

IEBC



2022 GROUP B PROPOSED CHANGES TO THE I-CODES ROCHESTER COMMITTEE ACTION HEARINGS

March 27 - April 6, 2022

Rochester Riverside Convention Center, Rochester, NY

2021-2022 Code Development Cycle, Group B (2022) Proposed Changes to the 2021 *International Codes*

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TENTATIVE ORDER OF DISCUSSION 2022 PROPOSED CHANGES TO THE INTERNATIONAL EXISTING BUILDING CODE

The following is the tentative order in which the proposed changes to the code will be discussed at the public hearings. Proposed changes which impact the same subject have been grouped to permit consideration in consecutive changes.

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does not necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair. Note that some EB code change proposals may not be included on this list, as they are being heard by another committee.

Numbers Not Used

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EB115-22

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EB1-22

IEBC: [A] 104.2.1, [A] 115.5, SECTION 202; IBC: [A] 116.5; IFC: [A] 114.6; IPMC: 111.9

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

2021 International Existing Building Code

Revise as follows:

[A] 104.2.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas.

For applications for reconstruction, ~~rehabilitation~~, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, the building official shall determine where the proposed work constitutes *substantial improvement* or *repair of substantial damage*. Where the building official determines that the proposed work constitutes *substantial improvement* or *repair of substantial damage*, and where required by this code, the building official shall require the building to meet the requirements of Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.

[A] 115.5 Restoration or abatement. The structure or equipment determined to be *unsafe* by the *code official* is permitted to be restored to a safe condition. The owner, the owner's authorized agent, operator or occupant of a structure, premises or equipment deemed *unsafe* by the *code official* shall abate or cause to be abated or corrected such *unsafe* conditions either by *repair*, ~~rehabilitation~~, alteration, demolition or other *approved* corrective action. To the extent that *repairs*, *alterations* or *additions* are made, or a *change of occupancy* occurs during the restoration of the structure, such *repairs*, *alterations*, *additions* or *change of occupancy* shall comply with the requirements of this code.

Delete without substitution:

REHABILITATION. Any work, as described by the categories of work defined herein, undertaken in an existing building.

2021 International Building Code

Revise as follows:

[A] 116.5 Restoration or abatement. Where the structure or equipment determined to be unsafe by the *building official* is restored to a safe condition, the owner, the owner's authorized agent, operator or occupant of a structure, premises or equipment deemed unsafe by the *building official* shall abate or cause to be abated or corrected such unsafe conditions either by *repair*, ~~rehabilitation~~, alteration, demolition or other *approved* corrective action. To the extent that *repairs*, *alterations* or *additions* are made or a *change of occupancy* occurs during the restoration of the structure, such *repairs*, *alterations*, *additions* and *change of occupancy* shall comply with the requirements of the *International Existing Building Code*.

2021 International Fire Code

Revise as follows:

[A] 114.6 Restoration or abatement. The structure or equipment determined to be unsafe by the *fire code official* is permitted to be restored to a safe condition. The *owner*, the *owner's* authorized agent, operator or occupant of a structure, premises or equipment deemed unsafe by the *fire code official* shall abate or cause to be abated or corrected such unsafe conditions either by *repair*, ~~rehabilitation~~, alteration, demolition or other *approved* corrective action. To the extent that *repairs*, *alterations* or *additions* are made or a *change of occupancy* occurs during the restoration of the structure, such *repairs*, *alterations*, *additions* or *change of occupancy* shall comply with the requirements of Section 105.1.5 and the *International Existing Building Code*.

2021 International Property Maintenance Code

Revise as follows:

111.9 Restoration or abatement. The structure or equipment determined to be unsafe by the *code official* is permitted to be restored to a safe condition. The *owner*, *owner's* authorized agent, *operator* or *occupant* of a structure, *premises* or equipment deemed unsafe by the *code official* shall abate or cause to be abated or corrected such unsafe conditions either by *repair*, ~~rehabilitation~~, alteration, demolition or other *approved* corrective action. To the extent that *repairs*, *alterations*, or *additions* are made or a *change of occupancy* occurs during the restoration of the structure, such *repairs*, *alterations*, *additions*, or *change of occupancy* shall comply with the requirements of the *International Existing Building Code*.

Reason Statement: This is an editorial change dealing with the term "rehabilitation".

