains only RC II uses.

We believe this is the current intent of the code, and the Work Area method Sec 1101.2 already captures this intent for critical systems -- accessibility, structural strength, fire safety, egress, and MEP systems. Section 1101.2 sensibly requires that if the addition must be built as new construction, we wouldn't allow it to be built with deficient systems as a standalone structure, so why would we allow it to be served with deficient systems just because they're in an adjacent existing building?

But the current provision is not quite clear about bracing (especially seismic) of nonstructural components. Some might read "structural strength" to include "supports and attachments for nonstructural components" since the latter are covered in IBC Chapter 16. Some might consider the current reference to MEP systems to include their bracing and support. Nevertheless, the code is not as clear as it could be regarding this issue, so this proposal clarifies it.

Why the new exception? Despite what we believe is a laudable intent, we also recognize that the reason these items get overlooked is that it can be expensive to expose, evaluate, and retrofit nonstructural systems (even those already included in the list under fire safety, egress, and MEP). So the proposal adds an exception that effectively requires retrofit only for those systems serving RC IV additions where post-earthquake functionality is inherent in the design assumptions. Similarly, *life safety systems* must be functional in the addition, so they are not eligible for the exception either. The exception refers to IBC Section 1613 because that would be the default criteria if the exception were not provided, as indicated by Section 1101.1 (not shown) or by Section 502.1 (not shown) for the Prescriptive method.

Thus, depending on how one interprets the current code, this proposal is either an extension of the requirement in current Section 1101.2, or a relaxation of it through an exception. Either way, we submit that this proposal finds the right balance and should be in both the Work Area and Prescriptive methods. Therefore, in addition to revising Sec 1101.2, this proposal copies it into the Prescriptive method, where it will clarify the similar but implicit requirement in the first sentence of Section 502.1.

Finally, it's worth observing that if you don't want to retrofit existing systems, there's an easy way out. Just design your addition to be structurally and functionally separate from the existing building, as IBC Section 1605.4.1 and IEBC Section 1101.2 both allow. Thus, neither the current code nor

this proposal actually mandates any upgrade to the existing building for an independent addition. But *without* this proposal, the incentive is to save money on the addition by relying on deficient systems in the existing building, or by having it serve the RC IV existing building while being designed itself as RC II. This proposal removes those perverse incentives.

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

The proposal should not increase the cost of construction because it merely clarifies the intent of the current code, especially Section 1101.2, which prohibits the creation or extension of a deficient building system within an existing building when an addition is made. In some cases, depending on how the current code is interpreted, the proposed new Exception might actually reduce the cost of an addition.

EB48-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: This proposal provides the necessary guidance as to what aspects of the existing building would need to be upgraded when an addition is made to the building. (Vote: 13-0)

EB48-22

Individual Consideration Agenda

Public Comment 1:

Proponents: John Swanson, representing NFSA (swanson@nfsa.org); Jeffrey Hugo, representing NFSA (hugo@nfsa.org) requests Disapprove

Commenter's Reason: This public comment recommends the ICC membership to disapprove this code change for the following reasons:

1. The cost statement of this code change states it will not increase or decrease the cost of construction is inaccurate. When an addition occurs on an existing building, and the existing building needs to upgrade the seismic bracing for the automatic sprinkler system it will increase the cost of construction.
2. The code change proposal references "life safety system" as defined in the ICC codes. This term is extremely broad and will likely lead to confusion over which parts of a life safety system are subject to the structural requirement in IBC section 1613.
3. Since this code change will require "life safety systems" in existing building be brought up to current IBC (and NFPA 13) requirements, this code change does not clarify how far into an existing building the life safety system must be upgraded or what specific components. For example, if a system serves a new addition to an existing building, is seismic bracing required from the new addition back to the riser assembly? This change adds expensive upgrades to existing buildings with little clarity for how to apply it.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction

The original proposal, as submitted, will increase the cost of construction. The public comment for disapproval, decreases the cost of construction.

Public Comment# 3263

Proposed Change as Submitted

Proponents: Gregory Wilson, representing FEMA (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, representing DHS Federal Emergency Management Agency (rcquinn@earthlink.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Add new definition as follows:

LOWEST FLOOR. The lowest floor of the lowest enclosed area, including basement, but excluding any unfinished or flood-resistant enclosure, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of Section 1612 of the International Building Code or Section R322 of the International Residential Code, as applicable.

Revise as follows:

[BS] 502.3 Flood hazard areas. For buildings and structures in *flood hazard* areas established in Section 1612.3 of the International Building Code, or Section R322 of the International Residential Code, as applicable, any *addition* that constitutes *substantial improvement* of the *existing structure* shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3 of the International Building Code, or Section R322 of the International Residential Code, as applicable, any *additions* that do not constitute *substantial improvement* of the *existing structure* are not required to comply with the flood design requirements for new construction provided that both of the following apply:

1. The addition shall not create or extend a nonconformity of the existing building or structure with the flood resistant construction requirements than the existing building or structure was prior to the addition
2. The lowest floor of the addition shall be at or above the lower of the lowest floor of the existing building or structure or the lowest floor elevation required in Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.

[BS] 1103.3 Flood hazard areas. *Additions and foundations* in *flood hazard areas* shall comply with the following requirements:

1. For horizontal *additions* that are structurally interconnected to the *existing building*:
 - 1.1. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the International Residential Code, as applicable.
 - 1.2. If the *addition* constitutes *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.
 - 1.3 If the addition does not constitute substantial improvement the existing structure is not required to comply with the flood design requirements for new construction provided that both of the following apply.
 - 1.3.1 The addition shall not create or extend any nonconformity of the existing building with the flood resistant construction requirements.
 - 1.3.2 The lowest floor of the addition shall be at or above the lower of the lowest floor of the existing building or the lowest floor elevation required in Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.
2. For horizontal *additions* that are not structurally interconnected to the *existing building*:
 - 2.1. The *addition* shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.
 - 2.2. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.
3. For vertical *additions* and all other proposed work that, when combined, constitute *substantial improvement*, the *existing building* shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.

4. For a raised or extended foundation, if the foundation work and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.
5. For a new foundation or replacement foundation, the foundation shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.

[BS] 1301.3.3 Compliance with flood hazard provisions. In *flood hazard areas*, buildings that are evaluated in accordance with this section shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable, if the work covered by this section constitutes *substantial improvement*. If the work covered by this section is a structurally connected horizontal addition that does not constitute substantial improvement, the building is not required to comply with the flood design requirements for new construction provided that both of the following apply.

1. The addition shall not create or extend any nonconformity of the existing building with the flood resistant construction requirements.
2. The lowest floor of the addition shall be at or above the lower of the lowest floor of the existing building or the lowest floor elevation required in Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.

Reason: The IEBC, like the National Flood Insurance Program (NFIP), includes requirements for alterations and additions (improvements) to existing buildings in flood hazard areas. The trigger for compliance is in the definition for “substantial improvement.” The definition for “substantial damage” specifies the trigger when floodplain buildings are damaged. The trigger is sometimes referred to as the “50% rule” because compliance is required when the cost of proposed improvements or required repairs equals or exceeds 50 percent of the market value of the existing building before the work is done or before damage occurred. FEMA guidance, like IEBC Section 1103.3, distinguishes compliance of additions from compliance of the existing (or base) building.

The IEBC Sec. 502.1 already states that alterations must be made to ensure the existing buildings together with an addition, is “not less complying with” the requirements of the code than the existing building was before the addition. IBC Sec. 1101.2 echoes that limitation, by stating that an addition “shall not create or extend any nonconformity.” Buildings in flood hazard areas that were built before communities adopted regulations usually are nonconforming. Therefore, the basic premise that additions must not make nonconforming buildings more nonconforming includes consideration of the flood resistant requirements of the IBC and IRC.

The proposed amendments reinforce what is already a requirement of the code. The amendments make it clear that additions, even if not substantial improvement (i.e., cost less than 50% of the market value), must not make a nonconforming building more nonconforming. The way to ensure this is to have specific requirements for “non-substantial” additions stating those additions must not be lower than the lowest floors of the existing buildings because being lower would render the buildings more nonconforming. Similarly, non-substantial additions to conforming (or compliant) buildings must not make those buildings nonconforming. The proposal accounts for additions to buildings that are elevated higher than the requirements of the code by specifying additions to those buildings must be at least as high as the elevations required in IBC Section 1612 or IRC Section R322, as applicable.

Another scenario that is addressed by this proposal is when owners of buildings elevated on columns or pilings decide to enclose the area under the elevated buildings. Enclosing an area meets the definition of addition because it creates an “extension or increase in floor area.” Even when enclosing the area underneath is not a “substantial improvement” based on cost, the work is only allowed when the walls and the use of the proposed enclosure comply with the requirements for enclosures. Otherwise, the enclosure would either create noncompliance or extend nonconformance.

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

The code change proposal clarifies the application of the existing IEBC requirement that work on an existing building must not make a nonconforming building more nonconforming. The proposal is consistent with the existing requirement that additions must not create or extend any nonconformity. There is no change to the technical content of the provisions. By clarifying the existing requirement as it applies to additions to buildings in flood hazard areas, there will be no cost impact when approving this proposal.

EB50-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

[BS]1103.3 Flood hazard areas. *Additions and foundations in flood hazard areas* shall comply with the following requirements:

1. For horizontal *additions* that are structurally interconnected to the *existing building*:
 - 1.1. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
 - 1.2. If the *addition* constitutes *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
 - 1.3. If the *addition* does not constitute *substantial improvement* the ~~existing structure~~ addition is not required to comply with the flood design requirements for new construction provided that both of the following apply.
 - 1.3.1 The *addition* shall not create or extend any nonconformity of the existing building with the flood resistant construction requirements.
 - 1.3.2 The lowest floor of the *addition* shall be at or above the lower of the lowest floor of the existing building or the lowest floor elevation required in Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
2. For horizontal *additions* that are not structurally interconnected to the *existing building*:
 - 2.1. The *addition* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
 - 2.2. If the *addition* and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* and the *addition* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
3. For vertical *additions* and all other proposed work that, when combined, constitute *substantial improvement*, the *existing building* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
4. For a raised or extended foundation, if the foundation work and all other proposed work, when combined, constitute *substantial improvement*, the *existing building* shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.
5. For a new foundation or replacement foundation, the foundation shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.

[BS]1301.3.3 Compliance with flood hazard provisions. In *flood hazard areas*, buildings that are evaluated in accordance with this section shall comply with Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable, if the work covered by this section constitutes *substantial improvement*. If the work covered by this section is a structurally connected horizontal addition that does not constitute *substantial improvement*, the ~~building~~ addition is not required to comply with the flood design requirements for new construction provided that both of the following apply.

1. The *addition* shall not create or extend any nonconformity of the existing building with the flood resistant construction requirements.
2. The lowest floor of the *addition* shall be at or above the lower of the lowest floor of the existing building or the lowest floor elevation required in Section 1612 of the *International Building Code*, or Section R322 of the *International Residential Code*, as applicable.

Committee Reason: Approved as modified as the term 'addition' is preferred and as per the provided reason statement. The modification clarifies that 'addition' is the preferred term. (Vote: 13-1)

EB50-22

Individual Consideration Agenda

Public Comment 1:

IEBC: [BS] 502.3

Proponents: Jonathan Siu, representing Self (jonsiuconsulting@gmail.com) requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

[BS] 502.3 Flood hazard areas. For buildings and structures in *flood hazard* areas established in Section 1612.3 of the International Building Code, or Section R322 of the International Residential Code, as applicable, any *addition* that constitutes *substantial improvement* of the *existing structure* shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3 of the International Building Code, or Section R322 of the International Residential Code, as applicable, any *additions* that do not constitute *substantial improvement* of the *existing structure* are not required to comply with the flood design requirements for new construction provided that both of the following apply:

1. The addition shall not create or extend a nonconformity of the existing building or structure with the flood resistant construction requirements ~~than the existing building or structure was prior to the addition~~
2. The lowest floor of the addition shall be at or above the lower of the lowest floor of the existing building or structure or the lowest floor elevation required in Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.

Commenter's Reason: This public comment is being submitted to clarify the proposal. As approved by the committee, the language of this item is convoluted and confusing. The same concept is expressed much more succinctly and clearly in Section 1103.3, Item 1.3.1 in this same proposal. I pointed this out to the proponents at the Committee Action Hearings.

This public comment deletes the confusing language, which then makes this item identical to the parallel requirement in Section 1103.3, Item 1.3.1.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. The cost impact statement for the original proposal says there will be no cost impact in approving the proposal. This public comment just clarifies the proposal, so it will have no effect on the original cost impact statement.

Public Comment# 3326

Proposed Change as Submitted

Proponents: Michael Fillion, representing National Council of Structural Engineers Associations (mrf.structure@verizon.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Revise as follows:

[BS] 502.4 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in ~~design dead, live or snow load, including snow drift effects,~~ load effects due to the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose vertical load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 503.3. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 502.5.

Exception: Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

[BS] 503.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in ~~design dead, live or snow load, including snow drift effects,~~ load effects due to the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable ~~design dead, live and snow loads including snow drift effects,~~ gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 706.2 Addition or replacement of roofing or replacement of equipment. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in ~~design dead, live or snow load, including snow drift effects,~~ load effects due to the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 805.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in ~~design dead, live or snow load, including snow drift effects,~~ load effects due to the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable ~~design dead, live and snow loads, including snow drift effects,~~ gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is attributable to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 1103.1 Additional gravity loads. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in ~~design dead, live or snow load, including snow drift effects,~~ load effects due to the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 805.2. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 1103.3.

Exception: Buildings of Group R occupancy with not more than five dwelling units or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

Reason: The revision clarifies that the load combination is considered for the 5% increase, not individual loads. In addition, it requires “load effects” instead of “loads” so that more than just the magnitude of load is considered, but location as well, so that the effect of the applied loads such as moment and shear are considered.

Review of documentation from the 2015-2018 code revision cycle indicates that the changes adopted in this cycle were made in a good-faith effort to harmonize the various chapters of the IEBC on the topic of the “5 percent rule,” and the resulting language borrowed features from each provision. There is no indication in the records that the proposed intent was to substantially deviate from the prior application of the “5 percent rule,” but was rather to provide more clarity and consistency. However, the revisions have had several undesirable effects:

1. As currently phrased, the “5 percent rule” now applies not only to overall combined gravity loads, but also to any one component of the load, including “dead, live or snow load, including snow drift effects.” This change has the effect of imposing a much stricter limit on what additions or alternations can be undertaken without demonstrating compliance with the requirements for new structures, particularly for structures that carry significant live and/or snow loads. The 5% limit applied to dead load only for wood or steel structures can be very small, requiring new structural evaluations whereas considering the longstanding criteria of 5% of total load would not.
2. The specific gravity loads enumerated in the definition, “dead, live or snow load, including snow drift effects,” are not comprehensive. While less common, other forms of gravity load such as sliding snow, ice, rain, earth, and fluids may also be relevant. As written, the definition requires no evaluation for increases of any amount to these loads. This proposal is to revert to the more general language of the 2015 IEBC (and prior editions), which leaves it to the engineer to determine what gravity loads are applicable.

Additionally, an unresolved oversight in both the original and revised language of the “5 percent rule” is that it refers only to the magnitude of the applied loads. This has several drawbacks:

1. Changes to the distribution or locations of the applied loads are not addressed, which may have impacts on internal member forces (e.g., an RTU moved closer to the center of a roof beam, increasing flexure; or closer to the end, increasing shear.)
2. For some inelastic structures, changes to the character (but not the magnitude) of loads may have significant strength implications but show up only on the capacity side (e.g., wood structures supporting sustained vs. transient loading, and epoxy anchors in sustained tension.)

“Load effects” is deemed to best capture the original intent and most desirable application of the “5 percent rule.” Load effects are defined in the IBC as “forces and deformation produced in structural members by the applied loads.” While deformations have not traditionally been considered in the “5 percent rule,” we must acknowledge that internal member forces cannot develop without said deformations, so their presence is implicit. Increases in load generally affect deflections in the same proportions as they affect moments, so computation of deflections is not required. However, by including deformation in the definition of load effects, the engineer will need to consider cases where long-term deformation is a concern. For example, a change in load type on a wood structure from a short-term load (such as live load) to a sustained load (dead load) or a connection with epoxy anchors that will creep over time. Therefore, “load effects” desirably captures and incorporates these behaviors into a definition that remains tied to loading, and that does not unnecessarily undermine the simplicity of the rule by forcing practitioners to calculate stresses or assess changes in demand-to-capacity ratios.

The “5 percent rule” has long been applied by engineers to the combined design loads acting on a structure. This is consistent with similar past and present “5 percent rule” provisions that apply to member stresses or demand-to-capacity ratios (e.g., IEBC 2021 506.5.1). Changes to individual portions of the design loading are not as relevant or as descriptive as changes to the whole, and it is 5 percent changes to the whole that have long been held to constitute a significant change worthy of more detailed evaluation.

List of design loads “design dead, live, or snow loads, including snow drift effects” is revised to “load effects due to the controlling gravity load combination.”

The list of each type of load is deleted because the list is not all-inclusive.

The list is deleted and replaced with gravity load combination so that it is clear that the total load is being checked, not individual load cases.

“Load effects” are checked rather than just “loads” so that locations of load are considered.

In sections 503.3 and 805.2, the requirement for elements with decreased capacity to be checked is revised to “gravity loads” of the IBC for a new structure rather than the list of “dead, live, or snow, including snow drift effects”, which is not all-inclusive. This is consistent with the requirement in the same sections for elements that exceed the 5% check to be “replaced or altered as needed to carry the gravity loads” per the IBC.

Administrative corrections are made in sections 502.4 to correct the reference to section 503.3 and to section 1103.1 to correct the reference to section 1103.2.

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

These code change proposals are for clarification. If the existing 2021 code language for these sections is misinterpreted, there could be associated increased costs.

EB52-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Disapproved as it inappropriately would change the trigger such that it would apply to shear, moment and deflection. (Vote: 12-2)

EB52-22

Individual Consideration Agenda

Public Comment 1:

IEBC: [BS] 502.4, [BS] 503.3, [BS] 706.2, [BS] 805.2, [BS] 1103.1

Proponents: Michael Fillion, representing National Council of Structural Engineers Associations (mrf.structure@verizon.net) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

[BS] 502.4 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in ~~load effects due to~~ the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose vertical load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 503.3. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 502.5.

Exception: Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

[BS] 503.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in ~~load effects due to~~ the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable gravity loads

required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 706.2 Addition or replacement of roofing or replacement of equipment. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in ~~load effects due to~~ the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is due entirely to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 805.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in ~~load effects due to~~ the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable gravity loads required by the *International Building Code* for new structures.

Exceptions:

1. Buildings of Group R occupancy with not more than five dwelling or sleeping units used solely for residential purposes where the altered building complies with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.
2. Buildings in which the increased dead load is attributable to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m²) or less over an existing single layer of roof covering.

[BS] 1103.1 Additional gravity loads. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in ~~load effects due to~~ the controlling gravity load combination of more than 5 percent shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 805.2. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 1103.3.

Exception: Buildings of Group R occupancy with not more than five dwelling units or sleeping units used solely for residential purposes where the *existing building* and the *addition* together comply with the conventional light-frame construction methods of the *International Building Code* or the provisions of the *International Residential Code*.