Although one of the IEBC provisions affected by the change (i.e., dealing with restoration or abatement in the administrative portion of the code) is mirrored in the IBC, the IFC, and the IPMC, the only code where the term *rehabilitation* is actually defined is the IEBC. As such, it is important to understand how the IEBC treats various terms.

- The term *repair* is defined in Chapter 2 of the IEBC as "The reconstruction, replacement, or renewal of any part of an *existing building* for the purposes of its maintenance or to correct damage."

- The term *addition* is defined in Chapter 2 of the IEBC as "An extension or increase in floor area, number of stories, or height of a building or structure."
- The term *alteration* is defined in Chapter 2 of the IEBC as "Any construction or renovation to an *existing structure* other than a *repair* or an *addition*."

The IEBC goes to some effort to keep the possible categories of actions regarding modification of existing buildings simple: actions are either *repairs*, *additions*, or *alterations*. Period.

The term *rehabilitation*, on the other hand, is defined in Chapter 2 as "Any work, as described by the categories defined herein, undertaken in an *existing building*." Put another way, it means any permitted work to an existing building. Yet there are only three sections of the IEBC that actually use the term: Sections 104.2.1, 115.5, and 405.2.4.

The issues with the use of the word *rehabilitation* in Section 405.2.4 are structural in nature and are dealt with in a separate, independent proposal that does not rely on the outcome of this proposal.

This proposal only deals with Sections 104.2.1 and 115.5 in the IEBC.

- Section 104.2.1 talks about determining whether work on a building constitutes either *substantial improvement* or *repair of substantial damage*, so initially it might seem to make sense to include the word "rehabilitation" in this provision. A closer look, however, makes it clear that the term *rehabilitation* is superfluous in this provision. This section already specifically lists *repairs*, *alterations*, and *additions* as well as a catch-all "other improvement". Furthermore, the term *rehabilitation* is not included in definitions of either *substantial improvement* or *repair of substantial damage*. So *rehabilitation* is an extraneous term that is not needed in this section.
- Section 115.5 deals with restoration or abatement of *unsafe* conditions. At first blush, use of the term *rehabilitation* might almost seem to make sense here, but again a closer look makes it clear that the term is superfluous. The sentence that contains the term *rehabilitation* mentions *repairs*, demolition, and a catch-all "other approved *corrective* action". Rather than having two catch-all terms, it would be better to replace *rehabilitation* with a more specific term that makes more sense in the context of making a change: *alteration*. As a reminder, *alteration* is defined as "Any construction or renovation to an *existing structure* other than a *repair* or an *addition*." So the word *alteration* is more fitting in this section than *rehabilitation*.

Given that the term *rehabilitation* is specifically, and somewhat illogically, defined in the IEBC as an all-inclusive term covering all possible actions on a building, given that the definition is counter to the ordinarily accepted meaning of "rehabilitation," and given that the term is barely used in the IEBC (and in a superfluous, duplicative, and arguably confusing manner), it makes sense to delete the term from the definitions in Section 202 of the IEBC.

Since Section 115.5 in the IEBC is mirrored exactly in the IBC (Section 116.5), in the IFC (Section 114.6), and in the IPMC (Section 111.9), it makes sense to make the same changes to these sections (i.e., replace *rehabilitation* with the term *alteration*) to maintain consistency between the various codes and because an alteration is what you are doing if you are not repairing.

Although the term "rehabilitation" occurs in a few other locations in those four other codes, it was never defined in those codes, and it makes more sense to use the ordinarily accepted meaning of "rehabilitation" in these instances (e.g., returning something to a good condition -- Cambridge Dictionary), so deletion of the definition from the IEBC makes more sense here as well.

Note that the IMC, the IPC, the IFGC, and the ISPSC contain their own similar but not identical set of provisions and generally use the term "rehabilitate" in its ordinarily accepted meaning; however, those provisions are not identical to the IEBC provisions, so are not proposed for modification herein.

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

This is an editorial change that merely removes the word "rehabilitation" from the IEBC because that word is superfluous and its intent and meaning are already captured in the other portions of the provisions proposed for modification. Since four other codes copy the wording in the IEBC about how to deal with unsafe conditions, these codes are also proposed for modification to match what is being proposed in the IEBC.

Deletion or replacement of the word will have zero impact on the scope of these codes or how they address unsafe conditions; consequently, this proposal has zero impact on the cost of construction.