Commenter's Reason: The revision clarifies that the load combination is considered for the 5% increase, not individual loads. Review of documentation from the 2015-2018 code revision cycle indicates that the changes adopted in this cycle were made in a good-faith effort to harmonize the various chapters of the IEBC on the topic of the "5 percent rule," and the resulting language borrowed features from each provision. There is no indication in the efforts that the proposed intent was to substantially deviate from the prior application of the "5 percent rule," but was rather to provide more clarity and consistency. However, the revisions have had several undesirable effects:

1. As currently phrased, the "5 percent rule" now applies not only to overall combined gravity loads, but also to any one component of the load, including "dead, live or snow load, including snow drift effects." This change has the effect of imposing much stricter limit on what additions or alterations can be undertaken without demonstrating compliance with the requirements for new structures, particularly for structures that carry significant live and/or snow loads. The 5% limit applied to dead load only for wood and steel structures can be very small, requiring new structural evaluations whereas considering the longstanding criteria of 5% of the total load would not.
2. The specific gravity loads enumerated in the definition, "dead, live or snow load, including snow drift effects," are not comprehensive. While less common, other forms of gravity load such as sliding snow, ice, rain, earth, and fluids may also be relevant. As written, the definition requires evaluation for increases of any amount to these loads. This proposal is to revert to the more general language of the 2015 IEBC (and prior editions), which leaves it to the engineer to determine what gravity loads are applicable.

The "5 percent rule" has long been applied by engineers to the combined design loads acting on a structure. This is consistent with similar past and present "5 Percent rule" provisions that apply to member stresses or demand-to-capacity ratios (e.g., IEBC 2021 506.5.1). Changes to individual portions of the design loading are not as relevant or as descriptive as changes to the whole, and it is 5 percent changes to the whole that have long been held to constitute a significant change worthy of a more detailed evaluation.

Lists of design loads "design dead, live, or snow loads, including snow drift effects" is revised to the controlling gravity load combination.

The list of each type of load is deleted because the list is not all-inclusive.

In sections 503.3 and 805.2, the requirement for elements with decreased capacity to be checked is revised to "gravity loads" of the IBC for a new structure rather than the list of "dead, live, or snow, including snow drift effects", which is not all-inclusive. This is consistent with the requirement in the same sections for elements that exceed the 5% check to be "replaced or altered as needed to carry the gravity loads" per the IBC.

Administrative corrections are made in sections 502.4 to correct the reference to section 503.3 and to section 1103.1 to correct the reference to section 1103.2

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. These code change proposals are for clarification. If the existing 2021 code language for these sections is misinterpreted, there could be associated increased costs.

Public Comment# 3459

Proposed Change as Submitted

Proponents: Ali Fattah, representing City of San Diego Development Services Department (AFATTAH@SANDIEGO.GOV)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Add new definition as follows:

PHOTOVOLTAIC PANEL SYSTEM. A system that incorporates discrete photovoltaic panels, that converts solar radiation into electricity, including rack support systems.

Revise as follows:

[BS] 503.4 Existing structural elements carrying lateral load. Except as permitted by Section 503.13, where the *alteration* increases design lateral loads, results in a prohibited structural irregularity as defined in ASCE 7, or decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.
3. The installation of rooftop photovoltaic panel systems where the additional roof dead load due to the system, including ballast where applicable, does not exceed 5 psf and 10% of the dead load of the existing roof.

[BS] 805.3 Existing structural elements resisting lateral loads. Except as permitted by Section 805.4, where the *alteration* increases design lateral loads, or where the alteration results in prohibited structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

Exception:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.
3. The installation of rooftop photovoltaic panel systems where the additional roof dead load due to the system, including ballast where applicable, does not exceed 5 psf and 10% of the dead load of the existing roof.

Reason: The IEBC includes a needed exception to exempt existing buildings undergoing alterations from compliance with more current seismic requirements in IBC chapter 16. The existing exception uses demand/capacity ratios (DCR) to identify a threshold below which the alteration is not deemed to be significant enough to require an evaluation and possible upgrade of the existing lateral force resisting system. Demand equates to the load applied to the lateral force resisting system and capacity equates the strength of the lateral force resisting system to resist the lateral load.

Demand can be impacted by an increase in gravity load, alternations that redirect load to existing elements in addition to the loads they resist prior to the alteration, for example force transfer around and due to a large floor/roof opening. The capacity of existing lateral force resisting elements can be impacted by alterations that cut into the elements such as for example reducing the length of a shearwall.

Roof top solar photovoltaic systems, and especially those with ballast, may increase the demand capacity ratio of lateral force resisting systems due to the location of the installation relative to the existing lines of resistance below the roof. For example a building that includes lateral force resisting systems at the interior of the building in addition to those at the exterior may cause an increased demand-capacity ratio DCR at the interior shearwalls due additional tributary loads. As a consequence and without the proposed code change the installation of a rooftop solar system would require that a structural engineer identify the existing lateral force resisting system (possibly without the benefit of having existing plans), determine its capacity and determine the demand and thus demonstrate that the DCR increase is not increased by more than 10%. This requirement imposes a significant burden on buildings constructed with light framed wood construction due to the localized impact of the alteration since unlike other buildings they do not incorporate heavier concrete or steel floors and roofs or heavier concrete or masonry exterior walls. Heavier walls and roofs will allow the roof top installations to easily satisfy the DCR limit.

Earthquake loads are impacted by gravity loads and the addition of roof-top solar and ballast will contribute additional dead load to the overall building structure. Gravity load effects tend to be localized where lateral load effects envisioned by Sections 503.4 and 805.3 tend to be more global; lateral load effects due to earthquake tend to be based on a percentage of the gravity load. Sections 503.3 and 503.4 and Sections 805.2 and 805.3 need to be satisfied and a higher gravity load threshold set in the proposed exception to Sections 503.4 and 805.3 should not be construed to nullify the lower dead load effects. There is no published data demonstrating that alterations involving the installation of rooftop solar photovoltaics caused a life-safety hazard due to a seismic event. It would be difficult to explain to a building owner that the installation of a rooftop solar system necessitates \$2,000 or more in engineering costs to demonstrate that the DCR has not been exceeded. ASCE 7 as well as the IBC recognize that roof top solar voltaic systems are unique and allow seismic force resistance through friction and allow discounting of the roof live load under the rack-mounted assemblies.

This proposed code change offers a similar and reasonable accommodation to light weight components that are hand carried on to a roof and which can occupy a portion of the roof. The proposed exception is necessary since photovoltaic panel system and it's associated ballast are not considered mechanical equipment which are addressed in Section 503.4 and 805.3 exception 2. Note that exception 2 is added to Section 805.3 to be consistent with what was approved for Section 503.4 in EB54-21. Exception 2 was inadvertently not added to Section 805.3 during the 2019 code cycle, so an editorial edit is also being proposed to align the work area method with the prescriptive method in Chapter 5. The structural provisions are intended to be consistent between the prescriptive and work area method.

A definition for photovoltaic panel system adopted into the IBC is proposed to be added as a part of the proposed code change for clarity. Proponent submitted the proposed code change as EB56-19 concurrent with EB54-19 with the latter approved by the Structural Committee and adopted as exception 2 to Section 503.4. The committee did not approve EB 56-19 due to confusion with the goal in code change EB55-19 that addressed gravity load impacts.

Cost Impact: The code change proposal will decrease the cost of construction

The proposed code change will eliminate the need to develop detailed structural plans to demonstrate the capacity of the existing lateral force resisting system as well as constructing lateral force resisting system upgrades when installing photovoltaic panel systems. This will reduce the cost of construction by reducing the need for extensive engineering analysis.

EB64-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

2021 International Existing Building Code

[BS]503.4 Existing structural elements carrying lateral load. Except as permitted by Section 503.13, where the *alteration* increases design lateral loads, results in a prohibited structural irregularity as defined in ASCE 7, or decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.
3. ~~The increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the~~ installation of rooftop *photovoltaic panel systems* where the additional roof dead load due to the system, including ballast where applicable, does not exceed 5 psf and does not exceed 10% of the dead load of the existing roof.

[BS]805.3 Existing structural elements resisting lateral loads. Except as permitted by Section 805.4, where the *alteration* increases design lateral loads, or where the alteration results in prohibited structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted.

Exception:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.
3. ~~The increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the~~ installation of rooftop *photovoltaic panel systems* where the additional roof dead load due to the system, including ballast where applicable, does not exceed 5 psf and does not exceed 10% of the dead load of the existing roof.

Committee Reason: Approved as modified as this proposal provides a necessary exception from the applicability of the seismic forces for PV panel systems. The modification clarifies that both triggers need to apply and that this exception is only focused upon seismic forces. (Vote: 8-6)

EB64-22

Individual Consideration Agenda

Public Comment 1:

IEBC: [BS] 503.4, [BS] 805.3

Proponents: Larry Sherwood, representing Solar Energy Action Committee (larry@irecusa.org); Benjamin Davis, representing California Solar & Storage Association (ben@calssa.org); Joseph Cain, representing Solar Energy Industries Association (SEIA) (joecainpe@gmail.com); Philip Oakes, representing National Association of State Fire Marshals (admin@firemarshals.org) requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

[BS] 503.4 Existing structural elements carrying lateral load. Except as permitted by Section 503.13, where the *alteration* increases design lateral loads, results in a prohibited structural irregularity as defined in ASCE 7, or decreases the capacity of any existing lateral load-carrying

structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

Exceptions:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is not more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.
3. Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop *photovoltaic panel systems* where the additional ~~roof~~ dead load due to the system, including ballast where applicable, ~~does not exceed 5 psf and~~ does not exceed 10% of the dead load of the existing roof.

[BS] 805.3 Existing structural elements resisting lateral loads. Except as permitted by Section 805.4, where the *alteration* increases design lateral loads, or where the alteration results in prohibited structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted.

Exception:

1. Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration* considered is not more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613 of the International Building Code. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.
2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.
3. Increases in the demand-capacity ratio due to lateral loads from seismic forces need not be evaluated for the installation of rooftop *photovoltaic panel systems* where the additional ~~roof~~ dead load due to the system, including ballast where applicable, ~~does not exceed 5 psf and~~ does not exceed 10% of the dead load of the existing roof.

Commenter's Reason: There should not be a limit on uniform load of the PV system. The overall additional dead load is the important threshold for lateral considerations. Any limitation on system uniform load is related to a gravity-load check of the roof framing. The term "roof" is removed because it is unnecessary, because the subject is about rooftop PV panel systems

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This proposal and public comment formalizes what is already common practice, and clarifies what the minimum requirements are.

Public Comment# 3201

Proposed Change as Submitted

Proponents: Michael Fillion, representing National Council of Structural Engineers Associations (mrf.structure@verizon.net); Don Scott, representing ASCE 7 Wind Load Subcommittee (dscott@pcs-structural.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Revise as follows:

[BS] 503.12 Roof diaphragms resisting wind loads in high-wind regions. Where the intended *alteration* requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the ~~ultimate design basic~~ wind speed, V , is greater than 130 mph (58 m/s) in accordance with Figure 1609.3(1) of the International Building Code ~~for Risk Category II~~, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the International Building Code, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the International Building Code.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

[BS] 706.3.2 Roof diaphragms resisting wind loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the ~~ultimate design basic~~ wind speed, ~~V_{eff}~~ V , is greater than 130 mph (58 m/s) ~~determined~~ in accordance with Figure 1609.3(1) of the International Building Code ~~for Risk Category II~~, ~~is greater than 130 mph (58 m/s)~~, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code*.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

[BS] C201.1 Purpose. This chapter provides prescriptive methods for partial structural retrofit of an *existing building* to increase its resistance to wind loads. It is intended for voluntary use where the ~~ultimate design basic~~ wind speed, ~~V_{eff}~~ V , is greater than 130 mph (58 m/s) ~~determined~~ in accordance with Figure 1609.3(1) of the International Building Code ~~for Risk Category II~~, ~~exceeds 130 mph (58 m/s)~~ and for reference by mitigation programs. The provisions of this chapter do not necessarily satisfy requirements for new construction. Unless specifically cited, the provisions of this chapter do not necessarily satisfy requirements for structural improvements triggered by *addition, alteration, repair, change of occupancy*, building relocation or other circumstances.

Reason: Editorial changes to align the wind speed description consistent with ASCE 7 and the *International Building Code*.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The code change proposal is editorial.

EB67-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

2021 International Existing Building Code

[BS] 503.12 Roof diaphragms resisting wind loads in high-wind regions. Where the intended *alteration* requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the basic wind speed, V , is greater than 130 mph (58 m/s) in accordance with Figure 1609.3(2+) of the International Building Code ~~for Risk Category II~~, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the International Building Code, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the International Building Code.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

[BS]706.3.2 Roof diaphragms resisting wind loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the basic wind speed, *V*, is greater than 130 mph (58 m/s) in accordance with Figure 1609.3(2) of the International Building Code for Risk Category II, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code*.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

[BS]C201.1 Purpose. This chapter provides prescriptive methods for partial structural retrofit of an *existing building* to increase its resistance to wind loads. It is intended for voluntary use where the basic wind speed, *V*, is greater than 130 mph (58 m/s) in accordance with Figure 1609.3(2) of the International Building Code for Risk Category II, and for reference by mitigation programs. The provisions of this chapter do not necessarily satisfy requirements for new construction. Unless specifically cited, the provisions of this chapter do not necessarily satisfy requirements for structural improvements triggered by *addition, alteration, repair, change of occupancy*, building relocation or other circumstances.

Committee Reason: Approved as modified as a needed change to align with appropriate terminology. This provides updates to the appropriate figure while keeping the same Risk Category as existing code wording. The modification updates the reference to the correct figure and appropriately deletes the reference to a specific Risk Category. (Vote:10-4)

EB67-22

Individual Consideration Agenda

Public Comment 1:

IEBC: [BS] 503.12, [BS] 706.3.2, [BS] C201.1

Proponents: Julie Furr, representing National Council of Structural Engineers Association (jfurr@rimkus.com) requests As Modified by Public Comment

Further modify as follows:

2021 International Existing Building Code

[BS] 503.12 Roof diaphragms resisting wind loads in high-wind regions. Where the intended *alteration* requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located where the basic design wind speed, *V*, is greater than 130 mph (58 m/s) in accordance with ~~Figure 1609.3(2)~~ of the International Building Code, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the International Building Code, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the International Building Code.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

[BS] 706.3.2 Roof diaphragms resisting wind loads in high-wind regions. Where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located where the basic design wind speed, *V*, is greater than 130 mph (58 m/s) in accordance with ~~Figure 1609.3(2)~~ of the International Building Code, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the *International Building Code*, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code*.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7—88 or later editions.

[BS] C201.1 Purpose. This chapter provides prescriptive methods for partial structural retrofit of an *existing building* to increase its resistance to wind loads. It is intended for voluntary use where the basic design wind speed, *V*, is greater than 130 mph (58 m/s) in accordance with ~~Figure 1609.3(2)~~ of the International Building Code, and for reference by mitigation programs. The provisions of this chapter do not necessarily satisfy requirements for new construction. Unless specifically cited, the provisions of this chapter do not necessarily satisfy requirements for structural improvements triggered by *addition, alteration, repair, change of occupancy*, building relocation or other circumstances.

Commenter's Reason: Roof diaphragms and their connections are vulnerable to high wind pressures, which can cause considerable damage, both structural and nonstructural, when these components fail. In the field, as opposed to in a laboratory or academia, actual wind pressures that develop on any given building or structure are a function of the wind speed, but they are not a function of that building or structure's designated Risk

Category. With this understanding, a basic design wind speed of 130 mph has been identified as the appropriate threshold above which roof diaphragms and their connections should be closely evaluated.

Because the geographic areas encompassed by wind speeds greater than 130 mph are larger for Risk Category III and IV buildings and structures than they are for Risk Category II buildings and structures, this public comment would result in an increase in the number of Risk Category III and IV buildings and structures that would be required to comply with this provision. There is a societal expectation that Risk Category III and IV buildings and structures will be more robust than other buildings and structures, and these buildings and structures are required to be designed to wind pressures generated by these higher wind speeds. This increased robustness is the entire basis for the risk category system in the first place. These are storm shelters, hospitals, power-plants, large assembly areas, and the other buildings, the failure of which could pose a substantial risk to human life and/or a substantial hazard to the affected community.

On the other hand, buildings and structures in Risk Category I represent a low risk to human life in the event of failure, and because the geographic areas encompassed by wind speeds greater than 130 mph are smaller for Risk Category I buildings and structures than they are for Risk Category II buildings and structures, this public comment would result in a decrease in the number of Risk Category I buildings and structures that would be required to comply with this provision. This will reduce the net cost increase accordingly.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction

There will be somewhat greater costs for buildings and structures in Risk Categories III and IV as a result of the increased geographical area encompassed the the 130 mph contours; however, the costs for buildings and structures in Risk Category I would be reduced and would reduce the net cost increase accordingly.

Public Comment# 3177

Proposed Change as Submitted

Proponents: Nathalie Boeholt, representing Washington Association of Building Officials Technical Code Development Committee; Micah Chappell, representing Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Revise as follows:

[BS] 503.13 Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be required to meet the requirements of Section 1609 or 1613 of the International Building Code, provided that all of the following apply:

1. The capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.

Exception: New lateral force-resisting systems designed in accordance with the International Building Code are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.

3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

[BS] 805.4 Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be required to meet the requirements of Section 1609 or Section 1613 of the International Building Code, provided that the following conditions are met:

1. The capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.

Exception: New lateral force-resisting systems designed in accordance with the International Building Code are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.

3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

Reason: Sections 503.13 and 805.4 indicate that voluntary lateral force-resisting system alterations are not required to meet the requirements of Section 1609 or 1613 of the International Building Code, provided that 4 conditions are met. Condition #2 requires that new structural elements are detailed and connected as required by the International Building Code for new construction. This has led to some confusion amongst the design and the plan review communities when it comes to selecting the lateral force-resisting systems from ASCE 7 Table 12.2-1. It is unclear what portions of the International Building Code are not required to be met and what portions shall be met.

Very often, existing buildings needing seismic upgrades are older and have lateral force-resisting systems such as ordinary reinforced concrete or masonry walls or unreinforced masonry walls. These systems, typically designed with older codes, are often under-reinforced per today's codes or not reinforced at all. In an earthquake, they will behave very rigidly which can lead to early failure and possibly early collapse. This has been witnessed in past earthquakes, such as the Nisqually Earthquake of 2001 in the Seattle area, where many unreinforced masonry walls cracked and crumbled. When a seismic upgrade is proposed, it is important to provide new systems that will match the existing building's rigidity as much as possible to prevent excessive displacements which can lead to the failure of the more rigid and older systems. If a very flexible system such as a special steel moment frame is proposed, it will be able to deform quite a bit more than the existing older system which can lead to more deformation than the existing building can handle. The purpose of this proposal is to avoid situations like these and help building officials enforce more adequate seismic upgrades by allowing systems that are not normally allowed in new construction.

For example, in Seismic Design Category D, if 4-story concentrically braced frames of a height exceeding 35 feet are proposed for a voluntary seismic upgrade in an existing unreinforced masonry wall building and must be detailed and connected for new construction, per condition #2, then an engineer may deduce that only the "Special" type is allowed per ASCE 7 Table 12.2-1. The code required design and detailing of an "Ordinary"

and "Special" concentrically braced frame for new construction are very different. It is agreed that the lateral force-resisting system detailing shall be per current codes for that system, but the term "new construction" is confusing and leads to think that the new system shall meet all the requirements of ASCE 7 Table 12.2-1. With the proposed exception, a more rigid "Ordinary" concentrically braced frame that is not normally allowed in Seismic Design Category D, would be allowed in this example, and would provide better deformation compatibility with the existing building. These "Ordinary" braced frames would be more adequate at providing overall increased seismic resistance because they are a more rigid system than "Special" braced frames, they would "attract" more load and therefore be more efficient at "taking" load away from the existing unreinforced masonry walls.

This proposal will make it clear that new lateral systems are permitted to be of any type, even of a type that normally would not be allowed in new construction, based on the seismic design category and height, as long as all the other conditions of sections 503.13 and 805.4 are met. The original intent of this code section remains the same, the proposed design shall not weaken the existing lateral resistance of the building or affect the behavior of the building in a severe way. In addition, this proposal will help with cost reduction and most importantly performance since less ductile "Ordinary" or "Intermediate" systems may be closer to matching an existing building's deformation limits.

Cost Impact: The code change proposal will decrease the cost of construction

This code change proposal will reduce the cost of construction for the following reasons. Clarifying that a new lateral force-resisting system can be of a type designated as "Ordinary" or "Intermediate" instead of "Intermediate" or "Special" in a voluntary seismic upgrade will prevent the specification of more expensive systems (i.e. "Special"). A "Special" lateral force-resisting system is more expensive because it requires additional material, additional fabrication (including special welding), additional special inspections and added time and complexity during construction. All these costs add up.

EB70-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: Approved as submitted as this provides needed flexibility to voluntary upgrades. The committee did note that the wording of the exception could be cleaner. (Vote:10-2)

EB70-22

Individual Consideration Agenda

Public Comment 1:

IEBC: [BS] 503.13, [BS] 805.4

Proponents: Nathalie Boeholt, representing Washington Association of Building Officials Technical Code Development Committee (nathalie.boeholt@seattle.gov); Micah Chappell, representing Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

[BS] 503.13 Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be required to meet the requirements of Section 1609 or 1613 of the International Building Code, provided that all of the following apply:

1. The capacity of existing structural systems to resist forces is not reduced.

2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria ~~International Building Code for new construction~~.

2.1. Where approved, new lateral force-resisting systems are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted provided that both of the following apply:

2.1.1. The selected design criteria is the *International Building Code*.

2.1.2. The new "Ordinary" or "Intermediate" system provides deformation compatibility with the existing lateral force-resisting system.

~~**Exception:** New lateral force-resisting systems designed in accordance with the International Building Code are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.~~

3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

[BS] 805.4 Voluntary lateral force-resisting system alterations. Structural *alterations* that are intended exclusively to improve the lateral force-resisting system and are not required by other sections of this code shall not be required to meet the requirements of Section 1609 or Section 1613 of the International Building Code, provided that the following conditions are met:

1. The capacity of existing structural systems to resist forces is not reduced.
2. New structural elements are detailed and connected to existing or new structural elements as required by the selected design criteria ~~International Building Code for new construction~~.

2.1. Where approved, new lateral force-resisting systems are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted provided that both of the following apply:

2.1.1. The selected design criteria is the *International Building Code*.

2.1.2. The new "Ordinary" or "Intermediate" system provides deformation compatibility with the existing lateral force-resisting system.

~~**Exception:** New lateral force-resisting systems designed in accordance with the International Building Code are permitted to be of a type designated as "Ordinary" or "Intermediate" where ASCE 7 Table 12.2-1 states these types of systems are not permitted.~~

3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code* for new construction.
4. The *alterations* do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

Commenter's Reason: Proposal EB68 appropriately changed the term "International Building Code for new construction" to "the selected design criteria". The intent of proposal EB70 is to clarify that when the "selected design criteria" is the IBC, regardless of the force level used (full or reduced), there can be flexibility with the type of lateral force-resisting system used to supplement or replace the failing or inadequate lateral system of an existing building. This flexibility is implicitly allowed when designing with ASCE 41 (which EB68 now allows as a design criteria) but is not implicit if designing with the IBC/ASCE 7 (which is another acceptable design criteria). When using the IBC/ASCE 7 all the detailing requirements of ASCE 7 Table 12.2-1 apply.

The purpose of this proposal is to avoid requiring special lateral force-resisting systems and their corresponding detailing meant to provide higher ductility where they are added to an existing non-ductile structure. Per ASCE 7 Table 12.2-1 based on seismic design category and height, a special ductile lateral system may be required and this proposal gives a code path for flexibility in voluntary seismic upgrades that did not exist before.

This public comment responds to comments heard from the committee during the April 2022 Committee Action Hearings and incorporates the EB68 change mentioned above:

- comment 1: "This should be part of the paragraph and not be an exception."
 - This PC moves the text out of the exception into the text of paragraph 2.
- comment 2: "This proposal is too broad."
 - This PC adds "where approved" which indicates that approval by the code official is required. This gives a chance to the code official to review and determine if the proposal is reasonable.
 - This PC adds sub-section 2.1.2 as a criteria for when this flexibility can be used. It clarifies that the purpose is to provide deformation compatibility with an existing structure that would likely not be allowed in today's codes due to its low ductility.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction

Public Comment 2:

Proponents: David Bonowitz, representing Self (dbonowitz@att.net) requests Disapprove

Commenter's Reason: EB70 does two things, one of which is no longer needed, and one of which is misguided and inappropriate for the affected IEBC sections.

First, EB70 creates an exception that responds to potentially confusing wording in the current code. In the current code, item 2 of each list refers to the "IBC for new construction" for criteria regarding detailing of voluntary seismic retrofit elements. Since IEBC Sec 304.3 already allows other criteria, this reference to the IBC is potentially confusing. EB70 would remove part of that potential confusion by relaxing the IBC criteria. But this issue is moot with the approval of EB68 (As Submitted, 14-0). EB68 removes the confusing reference to the IBC, so the partial clarification offered by EB70 is no longer needed.

Second, EB70 creates too broad of an allowance, in conflict with the intent of IEBC Sec 304.3. Section 304.3 provides seismic criteria for cases where the code triggers evaluation or retrofit. The IBC (with either "full" or "reduced" load levels) is one of several allowed sets of criteria. But engineers know that use of the IBC as retrofit criteria is fraught. It can make sense where the deficiency being addressed is nominal and simple, so the IBC is appropriate as convenient and familiar criteria, or where the retrofit is so extensive that it essentially replaces the building's entire SFRS, in which case the retrofit SFRS is essentially "new" and is appropriately addressed by "new construction" criteria like the IBC. But for all cases in between, use of the IBC as retrofit criteria is fraught and generally inadvisable. See the attached paper by the SEAOSC Existing Buildings Committee, for example, which gives a long list of necessary considerations for anyone who wants to use an Ordinary system to retrofit a potentially complicated set of deficiencies (Hohener et al., 2018). Simply allowing the use of Ordinary or Intermediate systems because the retrofits are voluntary, as EB70 would do, is bad advice. It could also undermine Section 304.3 by suggesting to engineers and code officials that the criteria in Section 304.3 need not be followed and can be relaxed where it's convenient to do so. In Sec 304.3, if you select the IBC as criteria, then you need to follow those criteria, period. If you don't like what an IBC-based retrofit design requires, Sec 304.3 gives you other options, specifically ASCE 41, which does exactly what the EB70 reason statement wants, but without the over-simplification.

But you might ask: Why reference Sec 304.3 here? Aren't Sec 503.13 and 805.4 about *voluntary* retrofit, which should not be held to the same standard as triggered retrofit using 304.3? It's true that voluntary retrofit should be allowed more discretion, but the purpose of Sec 503.13 and 805.4 is NOT to list allowed retrofit criteria, even for voluntary work. Rather, the purpose of those sections is to allow certain *thorough and documented* retrofits to *skip* the normal checks and limits of Sec 503 that apply to all significant alterations, including voluntary retrofits. So if you want to use an Ordinary or Intermediate system for a voluntary retrofit, you are already free to do so within the IEBC; but you shouldn't get the automatic waiver on other checks that Sec 503.13 and 805.4 are meant to provide.

Bibliography: Hohener, S., et al., 2018. "Seismic Design Coefficients & Considerations When Using ASCE 7 for Seismic Retrofit," in *2018 SEAOC Convention Proceedings*.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
No change to code.

Proposed Change as Submitted

Proponents: David Bonowitz, representing FEMA-ATC Seismic Code Support Committee (dbonowitz@att.net); Kelly Cobeen, representing Federal Emergency Management Agency/Applied Technology Council - Seismic Code Support Committee (kcobeen@wje.com); Michael Mahoney, representing FEMA (mike.mahoney@fema.dhs.gov)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Revise as follows:

506.5.3 Seismic loads (seismic force-resisting system). Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the building shall satisfy the structural requirements of Section 1613 of the International Building Code for the new *risk category* using full seismic forces. Where a change of occupancy results in a building being assigned to Risk Category IV and Seismic Design Category D or F, nonstructural components serving any portion of the building changed to Risk Category IV shall comply with the requirements of Section 1613 of the International Building Code or shall comply with ASCE 41 using an objective of Operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category IV*, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
2. Where a *change of use* results in a building being reclassified from *Risk Category I* or *II* to *Risk Category III* and the seismic coefficient, S_{DS} , is less than 0.33, compliance with this section is not required.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category III* and to Seismic Design Category A or B, shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of risk category, use of reduced seismic forces shall be permitted.

[BS] 1006.3 Seismic loads. Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the building shall satisfy the structural requirements of Section 1613 of the International Building Code for the new *risk category* using full seismic forces. Where a change of occupancy results in a building being assigned to Risk Category IV and Seismic Design Category D or F, nonstructural components serving any portion of the building changed to Risk Category IV shall comply with the requirements of Section 1613 of the International Building Code or shall comply with ASCE 41 using an objective of Operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where a *change of use* results in a building being reclassified from *Risk Category I* or *II* to *Risk Category III* and the seismic coefficient, S_{DS} , is less than 0.33, compliance with this section is not required.
2. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category IV*, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category III* and to Seismic Design Category A or B shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of *risk category*, use of reduced seismic forces shall be permitted.

Reason:

This proposal protects essential nonstructural systems and components in existing buildings being changed to Risk Category IV.

Fire stations, emergency operations centers, hospital emergency departments, and other facilities assigned to RC IV are especially reliant on the performance of nonstructural systems. Yet the current code, even where it triggers seismic upgrade for a change of risk category, does not require any consideration of existing nonstructural components.

This proposal provides a level of protection consistent with the tough philosophy of the IEBC for change of occupancy projects. Still, it is limited to the most crucial and cost-beneficial situations where structural retrofit is already triggered. It applies only where a change of use would create a RC IV space within an existing non-RC IV building, where the code already requires a seismic structural evaluation and possibly a retrofit. This proposal would supplement the triggered structural work by including the nonstructural systems that would make the new RC IV areas functional. In addition, consider its limited scope:

- Change of occupancy to RC III is exempt.
- RC IV buildings in areas of low seismicity are exempt. (Application to moderate and high seismicity is consistent with the IEBC's current philosophy for change of occupancy, and we believe application to all of SDC D and SDC F is appropriate to avoid a perverse incentive in the code. That said, the proposal could be made less onerous in some areas by limiting it to SDC F or to the higher seismicity parts of SDC D, say $S_d > 0.5g$.)
- Existing nonstructural systems that are not needed to serve the new RC IV areas are exempt.

As is normal in the IEBC, "full" seismic criteria, represented by the specified ASCE 41 objective, are applicable for change of risk category triggers. (Again, we believe this is appropriate to avoid a perverse incentive in the code. That said, the proposal could be made less onerous by relaxing the ASCE 41 objective to Position Retention with the BSE-1N hazard, which would exempt many components and remove the need for backup power and retroactive component certification if it is the design intent to use existing, possibly nonconforming, nonstructural systems to serve the new RC IV areas.)

This proposal fills a gap in the code related to the expected performance of RC IV facilities, but it is consistent with other requirements related to the performance of these buildings. For reference and as precedents, consider:

- Current IEBC requirements for operational access to RC IV facilities affected by a change of occupancy (502.6 and 1103.3)
- ICC 500 requirements for storm shelter "critical support systems," which requires an existing building to protect mechanical and plumbing systems that support a storm shelter addition.
- IBC 1604.5.1 requirements for assigning risk category in buildings with multiple occupancies. Even if a portion of a building has no RC IV use itself, and even if it is structurally separated from any RC IV uses, it is still assigned to RC IV if it provides access, egress, or life safety systems to the RC IV portion.
- Damage to the new Olive View hospital in the Northridge earthquake. The structure did fine. Nonstructural failures shut down the hospital.
- Too many articles, white papers, and reports to name, all arguing that we need to take nonstructural systems more seriously.

The proposal makes matching edits to the Prescriptive and Work Area methods.

A notes on phrasing: The proposal applies to nonstructural systems that "serve" the new RC IV areas. This is similar to the "work area" concept, but it does not use that terminology because distributed nonstructural systems (HVAC, elevators) can be critical to the work area without actually being within it. Thus, the triggered scope might extend beyond the defined "work area" even if it does not involve the whole building.

Finally, the proposal adds the word "structural" within the current text of each revised section to clarify that the current provision applies only to structural elements (per Section 304.3). We have made a note to staff that if a separate proposal modifying the way these and other provisions reference Section 304.3 is approved, that other proposal should take precedence, and addition of the word "structural" as shown here should be ignored.

Cost Impact: The code change proposal will increase the cost of construction

And the increase will be proper, since the code should discourage the use of deficient nonstructural systems for new RC IV areas. It is consistent with the IEBC's philosophy regarding change of occupancy and change of risk category projects. That said, the proposal will increase costs only for buildings changing to RC IV in areas of significant seismicity, which are already subject to structural retrofit.

EB75-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: Approved as submitted as this addresses concerns to protect essential nonstructural systems and components in existing buildings of Risk Category IV. The committee expressed that the wording could be reviewed for clarity during the public comment period. (Vote:13-1)

EB75-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 506.5.3, [BS] 1006.3

Proponents: Kota Wharton, representing Self (kwharton@grovecityohio.gov) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

506.5.3 Seismic loads (seismic force-resisting system). Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the building shall satisfy the structural requirements of Section 1613 of the International Building Code for the new *risk category* using full seismic forces. Where a change of occupancy results in a building being assigned to Risk Category IV and Seismic Design Category D or F, nonstructural components ~~serving any portion of the building changed to Risk Category IV shall comply with the requirements of Section 1613 of the International Building Code or shall comply with ASCE 41,~~ using an objective of Operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category IV*, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
2. Where a *change of use* results in a building being reclassified from *Risk Category I or II* to *Risk Category III* and the seismic coefficient, S_{DS} , is less than 0.33, compliance with this section is not required.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category III* and to Seismic Design Category A or B, shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of risk category, use of reduced seismic forces shall be permitted.

[BS] 1006.3 Seismic loads. Where a *change of occupancy* results in a building being assigned to a higher *risk category*, or where the change is from a Group S or Group U occupancy to any occupancy other than Group S or Group U, the building shall satisfy the structural requirements of Section 1613 of the International Building Code for the new *risk category* using full seismic forces. Where a change of occupancy results in a building being assigned to Risk Category IV and Seismic Design Category D or F, nonstructural components ~~serving any portion of the building changed to Risk Category IV shall comply with the requirements of Section 1613 of the International Building Code or shall comply with ASCE 41,~~ using an objective of Operational nonstructural performance with the BSE-1N earthquake hazard level.

Exceptions:

1. Where a *change of use* results in a building being reclassified from *Risk Category I or II* to *Risk Category III* and the seismic coefficient, S_{DS} , is less than 0.33, compliance with this section is not required.
2. Where the area of the new occupancy is less than 10 percent of the building area, the occupancy is not changing from a Group S or Group U occupancy, and the new occupancy is not assigned to *Risk Category IV*, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.
3. Unreinforced masonry bearing wall buildings assigned to *Risk Category III* and to Seismic Design Category A or B shall be permitted to use Appendix Chapter A1 of this code.
4. Where the change is from a Group S or Group U occupancy and there is no change of *risk category*, use of reduced seismic forces shall be permitted.

Commenter's Reason: Changes for readability only. Reason statement the same.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction
See proposal reason statement. Changes for clarity only.

Public Comment# 3409

Proposed Change as Submitted

Proponents: Michael Fillion, representing National Council of Structural Engineers Associations (mrf.structure@verizon.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Add new text as follows:

506.5.5 Tsunami loads.. Where a change of occupancy results in a structure being assigned to a higher Tsunami Risk Category, the structure shall satisfy the requirements of Section 1615 of the *International Building Code* for the new Tsunami Risk Category.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

1006.5 Tsunami loads.. Where a change of occupancy results in a structure being assigned to a higher Tsunami Risk Category, the structure shall satisfy the requirements of Section 1615 of the *International Building Code* for the new Tsunami Risk Category.

Exception: Where the building area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

Reason: Requires that structures with a change of occupancy resulting in an elevated Tsunami Risk Category shall conform to the building code for tsunami design as for a new building. If not modified to achieve code conformance, a structure can be maintained or renovated within the preexisting Risk Category.

The vulnerability of an existing structure should not be elevated by an increased occupant load or a change of occupancy that would elevate the Tsunami Risk Category of the structure, when it does not conform to the building code for tsunami design.

The intent to limit development of higher risk category structures in tsunami design zones, unless appropriately designed for the hazards, is extended to existing structures where a change of occupancy is being considered.

This simply follows the same rationale, almost verbatim, as that for snow and wind design in Sections 506.5.2 and 1006.2; and also, seismic design in Sections 506.5.3 and 1006.3.

With a changing climate, increasingly there is a need to reduce coastal flood vulnerability wherever possible. Without this change, allowing an increase in Tsunami Risk Category in a tsunami design zone would be a development step in the wrong direction.

The alteration or change of occupancy of a structure is still permitted for a non-conforming structure provided that there is no increase in Tsunami Risk Category. A substantial improvement or substantial structural alteration is still permitted without consideration of tsunami design, provided that there is no increase in Tsunami Risk Category. Unless modified by a local jurisdiction tsunami design only applies to Risk Category III and IV buildings anyway.

Cost Impact: The code change proposal will increase the cost of construction. Additional construction should be anticipated if the existing building does not satisfy the requirements of Section 1615 of the International Building Code.

EB76-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Disapproved as the committee expressed concerns over the concept of "Tsunami Risk Category". Testimony over Risk Category I and II buildings appeared to disagree with the proposal. Concerns were expressed relative to the need for a pointer to multiple occupancies. (Vote: 14-0)

Individual Consideration Agenda

Public Comment 1:

IEBC: 506.5.5, 1006.5

Proponents: Michael Fillion, representing National Council of Structural Engineers Associations (mrf.structure@verizon.net) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

506.5.5 Tsunami loads. Where a change of occupancy results in a structure located within a Tsunami Design Zone being assigned to a higher ~~Tsunami~~ Risk Category, the structure shall satisfy the requirements of Section 1615 of the *International Building Code* ~~for the new Tsunami Risk Category~~.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

1006.5 Tsunami loads. Where a change of occupancy results in a structure located within a Tsunami Design Zone being assigned to a higher ~~Tsunami~~ Risk Category, the structure shall satisfy the requirements of Section 1615 of the *International Building Code* ~~for the new Tsunami Risk Category~~.