EB2-22

IEBC: SECTION 202; IBC: SECTION 202

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] DANGEROUS. Any building, structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation or lacks the necessary support of the ground.
2. There exists a significant risk of collapse, detachment or dislodgement of any portion, member, appurtenance or ornamentation of the building or structure under permanent, routine or frequent loads; under actual loads already in effect; or under snow, wind, rain, flood, earthquake aftershock, or other environmental loads when such loads are imminent.

2021 International Building Code

Revise as follows:

[BS] DANGEROUS. Any building, structure or portion thereof that meets any of the conditions described below shall be deemed *dangerous*:

1. The building or structure has collapsed, has partially collapsed, has moved off its foundation or lacks the necessary support of the ground.
2. There exists a significant risk of collapse, detachment or dislodgment of any portion, member, appurtenance or ornamentation of the building or structure under permanent, routine, or frequent *loads*; under actual loads already in effect; or under snow, wind, rain, *flood*, earthquake aftershock, or other environmental loads when such *loads* are imminent.

Reason Statement: This is a change that was suggested back in 2019 during the development of the existing language; however, it was never formally proposed to the Structural Committee. Since the current language was adopted, a question has been raised about whether earthquake loads should be considered "imminent" if, say, a region of the country is "due" for an earthquake. That is not the intent of this definition. Earthquakes that occur with recurrence intervals of hundreds to thousands of years (e.g., design-level events) are not and should not be considered "imminent". We lack the technology to predict when such large, essentially random events are likely to occur. We do know, however, that after a large earthquake, aftershocks are likely to occur, with the vast majority of aftershocks happening within hours to a few days of the initial earthquake. These are the earthquakes that can and should be considered "imminent". If a significant earthquake occurs, the aftershocks that are likely to occur soon thereafter are rightly considered "imminent." So if a building is damaged due to an earthquake, the building should be considered "dangerous" if there is a significant risk of collapse due to an earthquake aftershock that may occur in the coming hours to days.

This proposal clarifies the intent regarding earthquakes that should be considered, and brings the language regarding earthquakes into alignment with the other loads that are intended to be "imminent". Examples include snow loads when a winter storm is approaching, wind loads from an approaching storm, rain loads due to an approaching rainstorm, and flood loads when a flood is expected due to an approaching rainstorm or hurricane,

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

This is an editorial clarification of the intent; the proposal is not intended to change the existing scope of the term "dangerous".

EB2-22

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 Statement: 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.

EB4-22

IEBC: SECTION 202

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 as estimated by the United States Geological Survey 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~~ 15 percent from its ~~predamage~~ pre-earthquake condition.

Reason Statement: Now that this upgrade trigger has been in the code for a cycle, it has been tested during recent earthquakes, and it needs improvement.

This proposal does two things:

1. It limits damage that counts towards the trigger to that damage actually caused by the earthquake in question. This change is required since the provision is meant to define damage that is "disproportionate" relative to the intensity of the earthquake shaking just experienced. Damage from other causes should not be considered in a trigger that is solely to address disproportionate damage. Damage from things like differential settlement, corrosion of steel, wood decay, vehicle impact, fire, or other environmental loads that are not earthquake-related should play no part in determining whether earthquake damage was disproportionate compared to expectations.
2. It increases the triggering damage threshold to 15 percent. A 10-percent threshold is far too low to have engineering significance. As a reminder, the IEBC considers 10-percent changes in seismic demand-to-capacity ratio to be negligible for additions or alterations (which are deliberate actions, and the effects of which are relatively easy to calculate), as seen in Exception 1 to Section 502.5 (additions), Exceptions 1 and 2 to Section 503.4 (alterations), the exception to Section 805.3, and Exception 2 to Section 1103.2. In all of these cases, an increase in demand-to-capacity of 10 percent is not considered significant. Since we design and expect nearly all structures to experience architectural and structural damage during a design-level earthquake, a 10-percent damage threshold for earthquakes that are 40 percent of the design-level earthquake is not appropriate and is too low. A 15-percent trigger is proposed, since it is about half of the similar threshold for *substantial structural damage*.

For these reasons, I request that damage that is not related to earthquake be excluded from the disproportionate damage trigger, and that the trigger be increased to a threshold substantially greater than 10 percent.

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

Making the trigger more targeted and increasing the threshold will result in fewer building for which upgrade is mandated and therefore smaller repair costs after earthquakes.

EB4-22

EB5-22

IEBC: SECTION 202 (New)

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 Statement: 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

EB6-22

IEBC: SECTION 202

Proponents: Zeno Martin, representing representing myself (zmartin@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] SUBSTANTIAL STRUCTURAL DAMAGE. A condition where any of the following apply:

1. 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 33 percent from its predamage condition. Removal of structurally undamaged components for the purposes of implementing repair shall not be considered damage that reduces load carrying capacity.
2. The capacity of any vertical component carrying gravity load, or any group of such components, that has a tributary area more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its predamage condition, and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location. Removal of structurally undamaged components for the purposes of implementing repair shall not be considered damage that reduces load carrying capacity.
3. The capacity of any structural component carrying snow load, or any group of such components, that supports more than 30 percent of the roof area of similar construction has been reduced more than 20 percent from its predamage condition, and the remaining capacity with respect to dead, live and snow loads is less than 75 percent of that required by the *International Building Code* for new buildings of similar structure, purpose and location. Removal of structurally undamaged components for the purposes of implementing repair shall not be considered damage that reduces load carrying capacity.

Reason Statement: Remediation contractors are sometimes excessive in removal of existing materials in their initial effort to mitigate and/or initiate repair. In addition, sometimes undamaged elements must be removed in order to access damaged components. The definition as written is open to interpretation where excessive or voluntary demolition done only for the purpose of making repairs leads to the conclusion that capacity has been reduced and should be considered in the calculation as to whether substantial structural damage has occurred. This can lead to the perception that a contractor's repair work exceeds the substantial structural damage threshold.

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

This proposal will reduce the cost of repairs by clarifying that related work does not itself create damage for which further expensive evaluation and possible upgrade are triggered.

EB6-22

EB7-22

IEBC: 301.3

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

2021 International Existing Building Code

Revise as follows:

301.3 Alteration, addition or change of occupancy. The *alteration, addition or change of occupancy* of all *existing buildings* shall comply with one of the methods listed in Section 301.3.1, 301.3.2 or 301.3.3 as selected by the applicant. Section 301.3.1 shall be applicable unless the applicant selects a different method. Sections 301.3.1 through 301.3.3 shall not be applied in combination with each other.

Exception: Subject to the approval of the *code official*, *alterations* complying with the laws in existence at the time the building or the affected portion of the building was built shall be considered in compliance with the provisions of this code. New structural members added as part of the *alteration* shall comply with the *International Building Code*. This exception shall not apply to the following:

1. *Alterations* for accessibility required by Section 306.
2. *Alterations* that constitute *substantial improvement* in *flood hazard areas*, which shall comply with Sections 503.2, 701.3 or 1301.3.3.
3. Structural provisions of Section 304, Chapter 5 or to the structural provisions of Sections 706, 805 and 906.

Reason Statement: Applicants for building permits associated with existing buildings very frequently do not selected a method of compliance as required by this section of the code. This has the odd result of a building permit not being issued simply because an administrative provision intended to make it easier to get a building permit is now a source of noncompliance with the code.

This change is intended to save a round of building code compliance examination by giving the building official a default method to use for examination of the construction documents for code compliance where no method is selected by the applicant. Without a default method or a selected method, a first round of compliance examination is not meaningful.

This change will result in building permits being obtained quicker and does not take away the power from the applicant to select their own method of compliance.

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

This change will cause building permits to be issued sooner, in some situations. Since it facilitates a faster construction process it may reduce or maintain construction costs.

EB7-22

EB8-22

IEBC: 301.4 (New), 1201.1 (New), 1201.1, 1201.6 (New), SECTION 607, 607.1, 607.2, SECTION 507, 507.1, 507.2, [BS] 507.3, [BS] 507.4

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

2021 International Existing Building Code

Add new text as follows:

301.4 Historic buildings. Historic buildings as defined in Section 202 shall comply with Chapter 12.

1201.1 Intent. The intent of this chapter is to preserve the integrity and character-defining features of historic buildings while maintaining a reasonable degree of protection of life, health and safety for its occupants.

Revise as follows:

~~**1201.1**~~ **1201.2 Scope .** Historic buildings shall comply with Chapter 3 and the provisions of this chapter for repair, alteration, relocation and change of occupancy regardless of compliance path, except as limited by this chapter.