Exception: Where the building area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

Commenter's Reason: Requires that structures with a change of occupancy resulting in an elevated Risk Category shall conform to the building code for tsunami design as for a new building. If not modified to achieve code conformance, a structure can be maintained or renovated within the preexisting Risk Category.

The vulnerability of an existing structure should not be elevated by an increased occupant load or a change of occupancy that would elevate the Risk Category of the structure, when it does not conform to the building code for tsunami design.

The intent to limit development of higher risk category structures in tsunami design zones, unless appropriately designed for the hazards, is extended to existing structures where a change of occupancy is being considered.

This simply follows the same rationale, almost verbatim, as that for snow and wind design in Sections 506.5.2 and 1006.2; and also, seismic design in Sections 506.5.3 and 1006.3.

With a changing climate, increasingly there is a need to reduce coastal flood vulnerability wherever possible. Without this change, allowing an increase in Risk Category in a tsunami design zone would be a development step in the wrong direction.

The alteration or change of occupancy of a structure is still permitted for a non-conforming structure provided that there is no increase in Tsunami Risk Category. A substantial improvement or substantial structural alteration is still permitted without consideration of tsunami design, provided that there is no increase in Tsunami Risk Category. Unless modified by a local jurisdiction tsunami design only applies to Risk Category III and IV buildings. This proposal was modified to use the term "Risk Category" consistent with the IBC, in lieu of the term "Tsunami Risk Category" which is defined in ASCE 7.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction. Additional construction should be anticipated if the existing building does not satisfy the requirements of Section 1615 of the International Building Code.

Public Comment# 3494

Proposed Change as Submitted

Proponents: Michael Fillion, representing National Council of Structural Engineers Associations (mrf.structure@verizon.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Add new text as follows:

506.5.5 Flood loads. Where a change of occupancy results in a structure being assigned to a higher Flood Design Class, the structure shall satisfy the requirements of Section 1612 of the *International Building Code* for the Flood Design Class.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

1006.5 Flood loads. Where a change of occupancy results in a structure being assigned to a higher Flood Design Class, the structure shall satisfy the requirements of Section 1612 of the *International Building Code* for the Flood Design Class.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

Reason: Requires that structures with a change of occupancy resulting in an elevated Flood Design Class shall conform to the building code for flood design as for a new building. If not modified to achieve code conformance, a structure can be maintained or renovated within the preexisting Flood Design Class.

The vulnerability of an existing structure should not be elevated by an increased occupant load or a change of occupancy that would elevate the Flood Design Class of the structure, when it does not conform to the building code for flood design.

The intent is to limit development of higher flood design class structures in flood or tsunami design zones, unless appropriately designed for the hazards, is extended to existing structures where a change of occupancy is being considered.

This simply follows the same rationale, almost verbatim, as that for snow and wind design in Sections 506.5.2 and 1006.2; and also, seismic design in Sections 506.5.3 and 1006.3.

With a changing climate, increasingly there is a need to reduce coastal flood and other flood vulnerability wherever possible. Without this change, allowing an increase in Flood Design Class would be a development step in the wrong direction.

The alteration or change of occupancy of a structure is still permitted for a non-conforming structure provided that there is no increase in Flood Design Class and the renovation is below the substantial improvement threshold for flood design.

Cost Impact: The code change proposal will increase the cost of construction. Additional construction cost should be anticipated if the existing structure does not satisfy the requirements of section 1612 of the International Building Code.

EB77-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Disapproved similar to committee action on EB76. The IBC does not utilize "Flood Design Class". (Vote: 14-0).

EB77-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 506.5.5, 1006.5

Proponents: Michael Fillion, representing National Council of Structural Engineers Associations (mrf.structure@verizon.net) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

506.5.5 Flood loads. Where a change of occupancy results in a structure being assigned to a higher ~~Flood Design Class~~ Risk Category, the structure shall satisfy the requirements of Section 1612 of the *International Building Code* for the ~~Flood Design Class~~ Risk Category.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

1006.5 Flood loads. Where a change of occupancy results in a structure being assigned to a higher ~~Flood Design Class~~ Risk Category, the structure shall satisfy the requirements of Section 1612 of the *International Building Code* for the ~~Flood Design Class~~ Risk Category.

Exception: Where the area of the new occupancy is less than 10 percent of the building area, compliance with this section is not required. The cumulative effect of occupancy changes over time shall be considered.

Commenter's Reason: Requires that structures with a change of occupancy resulting in an elevated Risk Category shall conform to the building code for flood design as for a new building. If not modified to achieve code conformance, a structure can be maintained or renovated within the preexisting Risk Category.

The vulnerability of an existing structure should not be elevated by an increased occupant load or a change of occupancy that would elevate the Risk Category of the structure, when it does not conform to the building code for flood design.

The intent is to limit development of higher flood design class structures in flood or tsunami design zones, unless appropriately designed for the hazards, is extended to existing structures where a change of occupancy is being considered.

This simply follows the same rationale, almost verbatim, as that for snow and wind design in Sections 506.5.2 and 1006.2; and also, seismic design in Sections 506.5.3 and 1006.3.

With a changing climate, increasingly there is a need to reduce coastal flood and other flood vulnerability wherever possible. Without this change, allowing an increase in Risk Category would be a development step in the wrong direction.

The alteration or change of occupancy of a structure is still permitted for a non-conforming structure provided that there is no increase in Risk Category and the renovation is below the substantial improvement threshold for flood design. This proposal was modified from the original to use the term "Risk Category" consistent with the IBC, in lieu of the term "Flood Design Class" which is defined in ASCE 24.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction

Additional construction cost should be anticipated if the existing structure does not satisfy the requirements of section 1612 of the International Building Code.

Public Comment# 3501

Proposed Change as Submitted

Proponents: Mike Nugent, representing Building Code Action Committee (bcac@iccsafe.org)

2021 International Existing Building Code

804.4 Number of exits. The number of exits shall be in accordance with Sections 804.4.1 through 804.4.3.

Revise as follows:

804.4.1 Minimum number. Every story or occupied roof utilized for human occupancy on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 804.4.1.1 and 804.4.1.2.

804.4.1.1 Single-exit buildings. A single exit or access to a single exit shall be permitted from spaces, any story or any ~~occupied~~ occupiable roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and exit access travel distance do not exceed the values in Table 804.4.1.1(1) or Table 804.4.1.1(2).
2. In Group R-1 or R-2, buildings without an *approved* automatic sprinkler system, individual single-story or multiple-story dwelling or sleeping units shall be permitted to have a single exit or access to a single exit from the dwelling or sleeping unit provided one of the following criteria are met:
 - 2.1. The occupant load is not greater than 10 and the exit access travel distance within the unit does not exceed 75 feet (22 860 mm).
 - 2.2. The building is not more than three stories in height; all third-story space is part of dwelling with an exit access doorway on the second story; and the portion of the exit access travel distance from the door to any habitable room within any such unit to the unit entrance doors does not exceed 50 feet (15 240 mm).
3. In buildings of Group R-2 occupancy of any number of stories with not more than four dwelling units per floor served by an interior exit stairway; with a smokeproof enclosure in accordance with Sections 909.20 and 1023.12 of the International Building Code or an exterior stairway as an exit; and where the portion of the exit access travel distance from the dwelling unit entrance door to the exit is not greater than 20 feet (6096 mm).

TABLE 804.4.1.1(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY <u>OR OCCUPIABLE ROOF</u>	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
Basement, first, or second or third story above grade plane <u>and occupiable roofs over the first or second floor above grade plane</u>	R-2 ^{a, b, c}	4 dwelling units	50-125 feet
Third-Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

- a. Buildings classified as Group R-2, equipped without an approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 of the International Fire Code and provided with emergency escape and rescue openings in accordance with Section 1031 of the International Building Code.
- b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2) of the International Building Code.
- c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not access through and serving individual units, use Table 804.4.1.1(2).

TABLE 804.4.1.1(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane <u>or occupable roofs over the first story above grade plane</u>	B ^b , F-2 ^b , S-2 ^a	35-49	75
	<u>S-2^{a,b}</u>	<u>35</u>	<u>75</u>
Second story above grade plane	B, F-2, S-2 ^a	35	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

a. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.

b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or on the roof of such buildings shall have a maximum exit access travel distance of 100 feet.

Reason: This proposal has two reasons.

1. Coordination with IBC Section 1006.3.4 and E21-21 that added occupiable roofs to the single exit tables.
2. The current requirements in Table 804.4.1.1(1) is less that what is permitted for new construction for travel distance and could be read to not allow for a single exit from a 3rd floor. The current requirements for B and F-2 are less than permitted for new construction.

This has been approved for the 2024 IBC through the Approval of E21-21. Proposal E21-21 was approved as submitted and can be found at the following link. <https://www.iccsafe.org/wp-content/uploads/IBC-Egress-2021-Group-A.pdf> The committee reason statement is below:

Committee Reason:

This proposal was approved as an occupied roof is not a story, so the number of exits from the occupied roof needs to be clarified. The location of the occupied roof allowance in Table 1006.3.4(2) is appropriate as the occupied roof over the 1st floor is the same vertical travel as from the basement level. This is a good correlation with the occupied roof requirements in the code. (Vote: 10-4)

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2020 and 2021 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at <https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/building-code-action-committee-bcac/>.

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

This is a correlation revisions made to the IBC in Group A (2021). Without this correlation the IEBC requirements would be more restrictive than new thus increasing the cost of construction in existing buildings.

EB83-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

804.4.1 Minimum number. Every story or ~~occupiable occupied~~ roof utilized for human occupancy on which there is a *work area* that includes exits or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 804.4.1.1 and 804.4.1.2.

Committee Reason: This proposal was approved for consistency with the approval of code change proposal E21-21. The modification simply updates to the approved terminology "occupiable" versus "occupied." (Vote: 11-3)

EB83-22

Individual Consideration Agenda

Public Comment 1:

IEBC: TABLE 804.4.1.1(1), TABLE 804.4.1.1(2)

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

TABLE 804.4.1.1(1) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 OCCUPANCIES

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM EXIT ACCESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane and occupiable roofs over the first or second floor above grade plane	R-2 ^{a, b, c}	4 dwelling units	125 feet
Fourth story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

- a. Buildings classified as Group R-2, ~~equipped~~ without an approved automatic sprinkler system ~~throughout in accordance~~ complying with Section 903.3.1.1 or 903.3.1.2 of the International Fire Code and provided with emergency escape and rescue openings in accordance with Section 1031 of the International Building Code.
- b. This table is used for Group R-2 occupancies consisting of dwelling units. For Group R-2 occupancies consisting of sleeping units, use Table 1006.3.4(2) of the International Building Code.
- c. This table is for occupiable roofs accessed through and serving individual dwelling units in Group R-2 occupancies. For Group R-2 occupancies with occupiable roofs that are not access through and serving individual units, use Table 804.4.1.1(2).

TABLE 804.4.1.1(2) STORIES AND OCCUPIABLE ROOFS WITH ONE EXIT OR ACCESS TO ONE EXIT FOR OTHER OCCUPANCIES

STORY OR OCCUPIABLE ROOF	OCCUPANCY	MAXIMUM OCCUPANT LOAD PER STORY AND OCCUPIABLE ROOF	MAXIMUM EXIT ACCESS TRAVEL DISTANCE (feet)
First story above or below grade plane or occupable roofs over the first story above grade plane	B ^b , F-2 ^b	49	75
	S-2 ^{a,b}	35	75
Second story above grade plane	B, F-2, S-2 ^a	35	75
Third story above grade plane and higher	NP	NA	NA

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

NA = Not Applicable.

- a. The length of exit access travel distance in a Group S-2 open parking garage shall be not more than 100 feet.
- b. Group B, F and S occupancies in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or on the roof of such buildings shall have a maximum exit access travel distance of 100 feet.

Commenter's Reason: Multiple modifications to proposal.

- **International Existing Building Code Table 804.4.1.1 (1) footnote (a).** Removed *equipped* for clarity. *Equipped* adds no meaning and is open to confusion when follows by *without*. Added scoping by adding *throughout*. The concern is whether the building is equipped *throughout* rather than equipped in areas. See International Building Code Table 1006.3.4 (1). Removed and replaced *accordance* with *complying* for clarity.
- **International Existing Building Code 804.4.1.1 (2).** Added *OR OCCUPIABLE ROOF* to the column heading for clarity and coordination. See International Building Code Table 1006.3.4

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. See the original proposal for the cost impact. The modification is editorial only.

Public Comment# 3335

Proposed Change as Submitted

Proponents: Daniel Nichols, representing MTA Construction and Development (dnichols@mnr.org)

2021 International Existing Building Code

Revise as follows:

804.4 Number of exits. The number of exits or access to exits shall be in accordance with Sections 804.4.1 through 804.4.3.

804.4.1 Minimum number. Every story utilized for human occupancy on which there is a *work area* that includes exits, access to exits, or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits or access to exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 804.4.1.1 and 804.4.1.2.

Reason: When utilizing the Alterations – Level 2 work area method, IEBC Section 804.4.1 requires that any work to a work area that effects any exits or corridors shared by more than one tenant shall be provided with the minimum number of exits. With the recent changes to the IBC expanding the use of exit access stairways, it creates a double-edged sword for existing buildings:

1. For “newer” existing buildings constructed under the more recent editions of the IBC, any Alt. 2 rehab work on a multi-tenant story that effects a corridor will no longer be permitted to utilize the “exit access stairway” allowance that was allowed when first built since the language specifically states “minimum number of exits” without exception

2. In a more general sense, a code user that goes to the IBC looking for the minimum number of exits per story will start at IBC Section 1006.3.3 and Table 1006.3.3. Both the section and the table state “Exits, or access to exits per story.” This gives the IEBC code user little direction if they are limited to just exits, IBC compliant exits, or can use any access to exits? The latter can be very concerning since there is not any limitation to sizing, separation, or travel distances referenced anywhere for this type of application.

The purpose of IEBC 804.4.1.3 is to provide qualifiers to allow for a subset of IBC compliant exit access stairways to be permitted. The 2 sections referenced ensure that the exit access travel distance and the number of stories traveled are both considered in the determination of exit access stairways counting toward the number of “exits” within IEBC Section 804.4

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This proposal is to align the methodology of “number of exits” with current requirements within the IBC.

EB85-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: This proposal was approved to be consistent with the allowance of exit access stairways in the International Building Code. It was suggested that as corridors are currently mentioned in Section 804.4.1 and are considered exit access that the current language may need further refinement. (Vote: 14-0)

EB85-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 804.4, 804.4.1

Proponents: Daniel Nichols, representing MTA Construction and Development (dnichols@mnr.org) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

804.4 Number of exits. The number of exits or access to exits shall be in accordance with Sections 804.4.1 through 804.4.3.

804.4.1 Minimum number. Every story utilized for human occupancy on which there is a *work area* that includes exits, ~~access to exits~~, or corridors shared by more than one tenant within the *work area* shall be provided with the minimum number of exits or access to exits based on the occupancy and the occupant load in accordance with the *International Building Code*. In addition, the exits shall comply with Sections 804.4.1.1 and 804.4.1.2.

Commenter's Reason: At the Rochester hearings, the committee agreed with the change but did ask for the application to the exit access be further explored. In doing so, we are submitting this public comment to remove the "access to exits" trigger for use of the section since it could be interpreted to applying to any work area undergoing Alteration work. This would meet the intent of the original code change proposal to not change the trigger for the level of work, which can be interpreted as such in the proposal's original language.

The public comment still meets the intent of the reason statement to permit the consideration of "access to exits" and eliminate confusion when utilizing IBC Table 1006.3.2.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction

The public comment is further clarification to allow an exit access stairways in existing buildings, lowering the need for exits to be constructed with enclosures.

Public Comment# 3239

Proposed Change as Submitted

Proponents: Mike Nugent, representing Building Code Action Committee (bcac@iccsafe.org)

2021 International Existing Building Code

Revise as follows:

1002.1 Compliance with the building code. Where an *existing building* or part of an *existing building* undergoes a *change of occupancy* to one of the special use or occupancy categories as described in Chapter 4 in the *International Building Code*, the building shall comply with all of the requirements of Chapter 4 of the *International Building Code* applicable to the special use or occupancy.

Exception: Where construction of a new occupiable roof on an existing building results in a high rise building classification, compliance with Section 403 of the *International Building Code* shall not be required. The construction of the occupiable roof shall comply with Section 1011.

Reason: The intent of this proposal is to add an exception for converting portion of roof to an occupiable roof for buildings where the highest floor is below 75' but the roof is about 75'. This will have no impact on existing high-rise buildings.

The exception exempts buildings that were not considered high-rises without the occupied roof from the high-rise package as long as the building is sprinklered, has occupant notification and (if provided) an EVAC system. This is not an exemption from the limitations for occupiable roof so this added occupied roof is not an additional story. The items that would be very difficult or impossible for an existing building to comply with include :

- Moving the stairways to meet separation requirements
- Changing the structural integrity of the stairways
- Adding a secondary water supply.
- Adding a fire command center

In urban environments the opportunity for people to get outside by using the roof is very important for occupant health and well-being.

This proposal is submitted by the ICC Building Code Action Committee (BCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2020 and 2021 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at <https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/building-code-action-committee-bcac/>.

Cost Impact: The code change proposal will decrease the cost of construction

To require compliance with the high-rise provisions in Section 403 of the IBC simply due to the later addition of an occupiable roof would be very expensive. This proposal prevents the need for costly and complex upgrades that would be required.

EB94-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

1002.1 Compliance with the building code. Where an *existing building* or part of an *existing building* undergoes a *change of occupancy* to one of the special use or occupancy categories as described in Chapter 4 in the *International Building Code*, the building shall comply with all of the requirements of Chapter 4 of the *International Building Code* applicable to the special use or occupancy.

Exception: Where construction of a new occupiable roof on an existing building results in a high rise building classification and the occupiable roof has an occupant load less than 50, compliance with Section 403 of the *International Building Code* shall not be required. The construction of

the occupiable roof shall comply with Section 1011.

Committee Reason: This proposal with the modification was seen as a reasonable compromise to not require compliance with IBC Section 403 retroactively. The modification places a occupant limit of 50 for occupiable roofs. It was felt that larger occupant loads pose a higher risk and should trigger more restrictive requirements. (Vote: 8-6)

EB94-22

Individual Consideration Agenda

Public Comment 1:

Proponents: Mike Nugent, representing Building Code Action Committee (bcac@iccsafe.org) requests As Submitted

Commenter's Reason: We are asking the ICC membership to accept this proposed code change As Submitted. As the addition of an occupied roof will constitute a change of occupancy (or partial change of occupancy), without the proposed exception the building – regardless of the age, its type of construction or the code under which it was built - would be required TO TOTALLY COMPLY with the requirements of the IBC. At first blush this doesn't seem so out of the ordinary as logic says if you add a new "occupancy" or "use" to a building, the applicable alterations should be made. BUT, and we cannot emphasize this enough, given the acceptance of code change G15-21 in Group A to revise the definition of "high-rise building" in the IBC to make an occupied roof be one of the thresholds which may push a building into that category, the alterations needed for the existing building may be monumental and extremely costly. Per code change G15-21, the definition for a high-rise building in the 2024 code will now read:

[BG] HIGH-RISE BUILDING.

A building with an occupied floor or occupied roof located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

The change to the definition of "high-rise building" resulted in there now two (2) thresholds.