~~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.~~

Add new text as follows:

1201.6 Accessibility . Accessibility of historic structures shall comply with Section 306, as applicable.

Delete without substitution:

SECTION 607 HISTORIC BUILDINGS

~~**607.1 Scope.** Historic building provisions shall apply to buildings classified as historic as defined in Chapter 2.~~

~~**607.2 Application.** Except as specifically provided for in Chapter 12, historic buildings shall comply with applicable provisions of this code for the type of work being performed.~~

SECTION 507 HISTORIC BUILDINGS

Revise as follows:

507.1 Historic buildings. Historic buildings as defined by Section 202 of this code shall comply with Chapter 12. ~~The provisions of this code that require improvements relative to a building's existing condition or, in the case of repairs, that require improvements relative to a building's predamage condition, shall not be mandatory for historic buildings unless specifically required by this section.~~

Delete without substitution:

~~**507.2 Life safety hazards.** The provisions of this code shall apply to historic buildings judged by the code official to constitute a distinct life safety hazard.~~

~~**[BS] 507.3 Flood hazard areas.** Within flood hazard areas established in accordance with Section 1612.3 of the International Building Code, or Section R322 of the International Residential Code, as applicable, where the work proposed constitutes substantial improvement, the building shall be brought into compliance with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.~~

~~**Exception:** Historic buildings meeting any of the following criteria need not be brought into compliance:~~

- ~~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 as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.~~
- ~~3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.~~

~~**[BS] 507.4 Structural.** Historic buildings shall comply with the applicable structural provisions in this chapter.~~

~~**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.~~

Reason Statement: This code change proposal more clearly defines the scope of provisions related to historic buildings for the code official, the design professional and all who refer to it. It is a user-friendly change to eliminate confusion when applying the IEBC to historic buildings.

The proposal directs all historic buildings, regardless of compliance path being used, to Chapter 12. It relocates most historic building provisions found in other chapters to Chapter 12 (the single exception is for accessibility). It clarifies which provisions of Chapter 12 Historic Buildings are available to each compliance path, and increases consistency by clarifying that the allowances of Sections 1203 and 1204 are available to both the Work Area and Prescriptive compliance methods.

The new scoping statement in Section 1201.2 clarifies that buildings must comply with the IEBC for the type of work being undertaken, except as addressed in this chapter.

Deletion of Section 607 is included in this proposal as part of the effort to consolidate the historic building provisions into Chapter 12 for the benefit of the user.

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

The tables below explain each of the 6 proposals what each of the 6 proposals are focused upon and the intended layout of Chapter 12 if all the proposals should be approved.

HISTORIC BUILDING, CHAPTER 12 PROPOSED CODE CHANGES

#	Working Title	Proposal #	Summary	Rationale
1	Scoping	7939	All historic buildings directed to Chapter 12 regardless of compliance path (some limitations) Adds consideration of preservation as an intent Clarifies path for accessibility	Code useability and clarity (Ch. 12 previously improperly used beyond Work Area Method)
2	Historic Building Allowances	7917	Combines existing provisions currently separated for Alteration and Change of Occupancy Adds definition of 'character-defining features'. Clarifies content of historic building report	Sections were inconsistent; concept of less stringency for Alterations incorrect and outdated. 'Character-defining' is an accepted state/federal preservation term and will permit removal of inconstant language in many provisions.
3	Special Occupancy - Museums	8166	Clarifies that allowance is 3000 sf/floor.	For specialized museums, consistency with other code provisions that indicate "per floor" for smaller buildings.
4	Historic Tolerances	7970	Permits minor dimensional and rating non-compliant conditions to be retained. Adds definition of Tolerance	Permission to maintain existing historic conditions when alteration would achieve no significant loss or gain in safety relieves projects of unnecessary costs and permits retention of historic materials.
5	Small Building Equivalencies	8167	Provides accepted and specific fire safety equivalencies for small (ex., Main Street) buildings	Codify commonly accepted solutions, including those derived from Performance Compliance.
6	Distinct Hazard	8165	Adds definition	Code useability and consistency. Term currently undefined