- When an occupied floor is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access; OR
- When an occupied roof is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

The new threshold works for new buildings but WILL NOT work for most existing buildings without significant alterations at a significant cost. This is an extremely important issue that was outlined in the Reason statement to this proposed code and we feel is worth reiterating.

Should an occupied roof be constructed on an existing building that has a building height of 75 feet, per the 2024 IBC definition the building is now a "high-rise." BUT the existing building was not designed or constructed as a high-rise as the highest occupied floor is less than 75 ft above the lowest level of fire department vehicle access. Without the proposed exception, the ENTIRE building would be subject to the high-rise package that is found in Section 403 of the IBC. That package would include among other items the following :

- Exit stairways that must meet separation requirements – min 30 ft.
- Changing the structural integrity of the stairways – requirement for hardening of shafts
- Adding a secondary water supply – building may not even be sprinklered.
- Adding a fire command center –
- Adding a smoke removal system to each story

Over the past 3 cycles the IBC has been revised significantly to include a package of requirements for occupied roofs. Forcing an existing building into compliance with the high-rise package will kill most project due to the cost. The items that would be very difficult or impossible for an existing.

We encourage that you accept the proposed code change As Submitted.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction

To require compliance with the high-rise provisions in Section 403 of the IBC simply due to the later addition of an occupiable roof would be very expensive. This proposal prevents the need for costly and complex upgrades that would be required.

Public Comment 2:

Proponents: Stephen Thomas, representing Colorado Chapter ICC (stthomas@coloradocode.net) requests Disapprove

Commenter's Reason: This proposal will create a conflict within the IEBC. Proposal EB46-22 was approved as submitted by the committee. That proposal considers new occupiable roofs as an addition. This proposal places the requirements under a Change of occupancy. Therefore, there will be a conflict in the code and create confusion. The definition of Change of Occupancy states the following:

Any of the following shall be considered as a change of occupancy where the current International Building Code requires a greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current building or structure:

1. Any change in the occupancy classification of a building or structure.
2. Any change in the purpose of, or a change in the level of activity within, a building or structure.
3. A Change of use.

The creation of a new occupiable roof does not fall within any of those conditions. The definition of additions states, "An extension or increase in floor area, number of stories, or height of a building or structure". When an owner creates an occupiable roof, decking is typically added over the top of the existing roof and therefore increasing the height of the building/structure. Therefore, it meets the definition of an addition. It is not a change of occupancy.

We have taken the revised exception approved by the committee and relocated it within a public our comment for Proposal EB46-22 to maintain the intent of the committee. The revised exception will be maintain, just in a different location. This will maintain the original proponent's and committee's intent. It is important that a new occupied roof be considered an addition and not a change of occupancy. If it is considered a change of occupancy, the provisions of Section 306.7.1 would apply and the 20% limitation on improving the accessibility would be applicable. Therefore, there would be little likelihood that an elevator would be provided to an occupiable roof. An additions does not fall under this limitation and full accessibility would be required at the roof.

In addition, the charging statement in Section 1002.1 states that where there is a change of occupancy to one of the special use or occupancies in Chapter 4 of the IBC, the building has to comply with the building code. Occupied roofs are not a special use or occupancy referenced in Chapter 4 of the IBC. They are referenced in Chapter 5. The proposed exception would also only apply to a change of occupancy under the work area option of the IEBC. It would not apply to the prescriptive option or the performance option. Therefore, this is not the correct location for the exception. We feel it is better located in the Addition sections as addressed in EB46-22.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
No change to code.

Proposed Change as Submitted

Proponents: Mike Nugent, representing Building Code Action Committee (bcac@iccsafe.org); Robert Marshall, representing FCAC (fcac@iccsafe.org)

2021 International Existing Building Code

1011.2.1 Fire sprinkler system. Where a change in occupancy classification occurs or where there is a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the International Building Code that requires an automatic fire sprinkler system to be provided based on the new occupancy in accordance with Chapter 9 of the International Building Code. The installation of the automatic sprinkler system shall be required within the area of the *change of occupancy* and areas of the building not separated horizontally and vertically from the change of occupancy by one of the following:

1. Nonrated permanent partition and horizontal assemblies.
2. Fire partition.
3. Smoke partition.
4. Smoke barrier.
5. Fire barrier.
6. Fire wall.

Exceptions:

1. An automatic sprinkler system shall not be required in a one- or two-family dwelling constructed in accordance with the International Residential Code.
2. Automatic sprinkler system shall not be required in a townhouse constructed in accordance with the International Residential Code.
3. The townhouse shall be separated from adjoining units in accordance with Section R302.2 of the *International Residential Code*.

Add new text as follows:

1011.2.1.1 Nonrequired automatic sprinkler systems. The code official is authorized to permit the removal of existing automatic sprinkler system where all of the following conditions exist:

1. The system is not required for new construction.
2. Portions of the system that are obvious to the public are removed.
3. The system was not installed as part of any special construction features, including fire-resistance-rated assemblies and smoke-resistive assemblies, conditions of occupancy, means of egress conditions, fire code deficiencies, approved modifications or approved alternative materials, design and methods of construction, and equipment applying to the building.

1011.2.1.1.1 Approval. Plans, investigation and evaluation reports, and other data shall be submitted documenting compliance Section 1011.2.1.1 for review and approval in support of a determination authorizing the removal of the automatic sprinkler system by the code official.

Reason: E103-19 was approved as modified. It was disapproved in the final action due because Section 1011.2.1.1.1 did not reference all three items in Section 1011.2.1.1. The concerns raised have been addressed in the revisions.

A change of occupancy could be to an occupancy that did not require a sprinkler system. If the system was old, outdated or needed extensive reconfiguration, costs could be high. The new Section 1011.2.1.1 allows for non required systems to be removed. To be removed the designer/building owner would have to demonstrate to the code official that the building did not need the sprinklers for occupancy, fire areas or type of construction limitations, and that none of the trade off's for items such as travel distance or corridor rating were in effect in the building. The system would have to be removed totally – including the system in the ceiling, standpipes and the connections for the fire department outside of the building.

This proposal is submitted by the ICC Building Code Action Committee (BCAC) and ICC Fire Code Action Committee (FCAC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2020 and 2021 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at <https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/building-code-action-committee-bcac/>.

The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes with regard to fire and life safety in new and existing buildings and facilities as well as the protection of life and property in wildland urban interface areas. In 2020 and 2021 the Fire-CAC held multiple virtual meetings that were open to any interested party. In addition, there were numerous virtual specific working group meetings that were also open to any interested parties, to develop, discuss and debate the proposed changes. Related documentation and reports are posted on the FCAC website at: <https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/fire-code-action-committee-fcac/>

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

This section is essentially providing the allowance to remove a system that is not required and may be providing a false sense of security. Any costs will simply be associated with the removal process. Once removed it will reduce maintenance and repair costs.

EB97-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: This proposal was approved as it is necessary for situations where existing systems needs to be removed and recognizes that existing buildings should not be held to a higher standard than new buildings. This also includes language to ensure that such systems are not removed where they are part of the approval of the building as originally constructed. The proposal also appropriately includes language to make sure all visible aspects of the system are removed to avoid a false sense of protection by the public. There was some concern of the use of the term "obvious" with regard to the visibility to the public and also on the location of the provisions within a section triggering automatic sprinklers. It was suggested that other types of non required fire safety systems should also be addressed. (Vote: 14-0)

EB97-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 1011.2.1.1

Proponents: Kota Wharton, representing City of Grove City (kwharton@grovecityohio.gov) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

1011.2.1.1 Nonrequired automatic sprinkler systems.. The code official is authorized to permit the removal of existing automatic sprinkler system where all of the following conditions exist:

1. The system is not required for new construction.
2. Portions of the system that are ~~obvious~~ exposed to the public are removed.
3. The system was not installed as part of any special construction features, including fire-resistance-rated assemblies and smoke-resistive assemblies, conditions of occupancy, means of egress conditions, fire code deficiencies, approved modifications or approved alternative materials, design and methods of construction, and equipment applying to the building.

Commenter's Reason: Clarifies the intent of the word "obvious".

Expose. v. To show publicly; to display [...] (Staff et al., *Black's Law Dictionary* 1990)

Bibliography: Publisher's Editorial Staff, Haley, J. R., & Nolan-Haley, J. M. (1990). *Black's Law Dictionary* (6th ed.). West Publishing Co.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
See proposal cost impact statement.

Public Comment# 3406

Public Comment 2:

Proponents: Jeffrey Hugo, representing NFSA (hugo@nfsa.org) requests Disapprove

Commenter's Reason: IEBC, Section 1011.2 is the charging section for requiring fire protection systems for a change of occupancy. The new language by this proposal is a subsection of 1011.2.1 that removes existing systems. Nowhere is there an allowance or path to get to this new subsection to remove nonrequired systems. The IFC, Section 901.4.2, already has rules for nonrequired system removal. The IEBC and IFC, should be correlated for continuity of application for designers and code officials.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction

No change to code.

Public Comment# 3297

Proposed Change as Submitted

Proponents: John Williams, representing Committee on Healthcare (ahc@iccsafe.org)

2021 International Existing Building Code

Revise as follows:

1011.5.1 Means of egress for change to a higher-hazard category. Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table 1011.5, the means of egress shall comply with the requirements of Chapter 10 of the International Building Code.

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 903.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 shall be permitted for continued use subject to approval of the *code official*.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed on both sides of wood lath and plaster in good condition or 1/2-inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 804.6.1, 804.6.2 and 804.6.3.
6. Existing dead-end corridors shall comply with the requirements in Section 804.7.
7. An operable window complying with Section 1011.5.6 shall be accepted as an *emergency escape and rescue opening*.
8. In Group I-1 and I-2 facilities, required guards enclosing the occupiable roof areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the occupiable roof where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.

1011.5.2 Means of egress for change of use to an equal or lower-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category (higher number) as shown in Table 1011.5, existing elements of the means of egress shall comply with the requirements of Section 905 for the new occupancy classification. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the International Building Code.

~~Exception~~ Exceptions:

1. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
2. In Group I-1 and I-2 facilities, required guards enclosing the occupiable roof areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the occupiable roof where the occupants, because of clinical needs, require restraint or containment as part of a function of a psychiatric or cognitive treatment area.

804.12 Guards. The requirements of Sections 804.12.1 and 804.12.2 shall apply to guards from the *work area* floor to, and including, the level of exit discharge but shall be confined to the egress path of any *work area*.

804.12.1 Minimum requirement. Every open portion of a stairway, landing, or balcony that is more than 30 inches (762 mm) above the floor or grade below and is not provided with guards, or those portions in which existing guards are judged to be in danger of collapsing, shall be provided with guards.

Revise as follows:

804.12.2 Design. Guards required in accordance with Section 804.12.1 shall be designed and installed in accordance with the *International Building Code*.

Exception: In Group I-1 and I-2 facilities, required guards enclosing the occupiable roof areas shall be permitted to be greater than 48 inches (1219 mm) above the surface of the occupiable roof where the occupants, because of clinical needs, require restraint or containment as part of

a function of a psychiatric or cognitive treatment area.

Reason: The intent of this proposal is to allow higher guards for patient safety around outdoor patient garden/exercise areas on the roof. The Healthcare committee understands the guard height limitation for low rise buildings was to allow for fire department access to the roof. However, we feel that the limitations proposed are reasonable.

Access to fresh air and getting outside is incredibly important for older adults who live in Group I-1&I-2 care facilities. These care recipients spend up to 90% of their time indoors and if the only choice of outdoor space requires staff or volunteers to take them downstairs, via an elevator, to get outside, some care recipients never get the opportunity to be outside. If a garden space or other outdoor area can be created on a roof adjacent to sleeping areas, this can make getting outside much easier.

Unfortunately, while we want care recipients to get outside, we also need to keep them safe. We know that exit seeking behavior is prevalent and a 48" barrier is not enough to protect from elopement or self harm.

Outdoor areas are important for patient mental health and wellness. Hospitals and nursing homes in a urban environment often don't have property that would allow for outdoor patient areas. The 'clinical needs' language is an attempt to balance care recipient wellness with safety. These types of facilities have extensive fire and safety evacuation plans and staff that is trained in assisting care recipients and guest for evacuation/defend-in-place during an emergency. Fire departments perform regular inspections of these buildings, to they would be very familiar with the layouts. In addition, these facilities have exceptionally good records for a small number of fire events.

There was a similar change in Group A, G105-21 that had an original intention of allowing for guards to exceed the height limitation required by IBC Section 503.1.4.1. The modification to broaden this allowance for "walls, parapets, rooftop structures (some of which are exempted in Exception 1), and wind screens" on roofs above the reach of fire departments (>75') was appropriate. However, there is still the issue with existing buildings that want to expand or add an occupied roof with the result being –

- If any structure or guard is above 48" high, this is now being considered an additional story so they could violate height limitations for the type of construction.
- If the building is less than 75' in height, you cannot have guards high enough to discourage people from jumping off the roof.

There is a suggestion for Sections 804.12.2, 1011.5.1 and 1011.5.2 for Group I-1 and I-2 where high guards are needed for patient safety. The language for the limitation of 'clinical needs' is the same as IBC Section 101.2.14 for Controlled Egress Doors.

Below are two pictures of a roof garden on a memory care facility. There are glass between the columns.



This proposal is submitted by the Committee on Healthcare (CHC). The CHC was established by the ICC Board to evaluate and assess contemporary code issues relating to healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. In 2020 and 2021 of the committees as well as any interested parties, to discuss and debate the proposed changes. Information on the CHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CHC effort can be downloaded from the CHC website at <https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/icc-committee-on-healthcare/>.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This is an optional allowance for certain facilities so will provide design flexibility. It will cost more if such barriers are constructed but that is an option for the building owner.

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: This proposal was approved as it is consistent with the allowance in the IBC for such guards through the occupiable roof requirements and is critical to allow the ability for such occupancies to provide a safe outdoor space for occupants. There was some concern as to how this allowance relates to the occupiable roof requirements in the IBC as approved in Group A where they are addressed within Chapter 5 versus Chapter 10 of the IBC. (Vote: 10-4)

EB98-22

Individual Consideration Agenda

Public Comment 1:

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of Colorado Chapter of ICC (david.renn@denvergov.org) requests Disapprove

Commenter's Reason: This public comment requests disapproval of this proposal for the following reasons:

1. The proposed new exceptions permit required guards enclosing occupiable roofs to be greater than 48". These are exceptions to complying with requirements of Chapter 10 of the IBC; however, Chapter 10 of the IBC (Section 1015.3) only has a minimum height for guards, so guards greater than 48" are allowed by Chapter 10. As a result, the new exceptions are for requirements that do not exist in Chapter 10 and have no impact on the code.
2. Section 503.1.4.1 for enclosures at occupied roofs has a requirement for elements or structures enclosing occupied roofs to not extend more than 48" above the roof surface and it appears this proposal is trying to address this. However, this proposal provides no relief for Chapter 5 requirements, so they still apply. Furthermore, 503.1.4.1 makes no mentions of guards, just elements or structures, so the language in the exceptions regarding "required guards" is incorrect as guards are not required to enclose occupiable roofs. If an occupiable roof extends to the edge of a roof, a guard would be required only at the edge of the roof, but not at interior edges of the occupied roof.
3. The 2021 IBC makes no similar allowance for enclosures at occupied roofs on new buildings, so it is not reasonable to give this allowance to existing buildings that undergo a change of occupancy or have alterations. A better spot to make this change is in the IBC - then, no change is needed in the IEBC when compliance with the IBC is required. Note that during testimony at the committee action hearings it was stated that a proposal was made in Group A for this, but we could not locate a proposal for this topic - and if there was, this IEBC proposal isn't needed since you could use the IBC allowances when directed to comply with the IBC.
4. This proposal only makes changes to the work area compliance method. If using the prescriptive compliance method (IEBC Chapter 5) the proposed changes would not apply.

While we agree with the intent of this proposal, the language in the proposal does not give the desired outcome since it adds exceptions to IBC Chapter 10 requirements that do not exist and does not give relief to the relevant requirements in IBC Chapter 5. Please support disapproval with the hope that this change is made in the next Group A hearings for the IBC, instead of the IEBC.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction
No change to code.

Public Comment# 3185

NOTE: EB103-22 PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY

EB103-22 Part I

Proposed Change as Submitted

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com)

THIS IS A TWO PART CODE CHANGE. PART I WILL BE HEARD BY THE INTERNATIONAL EXISTING BUILDING CODE COMMITTEE AND PART II WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

2021 International Existing Building Code

Add new definition as follows:

CHARACTER-DEFINING FEATURE. Those visual aspects and physical elements that comprise the appearance of an historic building and that are significant to the historical, architectural and cultural values, including the overall shape of the historic building or property, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment.

CHAPTER 12 HISTORIC BUILDINGS

SECTION 1201 GENERAL

1201.1 Scope. This chapter is intended to provide means for the preservation of *historic buildings*. *Historic buildings* shall comply with the provisions of this chapter relating to their *repair*, *alteration*, relocation and *change of occupancy*.

1201.3 Special occupancy exceptions—museums. Where a building in Group R-3 is used for Group A, B or M purposes such as museum tours, exhibits and other public assembly activities, or for museums less than 3,000 square feet (279 m²), the *code official* is authorized to determine that the occupancy is Group B where life safety conditions can be demonstrated in accordance with Section 1201.2. Adequate means of egress in such buildings, including, but not limited to, a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

[BS] 1201.4 Flood hazard areas. In *flood hazard areas*, if all proposed work, including *repairs*, work required because of a *change of occupancy*, and *alterations*, constitutes *substantial improvement*, then the *existing building* shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.

Exception: If a *historic building* will continue to be a *historic building* after the proposed work is completed, then the proposed work is not considered a *substantial improvement*. For the purposes of this exception, a *historic building* is any of the following:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
2. Determined by the Secretary of the US Department of Interior to contribute to the historical significance of a registered historic district or a district preliminarily determined to qualify as a historic district.
3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

1201.5 Unsafe conditions. Conditions determined by the *code official* to be *unsafe* shall be remedied. Work shall not be required beyond what is required to remedy the *unsafe* conditions.

SECTION 1202 REPAIRS

1202.1 General. Repairs to any portion of a *historic building* or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

1202.2 Replacement. Replacement of existing or missing features using original materials shall be permitted. Partial replacement for *repairs* that match the original in configuration, height and size shall be permitted.

Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the International Building Code.

Exception: Glass block walls, louvered windows and jalousies repaired with like materials.

Revise as follows:

SECTION 1203 ~~FIRE~~ GENERAL SAFETY

1203.1 Scope. *Historic buildings using the prescriptive or work area compliance methods* undergoing *alterations, changes of occupancy* or that are moved shall comply with Section 1203.

1203.2 General Automatic fire extinguishing system. Every *historic building* that does not conform to the construction requirements specified in *the International Building Code* or this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an *approved* automatic fire-extinguishing system or as approved as determined appropriate by the code official. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.

1203.3 Means of egress. Existing door openings and corridor and stairway widths ~~less than those specified elsewhere in this code may~~ shall be approved, provided that, in the opinion of the *code official*, there is sufficient width and height for a person to pass through the opening or traverse the means of egress. The capacity of the means of egress shall be adequate for the occupant load, or as approved by operational controls to limit occupancy. ~~Where approved by the code official, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.~~

1203.4 Transoms. In corridor walls required by these provisions to be fire-resistance rated buildings with automatic sprinkler systems of Group R-1, R-2 or R-3, existing transoms in corridors and other fire-resistance-rated walls may be maintained if fixed in the closed position. Buildings with an automatic sprinkler system shall have a sprinkler installed on each side of the transom. In non-sprinklered buildings, transoms shall be protected with fixed wired glass or other approved glazing set in a steel frame and installed on one side of the transom.

1203.5 Interior finishes. ~~The existing~~ Existing character defining interior finishes shall be accepted, where it is demonstrated that they are the historic finishes.

~~1204.9~~ **1203.6 Interior finishes- Flame Spread Index.** Where interior finish materials are required to comply with the fire test requirements of Section 803.1 of the *International Building Code*, existing nonconforming materials shall be permitted to be surfaced with an *approved* fire-retardant coating to achieve the required classification. Compliance with this section shall be demonstrated by testing the fire-retardant coating on the same material and achieving the required fire classification. Where the same material is not available, it shall be permitted to test on a similar material.

Exception: Existing nonconforming materials need not be surfaced with an *approved* fire-retardant coating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the *International Building Code* and the nonconforming materials are character defining features. ~~can be substantiated as being historic in character.~~

~~1203.6~~ **1203.7 Stairway enclosure.** In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements are not required to have a fire-resistance rating.

~~1203.7~~ **1203.8 One-hour fire-resistant assemblies.** Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood or metal lath and plaster.

~~1204.4~~ **1203.9 Occupancy separation.** Required occupancy separations of 1 hour may be omitted where the building is provided with an *approved* automatic sprinkler system throughout.

~~1203.8~~ **1203.10 Glazing in fire-resistance-rated systems.** Historic glazing materials are permitted in interior walls required to have a 1-hour fire-resistance rating where the opening is provided with *approved* smoke seals and the area affected is provided with an automatic sprinkler system. In non-sprinklered buildings, glazing shall be protected with fixed wired glass or other approved glazing set in a steel frame and installed on one side of the glazing.

~~1203.9~~ **1203.11 Stairways** ~~Stairway railings.~~ Grand- Existing stairway geometry and configuration stairways shall be accepted without complying with the handrail and guard requirements provided they are not structurally dangerous. ~~Existing handrails and guards at all stairways shall be permitted to remain, provided they are not structurally dangerous.~~

~~1203.10~~ **1203.12 Guards and handrails.** ~~Guards shall comply with Sections 1203.10.1 and 1203.10.2.~~ Existing character-defining guards and handrails shall be permitted to remain provided they are not structurally dangerous. The spacing between existing intermediate railings or openings shall be accepted. Missing elements or members of a guard shall be permitted to be replaced to match existing members.

Exception: Where an existing stairway is replaced with construction of materials, dimensions and aesthetic features, the handrail shall be permitted to be omitted where there is documentation that a handrail did not originally exist..

Delete without substitution:

~~1203.10.1 Height.~~ Existing guards shall comply with the requirements of Section 404.

~~1203.10.2 Guard openings.~~ The spacing between existing intermediate railings or openings in existing ornamental patterns shall be accepted. Missing elements or members of a guard may be replaced in a manner that will preserve the historic appearance of the building or structure.

Revise as follows:

~~1203.11~~ **1203.13 Exit signs.** Where exit sign or egress path marking location would damage the character-defining features ~~historic character~~ of the building, alternative exit signs and locations are permitted with approval of the *code official*. Alternative signs shall identify the exits and egress path.

Delete without substitution:

~~1203.12 Automatic fire-extinguishing systems.~~ Every ~~historic building~~ that cannot be made to conform to the construction requirements specified in the *International Building Code* for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance if provided with an *approved* automatic fire-extinguishing system.

~~Exception:~~ Where the *code official* approves an alternative life safety system.

Revise as follows:

~~1204.7~~ **1203.14 Door swing.** Where *approved* by the *code official*, existing front doors need not swing in the direction of exit travel, provided that other *approved* exits having sufficient capacity to serve the total occupant load are provided.

~~1204.5~~ **1203.15 Roof covering.** Regardless of occupancy or use group, roof-covering materials not less than Class C, where tested in accordance with ASTM E108 or UL 790, shall be permitted where a fire-retardant roof covering is required.

~~1204.2~~ **1203.16 Building area.** The allowable floor area for *historic buildings* undergoing a *change of occupancy* shall be permitted to exceed by 20 percent the allowable areas specified in Chapter 5 of the *International Building Code*.

~~1204.3~~ **1203.17 Location on property Exterior ratings.** Historic structures undergoing a *change of use* to a higher-hazard category in accordance with Section 1011.7 may use alternative methods to comply with the fire-resistance and exterior opening protective requirements. Such alternatives shall comply with Section 1201.2.

~~1204.14~~ **1203.18 Natural light.** Where it is determined by the *code official* that compliance with the natural light requirements of Section 1010.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered to be acceptable.

Delete without substitution:

SECTION 1204 CHANGE OF OCCUPANCY

~~1204.1 General.~~ *Historic buildings* undergoing a *change of occupancy* shall comply with the applicable provisions of Chapter 10, except as specifically permitted in this chapter. Where Chapter 10 requires compliance with specific requirements of Chapter 7, Chapter 8 or Chapter 9 and where those requirements are subject to the exceptions in Section 1202, the same exceptions shall apply to this section.

~~1204.6 Means of egress.~~ Existing door openings and corridor and stairway widths less than those that would be acceptable for nonhistoric buildings under these provisions shall be *approved*, provided that, in the opinion of the *code official*, there is sufficient width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load, or where other operational controls to limit occupancy are *approved* by the *code official*.

~~1204.8 Transoms.~~ In corridor walls required by these provisions to be fire-resistance rated, existing transoms may be maintained if fixed in the closed position, and fixed wired glass set in a steel frame or other *approved* glazing shall be installed on one side of the transom.

~~Exception:~~ Transoms conforming to Section 1203.4 shall be accepted.

~~1204.10 One-hour fire-resistant assemblies.~~ Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath and plaster.

~~1204.11 Stairways and guards.~~ Existing stairways shall comply with the requirements of these provisions. The *code official* shall grant alternatives for stairways and guards if alternative stairways are found to be acceptable or are judged to meet the intent of these provisions. Existing stairways shall comply with Section 1203.

~~Exception:~~ For buildings less than 3,000 square feet (279 m²), existing conditions are permitted to remain at all stairways and guards.

~~1204.12 Exit signs.~~ The *code official* may accept alternative exit sign locations where the location of such signs would damage the historic character of the building or structure. Such signs shall identify the exits and exit path.

SECTION 1205 STRUCTURAL

[BS] 1205.1 General. *Historic buildings* shall comply with the applicable structural provisions for the work as classified in Chapter 4 or 5.

Exceptions:

1. The *code official* shall be authorized to accept existing floors and existing live loads and to approve operational controls that limit the live load on any floor.
2. *Repair of substantial structural damage* is not required to comply with Sections 405.2.3 and 405.2.4. *Substantial structural damage* shall be repaired in accordance with Section 405.2.1.

[BS] 1205.2 Dangerous conditions. Conditions determined by the *code official* to be *dangerous* shall be remedied. Work shall not be required beyond what is required to remedy the *dangerous* condition.

Revise as follows:

[BS] ~~1204.13~~ 1205.3 Exit stair live load. Existing historic stairways in buildings changed to a Group R-1 or R-2 occupancy shall be accepted where it can be shown that the stairway can support a 75-pounds-per-square-foot (366 kg/m²) live load.

SECTION 1206 RELOCATED BUILDINGS

1206.1 Relocated buildings. Foundations of relocated *historic buildings* and structures shall comply with the *International Building Code*. Relocated *historic buildings* shall otherwise be considered a *historic building* for the purposes of this code. Relocated *historic buildings* and structures shall be sited so that exterior wall and opening requirements comply with the *International Building Code* or with the compliance alternatives of this code.

Reason: This code change proposal consolidates the allowances permitted for Fire Safety (Alterations) and Change of Occupancy to a single set of allowances, rectifying the current situation where allowances in the two sections are inconsistent in language and stringency. Editing and slight reorganization have occurred to more clearly establish when these allowances can be used.

As no substantive changes have been made in the combining of these sections, few provisions retain their applicability for Change of Occupancy only.

This is a user-friendly change that clarifies the application of these provisions for the code official, the design professional and other code users.

This is one of a series of 6 proposals intended to facilitate use of the code for historic building projects.

The Table below explains the origins of the reorganized and revised Section 1203.

Bibliography: APT Building Codes and Historic Preservation

Webiography <https://www.apti.org/assets/Committees/technicalcommittees/CodesandStandards/2019/Building%20Codes%20and%20Historic%20Preservation%20-%20Webiography.pdf>

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

This code change proposal will permit more consistent and effective regulation of historic buildings. As a result, the clarifications will reduce the amount of time, and thus the cost, required of code officials, engineers, architects and contractors.

By permitting the allowances to be available to Alterations and Changes of Occupancy, in some cases the cost of construction will be reduced.

EB103-22 Part I

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee like the direction of the proposal but felt the proposal needed to be further refined before being approved. It was unclear how a code official would determine what is considered a "character defining feature" as defined in the proposal. Concerns on the allowance of wired glass were raised. The proposal also appears to have lost the option for operational controls for means of egress. It was pointed out that fixed glass within transoms does not add to performance in non-sprinklered buildings. (Vote: 13-0)

EB103-22 Part I

EB103-22 Part II

Proposed Change as Submitted

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com)

2021 International Existing Building Code

Add new definition as follows:

CHARACTER-DEFINING FEATURE. Those visual aspects and physical elements that comprise the appearance of an historic building and that are significant to the historical, architectural and cultural values, including the overall shape of the historic building or property, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment.

Revise as follows:

[BS] 1201.2 Historic building report. ~~A historic building undergoing alteration or change of occupancy shall be investigated and evaluated. If it is intended that the building meet the requirements of this chapter, a written report. A historic building report shall be prepared and filed with the code official by a registered design professional where such a report is necessary in the opinion of the code official. Such report shall be in accordance with Chapter 1 and shall include the following: identify each required safety feature that is in compliance with this chapter and where compliance with other chapters of these provisions would be damaging to the contributing historic features.~~

1. Documentation that the building meets the definition of historic building.
2. Identification, description and photograph of provisions of character-defining features able to be preserved using the provisions of this Section.
3. For each character-defining feature to be retained using the provisions of this Section, identification of the historic building provision permitting its preservation.
4. For each character-defining feature where preservation cannot occur using the historic building provisions in this Section, description of how the intent of these provisions will be met. The code official is authorized to accept any reasonably equivalent alternative.

~~For buildings assigned to Seismic Design Category D, E or F, a structural evaluation describing, at a minimum, the vertical and horizontal elements of the lateral force-resisting system and any strengths or weaknesses therein shall be prepared. Additionally, the report shall describe each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.~~

Add new text as follows:

1205.4 Structural evaluation. For buildings assigned to Seismic Design Category D, E, or F, a structural evaluation describing, at a minimum, the vertical and horizontal elements of the lateral force-resisting system and any strengths or weaknesses therein shall be prepared in accordance with Section 1201.2.

Reason: This code change proposal consolidates the allowances permitted for Fire Safety (Alterations) and Change of Occupancy to a single set of allowances, rectifying the current situation where allowances in the two sections are inconsistent in language and stringency. Editing and slight reorganization have occurred to more clearly establish when these allowances can be used.

As no substantive changes have been made in the combining of these sections, few provisions retain their applicability for Change of Occupancy only.

This is a user-friendly change that clarifies the application of these provisions for the code official, the design professional and other code users.

This is one of a series of 6 proposals intended to facilitate use of the code for historic building projects. The Table below explains the origins of the reorganized and revised Section 1203.

Bibliography: APT Building Codes and Historic Preservation

Webliography <https://www.apti.org/assets/Committees/technicalcommittees/CodesandStandards/2019/Building%20Codes%20and%20Historic%20Preservation%20-%20Webliography.pdf>

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

This code change proposal will permit more consistent and effective regulation of historic buildings. As a result, the clarifications will reduce the amount of time, and thus the cost, required of code officials, engineers, architects and contractors. The role of the current provisions was unclear as there was extensive overlap between Section 1203 and 1204 which led to confusion in application. The applicability of the provisions is more straightforward.

By permitting the allowances to be available to Alterations and Changes of Occupancy, in some cases the cost of construction will be reduced.

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: Disapproved as the definition of 'Character-defining Feature' is not easily applied and could be easily expanded without restriction. (Vote:14-0)

EB103-22 Part II

Individual Consideration Agenda

Public Comment 1:

IEBC: SECTION 202 (New), [BS] 1201.2, 1201.2.1 (New), 1201.2.2 (New)

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com) requests As Modified by Public Comment

Replace as follows:

2021 International Existing Building Code

New Definition.

[BS] 1201.2 Historic building report Report. ~~Where required by the code official a historic building undergoing an alteration or change of occupancy shall be investigated and evaluated and. If it is intended that the building meet the requirements of this chapter, a written report shall be prepared and filed with the code official by a registered design professional where such a report is necessary in the opinion of the code official. Such The report shall be in accordance with Chapter 1 and shall identify all unsafe conditions as defined in Section 115 each required safety feature that is in compliance with this chapter and where compliance with other chapters of these provisions would be damaging to the contributing historic features. For buildings assigned to Seismic Design Category D, E or F, a structural evaluation describing, at a minimum, the vertical and horizontal elements of the lateral force-resisting system and any strengths or weaknesses therein shall be prepared. Additionally, the report shall describe the components of the building that provide a level of safety substantially below that required of existing non-historic buildings and shall include the following. each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.~~

1. Documentation that the building meets the definition of historic building.
2. Documentation of each character-defining feature where preservation cannot occur using the historic building provisions of this chapter including photographs of that character-defining feature, identification of the applicable code section which cannot be met, and the description of how the intent of the provisions of this code will be met.

1201.2.1 Level 1 Alteration. An investigation, evaluation, and report shall not be required where the alteration is scoped by Section 602 as a Level 1 alteration and does not make the building or structure less complying with the provisions of the International Building Code.

1201.2.2 Structural evaluation. For buildings assigned to Seismic Design Category D, E or F, a description of the vertical and horizontal elements of the lateral force-resisting system and strengths or weaknesses therein shall be included in the historic building report in accordance with Section 1201.2.

Commenter's Reason: Since Proposals EB104-22 and EB105-22 were both approved to this section this PC reflects a combination of all of these revisions. The Section as revised by this proposal is shown at the end of this reason statement. Note that the exception approved by EB105-22 was simply provided as a subsection for clarity. In addition the structural provisions, as revised in EB104-22, were relocated to a subsection as well.

The revisions associated with the intent of EB103 focus upon the comments from the CAH indicated a concern that the code official was not qualified to determine what is a character-defining feature of a historic building. In this proposal, the design official preparing the report makes this determination. The proposed definition reflects the language of the National Park Service, the federal agency responsible for historic preservation.

The new items that need to be addressed were focused upon determination of whether the building is truly considered as historic and on the issues that do not comply versus those that do.

The following shows how the PC to EB103-22 revises what was approved for EB104-22 (AM – simply removed “and structures” from

[BS] 1201.2 Report.

~~Where required by the code official, a historic building undergoing an alteration or change of occupancy shall be investigated and evaluated, and a written report a historic building report shall be prepared and filed with the code official by a registered design professional where required by the code official.~~ The report shall identify all unsafe conditions as defined in Section 115 . ~~For buildings assigned to Seismic Design Category D, E or F, a description of the vertical and horizontal elements of the lateral force-resisting system and strengths or weaknesses therein shall be included.~~ Additionally, the report shall describe the components of the building that provide a level of safety substantially below that required of existing non-historic buildings and shall include the following:

1. Documentation that the building meets the definition of historic building.
2. Documentation of each character-defining feature where preservation cannot occur using the historic building provisions of this chapter including photographs of that character-defining feature, identification of the applicable code section which cannot be met, and the description of how the intent of the provisions of this code will be met.

Exception: 1201.2.1 Level 1 Alteration.

An investigation, evaluation, and report shall not be required where the alteration is scoped by Section 602 as a Level 1 alteration and does not make the building or structure less complying with the provisions of the International Building Code.

1201.2.2 Structural Evaluation

. For buildings assigned to Seismic Design Category D, E or F, a description of the vertical and horizontal elements of the lateral force-resisting system and strengths or weaknesses therein shall be included in the historic building report in accordance with Section 1201.2.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
The retention of existing features will reduce construction costs, but there may be cases where mitigation measures needed for equivalency will increase the cost.

Proposed Change as Submitted

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com)

2021 International Existing Building Code

Revise as follows:

1201.3 Special occupancy exceptions—museums. Where a building in Group R-3 is used for Group A, B or M purposes such as museum tours, exhibits and other public assembly activities, or for museums less than 3,000 square feet (279 m²) per floor, the occupancy shall be classified as Group B where life safety conditions are approved by the code official in accordance with Section 1201.2. ~~the code official is authorized to determine that the occupancy is Group B where life safety conditions can be demonstrated in accordance with Section 1201.2.~~ Adequate means of egress in such buildings, including, but not limited to, a means of maintaining doors in an open-unlocked position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

Reason: This code change proposal addresses the size of museums permitted to use the special provision applicable to small historic museums. It is assumed that the original intent was to specify building size *by floor*, similar to other provisions for historic buildings, including accessibility, and how the existing provision is often interpreted. This code change proposal does not alter the requirements of the existing provision. This clarification will benefit the nation's smallest museums, which are among the nation's most significant historic structures. Limitations related to means of egress, number of occupants, and supervision remain unchanged.

This is one of a series of 6 proposals intended to facilitate use of the code for historic building projects.

Bibliography: APT Building Codes and Historic Preservation

Webliography <https://www.apti.org/assets/Committees/technicalcommittees/CodesandStandards/2019/Building%20Codes%20and%20Historic%20Preservation%20-%20Webliography.pdf>

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

This code change proposal has no construction cost impact but will support the ongoing operations of museums. This proposal extends the allowance to larger museum of 3000 sq ft per floor versus 3000 sq feet total. This will allow more museums to safely operate thus making no change or reducing the cost of compliance.

EB106-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The increase to 3000 sq ft per floor was acceptable but there was concern with the removal of the decision making authority for the code official as to whether it can be classified as Group B. Additionally, the committee would like to see a limit to the number of stories to be consistent with the intent of 2 or 3 story buildings . (Vote: 12-1)

EB106-22

Individual Consideration Agenda

Public Comment 1:

IEBC: 1201.3

Proponents: Stephen Thomas, representing Colorado Chapter ICC (stthomas@coloradocode.net) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

1201.3 Special occupancy exceptions—museums. Where a building in Group R-3, or a building regulated by the International Residential Code is used for Group A, B or M purposes such as museum tours, exhibits and other public assembly activities, or for museums less than 3,000 square feet (279 m²) per floor, and three stories or less above grade plane, ~~the occupancy shall be classified as Group B where life safety conditions are approved by the code official in accordance with Section 1201.2.~~ the code official is authorized to classify the building as a Group B occupancy where life safety conditions can be demonstrated in accordance with Section 1201.2. Adequate means of egress in such buildings, including, but not limited to, a means of maintaining doors in an unlocked position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

Commenter's Reason: This public comment is intended to address the committee's concerns and reason for disapproval. We have also included buildings regulated by the IRC since they are not a Group R-3 occupancy. They are the most common type of building that this section is trying to address. We have added the three story limitation and maintained the original language the committee liked with a minor grammatical revision. The proposal does not change the intent. It clarifies how to handle single-family dwellings being converted into museums.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. The proposal is a clarification of the section to meet the intent.