PROPOSED 2024 LAYOUT IF ALL PROPOSALS SHOULD PASS

PROPOSED 2024 IEBC, CH 12	DESCRIPTION	CODE CHANGE #	SOURCE (21 IEBC)
DEFINITIONS			
Distinct Hazard	New	6	
Character-Defining Feature	New	2	
SECTION 1201 GENERAL			
1201.1 Intent	New	1	New
1201.2 Scope	Edit	1	1201.1
1201.3 Historic Building Report	Edit	2	1201.2
1201.4 Special occupancy exceptions—museums	Edit	3	1201.3
1201.5 Flood hazard areas	NC		1201.4
1201.6 Unsafe Conditions	NC		1201.5
1201.6 Tolerances	New	4	
1201.7 Accessibility	New	1	
SECTION 1202 REPAIRS			
1202.1 General	NC		
1202.2 Replacement	NC		
SECTION 1203 ALTERATIONS & CHANGE OF OCCUPANCY	Rename		
1203.1 Scope	Clarify	2	1203.1
1203.2 Automatic fire extinguishing system	Rename/edit	2	1203.2, 1203.12 (deleted)
1203.3 Means of egress	Edit/combine	2	1203.3, 1204.6
1203.4 Transoms	Edit/combine/renumber	2	1203.4, 1204.8
1203.5 Interior finishes	Edit/combine	2	1203.5
1203.6 Flame Spread Index	Edit/combine/renumber	2	1204.9
1203.7 Stairway enclosure	Edit/combine/renumber	2	1204.11
1203.8 One-hour fire-resistant assemblies	Edit/combine/renumber	2	1203.7, 1204.4, 1204.10
1203.9 Occupancy Separation	Edit/combine/renumber	2	
1203.10 Glazing in fire-resistance-rated systems	Edit/combine/renumber	2	1203.8
1203.11 Stairways	Edit/combine/renumber	2	1204.11
1203.12 Guards and handrails	Edit/combine/renumber	2	1203.9, 1203.10
1203.13 Exit signs	Edit/combine/renumber	2	1203.11, 1204.12
1203.14 Door swing	Edit/combine/renumber	2	1204.7
1203.15 Roof covering	Edit/combine/renumber	2	1204.5
1203.16 Building area	Relocated	2	1204.2
1203.17 Exterior ratings	Relocated	2	1204.3
1203.18 Natural light	Relocated	2	1204.14
SECTION 1204 AUTOMATIC SPRINKLER SYSTEM EQUIVALENCIES			
1204.1 Sprinkler system alternatives	New	5	
1204.1.1 Group A-2, M or R-2 Occupancies	New	5	
1204.1.2 Other than Group A-2, M or R-2 Occupancies	New	5	
1204.4 Automatic sprinkler system type	New	5	
SECTION 1205 STRUCTURAL			
1205.1 General	NC		
1205.2 Dangerous conditions	NC		
1205.3 Exit stair live load	Relocate	2	1204.13
1205.4 Structural evaluation	Relocate	2	Portion of 1201.2
SECTION 1206. RELOCATED BUILDINGS			
1206.1 Relocated Buildings	NC		

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 with a consistent path to compliance permitting allowances found in Chapter 12. 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 of Chapter 12 to be available to Prescriptive and the Work Area methods, in some cases the cost of construction will be reduced.

EB8-22

EB9-22

IEBC: 302.6 (New)

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)

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:

302.6 Risk category. Where needed to determine the appropriate application of this code, the risk category of an existing building shall be determined in accordance with Section 1604.5 of the *International Building Code*.

Reason Statement: This proposal adds a clarification regarding risk category assignment that parallels the current code's provision in Sec 302.5 regarding use and occupancy. It adds a reference, in new Sec 302.6, to IBC 1604.5 (and 1604.5.1 as a subsection).

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The proposal merely makes explicit what is already believed to be the common practice, parallel to a similar provision regarding occupancy.

EB9-22

EB10-22

IEBC: 302.6 (New), 302.6.1 (New), 302.6.2 (New)

Proponents: David Bonowitz, representing Self (dbonowitz@att.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:

302.6 Risk category. Where needed to determine the appropriate application of this code, the risk category of an existing building shall be determined in accordance with Section 1604.5 of the *International Building Code* and Sections 302.6.1 and 302.6.2.

302.6.1 Risk category for project areas. For any portion of an existing building affected by work within the scope of this code, the risk category shall be determined based on the intended use of the affected portion, not based on the existing building's current risk category.