Staff Analysis: Note that each PC takes a different approach. This should be considered during the hearings.

Public Comment# 3076

Public Comment 2:

IEBC: 1201.3

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

1201.3 Special occupancy exceptions—museums. Where a building in Group R-3 is used for Group A, B or M purposes such as museum tours, exhibits and other public assembly activities, or for museums less than 3,000 square feet (279 m²) per floor and a maximum of three stories the occupancy shall be classified as Group B where life safety conditions are approved by the code official in accordance with Section 1201.2. Adequate means of egress in such buildings, including, but not limited to, a means of maintaining doors in an unlocked position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

Commenter's Reason: The CAH recommended a limit to the size of the building covered by this proposal. Limiting the size of a property to three stories or a total of 9,000 sq. ft. would address this recommendation.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This proposal would limit the size of property that is covered by the special occupancy exception for museums.

Staff Analysis: Note that each PC takes a different approach. This should be considered during the hearings.

Public Comment# 3513

Proposed Change as Submitted

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com)

2021 International Existing Building Code

Add new text as follows:

1201.5 Tolerances. The code official is authorized to accept a tolerance where there are practical physical impediments to achieving a required dimension or performance rating, or where compliance with that provision would threaten, degrade or destroy a character-defining feature. The approved solution shall be as close as possible to the required dimension or rating. Tolerances shall be documented in the report as required by Section 1201.2.

Reason: This code change proposal addresses the barrier to building rehabilitation created by requiring exact compliance with standards for new construction. For existing conditions that would be physically impractical to change, determined by the code official to insignificantly diminish an historic building's safety or performance, or would threaten, damage or destroy historic building elements. The proposal identifies that accepted solutions should be as close as possible to the required ratings or performance standards.

This is one of a series of 6 proposals intended to facilitate use of the code for historic building projects.

Bibliography: APT Building Codes and Historic Preservation

Webliography <https://www.apti.org/assets/Committees/technicalcommittees/CodesandStandards/2019/Building%20Codes%20and%20Historic%20Preservation%20-%20Webliography.pdf>

Cost Impact: The code change proposal will decrease the cost of construction

By eliminating requirements to alter conditions with no significant benefit, this code change proposal will have significant cost savings. Under the identified conditions, it eliminates the need to pursue burdensome variances that are costly in time and money for the code official and design professional. By removing the burden of requirements determined to have no significant benefit, these historic rehabilitation projects will be more financially viable. This is an important step in eliminating barriers to rehabilitation and building vacancy.

EB107-22

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The intent of the proposal to allow tolerances has some merit, however more detailed direction on the limits needs to be provided for specific aspects of a building such as door widths. As currently written, the language is too broad, spans many varying issues and as written would be difficult to enforce. The defined term "dangerous" provides some guidance but was not felt to be sufficient. It was pointed out that the historic building report would be a way to document these tolerances and is currently permitted. A reference back to Section 104.10 was suggested for more detailed guidance. (Vote: 13-0)

EB107-22

Individual Consideration Agenda

Public Comment JACKSON-1:

IEBC: 1201.5

Proponents: Mike Jackson, representing Association for Preservation Technology (arch419@aol.com) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

1201.5 Tolerances. The code official is authorized to accept a tolerance where there are practical physical impediments to achieving a required dimension or performance rating, or where compliance with that provision would threaten, degrade or destroy a character-defining feature. The approved solution shall be within 5 percent of as close as possible to the required dimension or rating. Such tolerances shall not be applicable to minimum ceiling heights. Tolerances shall be documented in the report as required by Section 1201.2.

Commenter's Reason: The committee had concern that more detailed direction on the limits needed to be provided for specific aspects of a building such as door widths. This public comment provides a 5% limit. There was also concern that ceiling heights should not be able to be reduced thus the additional sentence to prohibit tolerances for minimum ceiling heights.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction. This change will reduce the cost of construction by eliminating the need to make very minor changes.

Public Comment# 3545

Proposed Change as Submitted

Proponents: Gwenyth Searer, representing myself (gsearer@wje.com)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THAT COMMITTEE.

2021 International Existing Building Code

Revise as follows:

[BS] 1205.1 General. *Historic buildings* shall comply with the applicable structural provisions for the work as classified in Chapter 4 or 5.

Exceptions:

1. The *code official* shall be authorized to accept existing floors and roof framing and existing previously approved live loads and to approve operational controls that limit the live load on any floor or roof.
2. *Repair of substantial structural damage* is not required to comply with Sections 405.2.3 and 405.2.4. *Substantial structural damage* shall be repaired in accordance with Section 405.2.1.

Reason: This is a largely editorial change, though it does expressly authorize actions by the code official that have previously been understood to be permitted but were not explicitly mentioned.

The current provision mentions "existing live load", which could be misinterpreted as the live load that is currently present on a given floor, but the intent is to allow the previously approved design live load to be continued, even if it is less than the design live load required for new construction. Further, the current provision does not discuss roofs, which in many historic buildings were not designed for the roof design live loads currently required for new construction. In these cases, it may make sense to create operational controls for maintenance and reroofing activities. For example, operational controls could consist of limiting the number of workers on the roof or limiting the amounts of debris and construction materials that are permitted to be placed on the roof structure during maintenance and reroofing activities. The intent is to permit the code official to allow activities that have historically been permitted, and to allow reasonable operational controls that will enable a historic structure to remain in service without requiring upgrades that may either destroy the character-defining features of the historic structure or that may make maintenance and use of a historic structure cost prohibitive and eventually result in a loss of that historic resource.

Cost Impact: The code change proposal will decrease the cost of construction

Although this proposal is intended largely as an editorial change to clarify that the Building Official has the ability to accept previously approved live loads, it also specifically allows the Building Official to accept operational controls for roofs in addition to interior spaces. Consequently, although this change is in the spirit of the original intent, the proposal specifically allows more leeway and judgment on the part of the Building Official with respect to allowing continued use of historic structures, and thus has at least some potential to reduce the cost of repairs and maintenance of these structures.

EB114-22

Public Hearing Results

Committee Action:

As Submitted

Committee Reason: Approved as submitted as this proposal provides clarity relative to the exceptions for roof framing of historic building similar to that allowed for existing floors.. (Vote: 14-0)

EB114-22

Individual Consideration Agenda

Public Comment 1:

Proponents: Gwenyth Searer, representing myself (gsearer@wje.com) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

[BS] 1205.1 General. *Historic buildings* shall comply with the applicable structural provisions for the work as classified in Chapter 4 or 5.

Exceptions:

1. The *code official* shall be authorized to accept existing floor and roof framing and previously approved live loads and roof live loads and to approve operational controls that limit the live load ~~on any floor or roof~~ live load.
2. *Repair of substantial structural damage* is not required to comply with Sections 405.2.3 and 405.2.4. *Substantial structural damage* shall be repaired in accordance with Section 405.2.1.

Commenter's Reason: Although the Committee supported this proposal unanimously, one Committee member asked me to consider submitting a public comment to clarify that roof live loads are included in this provision and to make the proposal clearer with respect to both live loads and roof live loads. This public comment is to address the Committee member's concern, making sure that roof live loads are included in the ability to have previously approved loads remain in effect, and to allow operational controls over maintenance and re-roofing activities if desired for historic buildings. This was always the intent of my proposal; this public comment makes it clearer and is in line with the Committee's actions and desires.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction. This proposal allows more flexibility for historic buildings, per the original reason statement. This flexibility will decrease costs for historic buildings. The public comment clarifies that roof live loads are included in the provision, which was always the intent, so the proposal combined with the public comments will still increase flexibility and decrease costs for historic buildings.

Public Comment# 3369

Proposed Change as Submitted

Proponents: Mike Nugent, representing Building Code Action Committee (bcac@iccsafe.org); John Williams, representing Committee on Healthcare (ahc@iccsafe.org); Robert Marshall, representing FCAC (fcac@iccsafe.org)

2021 International Existing Building Code

Add new text as follows:

User notes. About this appendix: The primary purpose for Appendix E is to provide guidance for designers, engineers, architects, fire and building code officials to allow temporary emergency uses of existing buildings or temporary structures with respect to the minimum code requirements. This appendix is intended to serve as that template or checklist for use during an emergency that references the relevant code requirement of concerns.

APPENDIX E **TEMPORARY EMERGENCY STRUCTURES AND EMERGENCY USES**

SECTION E101 **GENERAL**

E101.1 Scope. The provisions of this appendix shall apply to the use, construction, installation, alteration, relocation and location of existing buildings or temporary structures and any service utilities or systems that serve such existing buildings or temporary structures during or based on the response to the emergency."

E101.1.1 Objectives. The objective of this Appendix is to provide flexibility for the code official to permit the temporary uses of existing buildings or temporary structures during an emergency to address unusual circumstances that temporarily overwhelms response capabilities of an entity while maintaining the level of safety intended by the code.

E101.1.2 Temporary use. Where temporary uses during emergencies exceed 180 days, judgement shall be used by the code official to allow for temporary uses and conditions to continue for the duration of the emergency based on the needs of the emergency. The code official is authorized to grant extensions for demonstrated cause.

SECTION E102 **DEFINITIONS**

Add new definition as follows:

EMERGENCY. Any event declared by local, state, or federal entities that temporarily overwhelms response capabilities, and that require the temporary suspension or modification of regulations, codes, or standards to facilitate response to such an event.

TEMPORARY STRUCTURES. That which is built, constructed or erected for a period of less than 180 days.

TEMPORARY USE. An activity or practice that is established at a designated location for a period of less than 180 days. Uses include, but are not limited to, those functional designations listed within the occupancy group descriptions in Section 302.1 of the International Building Code.

Add new text as follows:

SECTION E103 **SUBMITTAL DOCUMENTS**

E103.1 General. Submittal documents shall be of sufficient clarity to indicate the location, nature and extent of the work or use proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the code official.

SECTION E104 **CONFORMANCE**

E104.1 Conformance. Temporary use of existing buildings and temporary structures shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation, and sanitary requirements of this code as necessary to provide a reasonable level of safety, health, and general welfare as determined by the code official. Tents and other membrane structures shall comply with Sections 3102 and 3103 of the International Building Code.

E104.2 Changes over time. As an emergency evolves, submittal documents shall be submitted to demonstrate that the temporary uses of the

existing buildings or temporary structures are in compliance with the requirements of the *International Building Code*.

SECTION E105

PERMITS

E105.1 Emergency permits. In an emergency situation, where temporary structures are erected or an existing building undergoes a temporary change of use or occupancy, the *permit* application shall be submitted as soon as practicable to the *code official*. Permits shall be required in accordance with Sections 105.1.1 through 105.1.3.

105.1.1 Temporary structures, other than tents and membrane structures. Temporary structures, other than tents and other membrane structures, that occupy an area greater than 120 square feet (11.16 m²), shall not be constructed, erected, or relocated for any purpose without obtaining a permit from the *code official*.

E105.1.2 Tents and membrane structures. Tents and membrane structures shall be permitted in accordance with the *International Fire Code*.

E105.1.3 Existing buildings. An existing buildings shall not repurposed for a purpose it was not designed for without obtaining a permit from the *code official* for the change of use or occupancy.

SECTION E106

GENERAL STANDARDS FOR EMERGENCY STRUCTURES

E106.1 Scope. The provisions of Sections E106.2 through E106.7 shall apply to all existing structure being repurposed or temporary structures constructed, erected or relocated to support the response to an emergency.

E106.2 Intent. The intent of this section is to provide a base level of safety in a structure built or repurposed for emergency use.

E106.3 Change of use or occupancy. Existing buildings used in a way that was not originally intended by occupancy class or use shall be allowed without formally changing the occupancy class. The previous occupancy class shall be restored upon the conclusion of the emergency. Where the temporary live load of the floor is more than that required by Section 1607 of the *International Building Code* for the original use, the area designated for the temporary live load shall be posted with placards for the approved live load.

E106.4 Fire Safety Provisions. Determination of the fire safety requirements by the *code official* shall be in accordance with Section E106.4.1 through E106.4.5 in order to make determinations of safe conditions rather than strict adherence to the provisions of the *International Fire Code*.

E106.4.1 Fire safety and evacuation plans. Fire safety and evacuation plans shall be provided in accordance with Section 403 and 404 of the *International Fire Code*. Submittal documents shall be updated where there are any physical changes to the layout of the structure.

E106.4.2 Training and practice drills. Training of staff and practice drills shall comply with Section 405 and 406 of the *International Fire Code*. Structures in place for longer than 30 days shall conduct evacuation drill in accordance with Section 405.3 of the *International Fire Code* based on the temporary use.

E106.4.3 Fire Protection. An evaluation shall be performed to decide on fire protection needed utilizing NFPA 550.

E106.4.4 Emergency Access. Emergency vehicle access roads shall be approved by the *fire code official*.

E106.4.5 Fire Watch. A fire watch in accordance with Section 403.11.1 of the *International Fire Code* shall be permitted to be provided in lieu of other fire protection systems.

E106.5 Means of Egress. Means of egress shall comply with Section 1011.5 in addition to Sections E106.5.1 through E106.5.3.

Exception: In Group I-2 occupancies, in areas where corridors are used for movement of care recipients in beds, the clear width of ramps and corridors shall be not less than 48 inches (1219 mm).

E106.5.1 Exit Discharge. Exit discharge shall provide access to a public way, or to a safe dispersal area in accordance with Section 1028.5 of the *International Building Code*.

E106.5.2 Means of Egress Lighting. The means of egress shall be illuminated when the space is occupied.

Exception: Sleeping areas.

E106.5.3 Exit Signs. Exit signs shall be provided where the means of egress is not readily identifiable. Exit signs shall be permitted to be illuminated by the lighting provided in the structure.

E106.6 Accessibility. A facility that is constructed to be accessible shall be maintained accessible during occupancy.

E106.7 Temporary connection. The *code official* shall have the authority to authorize the temporary connection of the building or system to the utility, the source of energy, fuel, or power, or the water system or sewer system in accordance with Section 111. Water closets and lavatories shall be either permanent plumbing fixtures installed within the structure, or temporary water closets or lavatories, such as chemical toilets or other

means approved by the code official.

E106.7.1 Portable heating and cooling equipment. Portable heating and cooling equipment shall be used in accordance with their listing, and manufacturer's instructions.

SECTION E107

USE OF SPECIFIC STANDARDS

E107.1 Increased occupant load. Allowing for additional occupants in existing building shall comply with Section E107.1.1 through E107.1.3.

E107.1.1 Authorization. The code official is authorized to allow for an increase in the number of occupants or a change of use in a building or portion of a building during an emergency.

E107.1.2 Maintenance of the means of egress. The existing a means of egress shall be maintained.

E107.1.3 Sleeping areas. Where a space is used for sleeping purposes, the space shall be equipped with smoke alarms in accordance with Sections 907.2.6.2 and 907.2.11 if the International Fire Code or be provided with a fire watch in accordance with Section 403.11.1 of the *International Fire Code*. Carbon monoxide detectors shall be installed in accordance with Section 915 of the *International Fire Code* where the structure uses any fossil fuel or wood burning appliances.

E107.2 Temporary healthcare facilities. Temporary health care facilities shall comply with Section E107.2.1 and E107.2.2.

E107.2.1 General. Temporary health care facilities shall be erected, maintained and operated to minimize the possibility of a fire emergency requiring the evacuation of occupants.

E107.2.2 Membrane structures under projections. Membrane structures of less than 100 square feet (9.3 m²) shall be permitted to be placed under projections of a permanent building provided the permanent building is protected with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

E107.3 Use of tiny houses or manufactured homes. Tiny houses or manufactured homes used for temporary housing shall comply with Section E107.3.1 through E107.3.5.

E107.3.1 Fire separation distances. Tiny houses or manufactured homes shall be separated by not less than 5 feet (1524 mm) between structures.

E107.3.2 Fire breaks. Tiny houses and manufactured homes shall not be located in groups of more than 20 units. Fire breaks of at least 20 feet (6096 mm) shall be provided between each group.

E107.3.3 Smoke alarms. Tiny houses and manufactured homes used for sleeping purposes shall be equipped with a smoke alarm complying with Section 907.2.11. of the *International Fire Code*. Smoke detectors are not required to be hard wired.

E107.3.4 Carbon monoxide detectors. Carbon monoxide detectors shall be installed in accordance with Section 915, where the tiny house or manufactured homes uses any fossil fuel or wood burning appliances.

E107.3.5 Structures located in a wildland urban interface zone. Tiny houses and manufactured homes that a relocated in a wildland urban interface area shall be provided with defensible space in accordance with the Section 603 of the International Wildland Urban Interface Code.

E107.4 Tents and membrane structures used as sleeping accommodations. Tents or membrane structures used as sleeping accommodations shall comply with the same requirements as tiny houses in Section E107.3.1 through E107.3.5 and Chapter 31 of the International Fire Code.

SECTION E108

REFERENCED STANDARDS

E108.1 General. See Table E108.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix referenced in the standard.

TABLE E108.1 REFERENCED STANDARDS

<u>STANDARD ACRONYM</u>	<u>STANDARD NAME</u>	<u>SECTION REFERENCED HEREIN</u>
<u>NFPA 550-2017</u>	<u>Guide to the Fire Safety Concepts Tree</u>	<u>E106.5.3</u>

Reason: This appendix was originally submitted to IBC as G201-21. Since this proposal extensively dealt with temporary use of existing buildings during an emergency, it was felt it was better suited to IEBC. We believe we have addressed concerns that we learned about during the testimony on the previous proposal and have addressed them in this proposal.

The intent of this appendix is to provide guidance when there are emergencies that exceed the emergencies that the community has planned for. Response must be immediate, so there is not time for the typical plan review and inspection. Existing buildings will be used for occupancies other than they were intended, and temporary structures may need to be erected or brought in to address immediate needs. Recent examples were the housing needs due to mass evacuations during the west coast fires and how hard Covid hit many community health care systems. The user note for this Appendix emphasizes that this is a guidance document for emergencies that exceed pre-planned emergency responses.

The code officials are the people with the experience and knowledge base to identify what can be done and still maintain public health and safety.

This idea is emphasized in Section E101.1.2 and the definition of emergency for this appendix, as well as the modification to the title.

The following revisions were incorporated based on the input received during the hearing:

- The user note states this is a guidance appendix. The idea is used in IFC appendix E and G.
- The title was modified for clarity.
- E101.1.2 – better code language
- Definition for emergency – better code language
- E104.1 was modified to mirror Section 3103.1. This is already permitted by the code. E104.1 has an added sentence clarify that tents and other membrane structures are required to comply with Section 3102 and 3103. These sections also incorporate Chapter 16.
- E104.2 – re-evaluation is not always dependent on additional resources – it could be people being able to return or moving to family.
- E106.1 – This change clarifies that this appendix is applicable to what is happening due to the emergency – not other construction that happens to be occurring at the same time that is not related.
- E106.3 – this modification allows for temporary uses with heavier loading – such as storage of emergency supplies in an office building – where the safe limits are addressed. The change to E104.1 and E106.3 are to address concerns raised by structural engineers about loads.
- E106.5 – An exception was created to clarify that in I-2 Occupancies, corridors can be 48" wide in existing buildings. This is consistent with IEBC Section 804.3 for Level 2 Alterations.
- E107.1 – the modification removed 'temporary waivers for'. The criteria was not related to waivers.
- E107.2.2 – better code language
- E107.3 – use defined term for manufactured homes.
- E107.4 – change 'tiny homes' to 'tiny houses' for consistent terminology
- E107.5 and NFPA 1660 have been removed as they apply to previously anticipated emergencies. This appendix will only address where these plans are exceeded.

This proposal is submitted by the ICC Building Code Action Committee (BCAC), ICC Fire Code Action Committee (FCAC) and the Committee on Healthcare (CHC).

BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2020 and 2021 the BCAC has held several virtual meetings open to any interested party. In addition, there were numerous virtual Working Group meetings for the current code development cycle, which included members of the committee as well as interested parties. Related documents and reports are posted on the BCAC website at <https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/building-code-action-committee-bcac/>. The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned

International Codes with regard to fire and life safety in new and existing buildings and facilities as well as the protection of life and property in wildland urban interface areas. In 2020 and 2021 the Fire-CAC held multiple virtual meetings that were open to any interested party. In addition, there were numerous virtual specific working group meetings that were also open to any interested parties, to develop, discuss and debate the proposed changes. Related documentation and reports are posted on the FCAC website at: <https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/fire-code-action-committee-fcac/>

The CHC was established by the ICC Board to evaluate and assess contemporary code issues relating to healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. In 2020 and 2021 of the committees as well as any interested parties, to discuss and debate the proposed changes. Information on the CHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CHC effort can be downloaded from the CHC website at <https://www.iccsafe.org/products-and-services/i-codes/code-development/cs/icc-committee-on-healthcare/>.

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

This appendix is intended to provide a tool to jurisdictions and is not applicable unless adopted. Currently, no formal code requirements provide guidance on how to address. This will provide a framework to make enforcement more consistent and aligned with the requirements of the ICC codes. It was not intended to make compliance more expensive but instead to provide a resource for these emergency situations. These options mirror established ICC codes sections and standards.

Staff Analysis: The standard proposed for inclusion in the code, NFPA 550-17, Guide to the Fire Safety Concepts Tree, was reviewed during Group A with regard to some of the key ICC criteria for referenced standards (Section 3.6 of CP#28). The result of the review can be found here <https://www.iccsafe.org/wp-content/uploads/2021-PROPOSED-NEW-STANDARDS-ANALYSES.pdf>

EB116-22

Public Hearing Results

Committee Action:

As Modified

Committee Modification:

User notes.

About this appendix: The primary purpose for Appendix E is to provide guidance for designers, engineers, architects, fire and building code officials to allow temporary emergency uses of existing buildings or temporary structures with respect to the minimum code requirements. This appendix is intended to serve as that template or checklist for use during an emergency that references the relevant code requirement of concerns.

APPENDIX E TEMPORARY EMERGENCY STRUCTURES AND EMERGENCY USES

E101.1 Scope. The provisions of this appendix shall apply to the use, ~~construction~~, installation, alteration, relocation and location of existing buildings or temporary structures and any service utilities or systems that serve such existing buildings or temporary structures during or based on the response to the emergency."

E101.1.1 Objectives. The objective of this Appendix is to provide flexibility for the code official to permit the temporary uses of existing buildings or temporary structures during an emergency to address unusual circumstances that temporarily overwhelms response capabilities of an entity while maintaining the level of safety intended by the code.

~~TEMPORARY STRUCTURES. That which is built, constructed or erected for a period of less than 180 days.~~

E104.1 Conformance. Temporary use of existing buildings and temporary structures shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation, and sanitary requirements of this code as necessary to provide a reasonable level of safety, health, and general welfare as determined by the code official. ~~Tents and other membrane structures shall comply with Sections 3102 and 3103 of the International Building Code.~~

E104.2 Changes over time. As an emergency evolves, submittal documents shall be submitted to demonstrate that the temporary uses of the existing buildings or temporary structures are in compliance with the requirements of the *International Existing Building Code*.

E105.1 Emergency permits. In an emergency situation, where temporary structures are erected or an existing building undergoes a temporary change of use or occupancy, the *permit* application shall be submitted as soon as practicable to the *code official*. Permits shall be required in accordance with Sections 105.1.1 through 105.1.3.

105.1.1 Temporary structures, other than tents and membrane structures. Temporary structures, other than tents and other membrane structures, that occupy an area greater than 120 square feet (11.16 m²), shall not be constructed, erected, or relocated for any purpose without obtaining a permit from the code official.

E105.1.2 Tents and membrane structures. Tents and membrane structures shall be permitted in accordance with the *International Fire Code*.

E105.1.3 Existing buildings Change of use or occupancy. An existing buildings shall not repurposed for a purpose it was not designed for without obtaining a permit from the code official for the change of use or occupancy.

SECTION E106

GENERAL STANDARDS FOR EMERGENCY STRUCTURES USES

E106.1 Scope. The provisions of Sections E106.2 through E106.7 shall apply to all existing structure_s being repurposed ~~or temporary~~ and to ~~all structures constructed, erected or relocated~~ to support the response to an emergency.

E106.2 Intent. The intent of this section is to provide a base level of safety in a structure ~~built or~~ repurposed for emergency use.

E106.7.1 Portable heating, ~~and cooling, and cooking~~ equipment.

Portable heating, ~~and cooling, and cooking~~ equipment shall be used in accordance with Chapter 41 of the International Fire Code, their listing, and manufacturer's instructions.

E107.1.3 Sleeping areas.

Where a space is used for sleeping purposes, the space shall be equipped with smoke alarms in accordance with Sections 907.2.6.2 and 907.2.11 if the International Fire Code or be provided with a fire watch in accordance with Section 403.11.1 of the *International Fire Code*. Carbon monoxide ~~alarms detectors~~ shall be installed in accordance with Section 915 of the *International Fire Code* where the structure uses any fossil fuel or wood burning appliances.

E107.3.3 Smoke alarms.

Tiny houses and manufactured homes used for sleeping purposes shall be equipped with a smoke alarm complying with Section 907.2.11. of the *International Fire Code*. Smoke ~~alarms detectors~~ are not required to be hard wired.

E107.3.4 Carbon monoxide alarms detectors.

Carbon monoxide ~~alarm detectors~~ shall be installed in accordance with Section 915, where the tiny house or manufactured homes uses any fossil fuel or wood burning appliances.

E107.4 Tents and membrane structures used as sleeping accommodations. Tents or membrane structures used as sleeping accommodations shall comply with the same requirements as tiny houses in Section E107.3.1 through E107.3.5 and Chapter 31 of the *International Fire Code*.

Committee Reason: The proposal provides a solid framework for code officials to deal with emergency uses of existing buildings for uses they were not specifically approved such as what was seen during COVID. There was some concern that the term "emergency" may get used to push the limited of code compliance. There was a suggestion that the applicability of the new term CO source as approved for the IFC and IBC with regard to Section E107.1.3 be addressed as it may affect the application of this appendix. Additionally, it was suggested that Sections E101.1.1, E104.1 and E106.2 be reviewed to make more consistent addressing intent. Some clarity was requested as how the restoration to the original occupancy is intended to be addressed. Finally, it was suggested that the emergency permitting procedures in the base code and the relationship to this appendix be reviewed. The modifications address the following issues.

Temporary structures versus temporary uses. The language in the original proposal was revised to remove anything that should comply as a temporary structure in the IBC and IFC. The focus of this proposal is only on temporary emergency uses.

Alarm Terminology. The correct terminology of "alarm" versus "detector" was revised in several sections to address that "detectors" are associated with a system. Alarms are not monitored but instead, where multiple alarms are required, are simply interconnected. These revisions are found in E107.1, E107.3.3 and E107.3.4.

Cooking and heating. Proper reference to the newly created chapter dealing with temporary heating and cooking in Chapter 41 of the 2024 IFC is referenced in Section 106.2 to create proper correlation between the documents.

(Vote: 14-0)

EB116-22

Individual Consideration Agenda

Public Comment 1:

IEBC: , APPENDIX E, SECTION E101, E101.1, E101.1.1, E101.1.2, SECTION E102, SECTION 202, SECTION E103, E103.1, SECTION E104, E104.1, E104.2, SECTION E105, E105.1, E105.1.1, SECTION E106, E106.1, E106.2, E106.3, E106.4, E106.4.1, E106.4.2, E106.4.3, E106.4.4, E106.4.5, E106.5, E106.5.1, E106.5.2, E106.5.3, E106.6, E106.7, E106.7.1, SECTION E107, E107.1, E107.1.1, E107.1.2, E107.1.3, E107.2, E107.2.1, E107.2.2, E107.3, E107.3.1, E107.3.2, E107.3.3, E107.3.4, E107.3.5, SECTION E108, E108.1, TABLE E108.1

Proponents: Mike Nugent, representing Building Code Action Committee (bcac@iccsafe.org); John Williams, representing Committee on Healthcare (ahc@iccsafe.org) requests As Modified by Public Comment

Modify as follows:

2021 International Existing Building Code

User notes. About this appendix: The primary purpose for Appendix E is to provide guidance for designers, engineers, architects, fire and building code officials to allow temporary emergency uses of existing buildings with respect to the minimum code requirements. This appendix is intended to serve as that template or checklist for use during an emergency that references the relevant code requirement of concerns.

APPENDIX E TEMPORARY EMERGENCY USES

SECTION E101 GENERAL

E101.1 Scope. The provisions of this appendix shall apply to the use, installation, alteration, relocation and location of existing buildings and any service utilities or systems that serve such existing buildings during or based on the response to the emergency."

E101.1.1 Objectives. The objective of this Appendix is to provide flexibility for the code official to permit the temporary uses of existing buildings during an emergency to address unusual circumstances that temporarily overwhelms response capabilities of an entity while maintaining the level of safety intended by the code.

E101.1.2 Temporary use. Where temporary uses during emergencies exceed 180 days, judgement shall be used by the code official to allow for temporary uses and conditions to continue for the duration of the emergency based on the needs of the emergency. The code official is authorized to grant extensions for demonstrated cause.

SECTION E102 DEFINITIONS

EMERGENCY. Any event declared by local, state, or federal entities that temporarily overwhelms response capabilities, and that require the temporary suspension or modification of regulations, codes, or standards to facilitate response to such an event.

TEMPORARY USE. An activity or practice that is established at a designated location for a period of less than 180 days. Uses include, but are not limited to, those functional designations listed within the occupancy group descriptions in Section 302.1 of the International Building Code.

SECTION E103 SUBMITTAL DOCUMENTS

E103.1 General. Submittal documents shall be of sufficient clarity to indicate the location, nature and extent of the work or use proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations, as determined by the code official.

SECTION E104 CONFORMANCE

E104.1 Conformance. Temporary use of existing buildings shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation, and sanitary requirements of this code as necessary to provide a reasonable level of safety, health, and general welfare as determined by the code official.

E104.2 Changes over time. As an emergency evolves, submittal documents shall be submitted to demonstrate that the temporary uses of the existing buildings are in compliance with the requirements of the *International Existing Building Code*.

SECTION E105 PERMITS

E105.1 Emergency permits. In an emergency situation, where an existing building undergoes a temporary change of use or occupancy, the *permit* application shall be submitted as soon as practicable to the *code official*. ~~Permits shall be required in accordance with Sections 105.1.1 through~~

E105.1.1 Change of use or occupancy. ~~An existing building shall not be repurposed for a purpose it was not designed for without obtaining a permit from the code official for the change of use or occupancy.~~

SECTION E106 GENERAL STANDARDS FOR EMERGENCY USES

E106.1 Scope. The provisions of Sections E106.2 through E106.7 shall apply to all existing structures being repurposed and to all structures relocated to support the response to an emergency.

E106.2 Intent. The intent of this section is to provide a ~~base~~ reasonable level of safety in a structure repurposed for emergency use.

E106.3 Change of use or occupancy. Existing buildings used in a way that was not originally intended by the occupancy class or use shall be allowed without formally changing the occupancy ~~class~~. The previous occupancy and use class shall ~~be restored~~ resume upon the conclusion of the emergency. Where the temporary live load of the floor is more than that required by Section 1607 of the International Building Code for the original use, the area designated for the temporary live load shall be posted with placards for the approved live load.

E106.4 Fire Safety Provisions. Determination of the fire safety requirements by the code official shall be in accordance with Section E106.4.1 through E106.4.5 in order to make determinations of safe conditions rather than strict adherence to the provisions of the International Fire Code.

E106.4.1 Fire safety and evacuation plans. Fire safety and evacuation plans shall be provided in accordance with Section 403 and 404 of the *International Fire Code*. Submittal documents shall be updated where there are any physical changes to the layout of the structure.

E106.4.2 Training and practice drills. Training of staff and practice drills shall comply with Section 405 and 406 of the *International Fire Code*. Structures in place for longer than 30 days shall conduct evacuation drill in accordance with Section 405.3 of the International Fire Code based on the temporary use.

E106.4.3 Fire Protection. An evaluation shall be performed to decide on fire protection needed utilizing NFPA 550.

E106.4.4 Emergency Access. Emergency vehicle access roads shall be approved by the fire code official.

E106.4.5 Fire Watch. A fire watch in accordance with Section 403.11.1 of the *International Fire Code* shall be permitted to be provided in lieu of other fire protection systems.

E106.5 Means of Egress. Means of egress shall comply with Section 1011.5 in addition to Sections E106.5.1 through E106.5.3.

Exception: In Group I-2 occupancies, in areas where corridors are used for movement of care recipients in beds, the clear width of ramps and corridors shall be not less than 48 inches (1219 mm).

E106.5.1 Exit Discharge. Exit discharge shall provide access to a public way, or to a safe dispersal area in accordance with Section 1028.5 of the *International Building Code*

E106.5.2 Means of Egress Lighting. The means of egress shall be illuminated when the space is occupied.

Exception: Sleeping areas.

E106.5.3 Exit Signs. Exit signs shall be provided where the means of egress is not readily identifiable. Exit signs shall be permitted to be illuminated by the lighting provided in the structure.

E106.6 Accessibility. A facility that is constructed to be accessible shall be maintained accessible during occupancy.

E106.7 Temporary connection. The code official shall have the authority to authorize the temporary connection of the building or system to the utility, the source of energy, fuel, or power, or the water system or sewer system in accordance with Section 111. Water closets and lavatories shall be either permanent plumbing fixtures installed within the structure, or temporary water closets or lavatories, such as chemical toilets or other means approved by the code official.

E106.7.1 Portable heating, cooling and cooking equipment. Portable heating, cooling, and cooking equipment shall be used in accordance with ~~Chapter 41~~ of the International Fire Code, their listing, and manufacturer's instructions.

SECTION E107 USE OF SPECIFIC STANDARDS

E107.1 Increased occupant load. Allowing for additional occupants in existing building shall comply with Section E107.1.1 through E107.1.3.

E107.1.1 Authorization. The code official is authorized to allow for an increase in the number of occupants or a change of use in a building or portion of a building during an emergency.

E107.1.2 Maintenance of the means of egress. The existing a means of egress shall be maintained.

E107.1.3 Sleeping areas. Where a space is used for sleeping purposes, the space shall be equipped with smoke alarms in accordance with Sections 907.2.6.2 and 907.2.11 if the International Fire Code or be provided with a fire watch in accordance with Section 403.11.1 of the *International Fire Code*. Carbon monoxide alarms shall be installed in accordance with Section 915 of the *International Fire Code* where the structure uses any fossil fuel or wood burning appliances.

E107.2 Temporary healthcare facilities. Temporary health care facilities shall comply with Section E107.2.1 and E107.2.2.

E107.2.1 General. Temporary health care facilities shall be erected, maintained and operated to minimize the possibility of a fire emergency requiring the evacuation of occupants.

E107.2.2 Membrane structures under projections. Membrane structures of less than 100 square feet (9.3 m²) shall be permitted to be placed under projections of a permanent building provided the permanent building is protected with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

E107.3 Use of tiny houses or manufactured homes. Tiny houses or manufactured homes used for temporary housing shall comply with Section E107.3.1 through E107.3.5.

E107.3.1 Fire separation distances. Tiny houses or manufactured homes shall be separated by not less than 5 feet (1524 mm) between structures.

E107.3.2 Fire breaks. Tiny houses and manufactured homes shall not be located in groups of more than 20 units. Fire breaks of at least 20 feet (6096 mm) shall be provided between each group.

E107.3.3 Smoke alarms. Tiny houses and manufactured homes used for sleeping purposes shall be equipped with a smoke alarm complying with Section 907.2.11. of the *International Fire Code*. Smoke alarms are not required to be hard wired.

E107.3.4 Carbon monoxide alarms. Carbon monoxide alarms shall be installed in accordance with Section 915, where the tiny house or manufactured homes uses any fossil fuel or wood burning appliances.

E107.3.5 Structures located in a wildland urban interface zone. Tiny houses and manufactured homes that are relocated in a wildland urban interface area shall be provided with defensible space in accordance with the Section 603 of the International Wildland Urban Interface Code.

SECTION E108

REFERENCED STANDARDS

E108.1 General. See Table E108.1 for standards that are referenced in various sections of this appendix. Standards are listed by the standard identification with the effective date, standard title, and the section or sections of this appendix referenced in the standard.

TABLE E108.1 REFERENCED STANDARDS

STANDARD ACRONYM	STANDARD NAME	SECTION REFERENCED HEREIN
NFPA 550-2017	Guide to the Fire Safety Concepts Tree	E106.5.3

Commenter's Reason: This proposal was supported overall, however there were suggestions from the committee and proponents that BCAC wishes to address.

The complete proposal is shown in the public comment so that everyone can see the modified proposal in total.

E105.1 and E105.1.1 - There was a floor modification to delete the references to tents and membrane structures. This floor modification deleted two of the three items in Section 105.1. Therefore, the reference to the three subsections needs to be deleted. The text in E105.1.1 is not needed, because a planned change of occupancy is currently addressed in the IEBC.

There was a suggestion to revise this section to be consistent with IEBC Section 105.2.1, however, since how fast someone could be prepared to submit a permit, or the building department ready to operate as usual depends a great deal on the extent of the emergency. Therefore, 'as soon as practicable' is a reasonable allowance.

E106.2 - A committee member suggested that Sections E104.1 and E106.2 use the same terminology for safety, thus the modification proposed to E106.2.E106.3 - The requirements allow for a temporary change of occupancy or use - 'class' is not a term used in the code, so it has been deleted.

E106.7.1 - The new IFC Chapter 41 (F188-21 AS) deals with temporary heating and cooking, but not cooling. Therefore a general reference to the IFC is more appropriate than a specific reference to Chapter 41.

There was a suggestion that the definition of 'emergency' was too broad. However, this is an appendix intended for guidance. Therefore, BCAC felt that this definition should be open to address any emergency that the community faces. No one thought we would ever have to deal with such large wildfires or Covid over the last couple of years. We do not know what we will face.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. This appendix is intended to provide a tool to jurisdictions and is not applicable unless adopted. Currently, no formal code requirements provide guidance on how to address. This will provide a framework to make enforcement more consistent and aligned with the requirements of the ICC codes. It was not intended to make compliance more expensive but instead to provide a resource for these emergency situations. These options mirror established ICC codes sections and standards.

Public Comment# 3043