302.6.2 Current risk category. For portions of existing buildings not covered by Section 302.6.1, the risk category shall be taken as the risk category of the original building or of the most recent permitted change of risk category. Where the building was assigned to an occupancy category or assigned an importance factor for environmental loads based on use or occupancy, the current risk category shall be taken as the nearest equivalent to the assigned category or factor. Otherwise, the current risk category shall be taken as Risk Category II.

Reason Statement: This proposal clarifies how existing buildings are assigned to risk categories, in two steps.

- First, new Section 302.6 adds a simple pointer to IBC Section 1604.5. This parallels current Section 302.5 regarding use and occupancy. This part of the proposal is straightforward.
- Second, the proposal recognizes the complexities of choosing risk categories for existing buildings that might pre-date the very concept of risk categories (or occupancy categories, as they were once called).

Thinking this through, it becomes clear that the area affected by an intended existing building project might properly be assigned to a different risk category than the rest of the existing building. Therefore, proposed sections 302.6.1 and 302.6.2 provide guidance for each part of the building. IBC Section 1604.5.1 (referenced from proposed Section 302.6 as part of IBC Section 1604.5) can then be used to reconcile the differences and determine an overall risk category for the building and the project.

This is important because while IEBC Sections 506.1 and Chapter 10 already require any area with a change of use to meet basic requirements for the new use, structural work is not triggered unless the risk category changes (see Sections 506.5, 1006.2, and 1006.3). And whether the risk category changes depends on how the current risk category of the existing building – which might have serious structural deficiencies – is determined.

Proposed Section 302.6.1 covers areas affected by the proposed project – an alteration, addition, repair, or change of use. From the general principle that new work in existing buildings should itself comply with provisions for new construction (Sections 302.4, 306.6, 503.1, etc.) it is clear that the area affected by any proposed project should be assigned to the risk category appropriate to the intended use of that area, as if the intended work were new construction. (Note that the term *work area* is not used, because work area is defined only in terms of reconfigured spaces, so existing building projects that affect only vertical components or distributed systems, while substantial, might have no clear *work area*.)

Proposed Section 302.6.2 covers the rest of the existing building. Assigning an existing building to a risk category seems like it should be easy, but it can get complicated. The proposed section applies the following logic:

- If the building is young enough to have been assigned a risk category (RC) similar to those in the current IBC, it should keep that RC unless there was a defined change of occupancy that also involved a change of RC. That is, the original RC stays with the building even if the code changes over time. This is similar to the allowance in IEBC 101.4.2 regarding legal occupancy. The point is that a building does not immediately become non-compliant just because the code evolves, since that is something over which the owner has no control.
- If the building is too old for “risk category” but was assigned an “occupancy category,” the appropriate RC is just the corresponding category, even if the older OC rules do not quite match the current RC rules. Similarly, even before legacy codes used occupancy categories, the UBC, for example, assigned importance factors to wind and seismic loads. The point here is that RC should be understood as just a different term for the same idea, so the grandfathering of an original RC should apply to an original OC or I factor as well.
- Finally, if the building was never assigned a clear RC or Importance factor – typically because it pre-dates those ideas, which came into the legacy codes in the 1970s – then even if it contains uses that would be assigned to RC III or RC IV today, it was built under the same rules as any other building at the time. That is, **a hospital, school, or fire station from the 1950s was structurally designed with the same provisions as a 1950s office building or shopping center.** Therefore, for purposes of implementing the current IEBC, all those 1950s buildings should be assessed by the same terms now, so “where needed” (as proposed Section 302.6 says), such an un-assigned building should be assigned to RC II despite its current use.

To understand this, consider the intent of the current IEBC when a RC III or RC IV use is added, extended, or enhanced by an addition, alteration, or

change of occupancy.

- If a RC III use is added to, created within, or altered within an existing RC III building, should the existing structure be subject to structural improvement just because of the use? No, because the risk category has not changed.
- If a RC III use is added to, created within, or altered within an existing RC II building, should the existing structure be subject to structural improvement just because of the use? Yes, as current Sections 506.5 and 1006 already require.
- If a RC III use is added to, created within, or altered within an existing building that functions as a RC III facility *but is just as deficient as a RC II building of the same age*, should the existing structure be subject to structural improvement just because of the use? Yes, for the same reason that an actual RC II building would be. But under the current code, there would be no retrofit. Therefore, proposed Section 302.6.2 assigns the existing building to RC II, and the triggers in Sections 506.5 and 1006 might apply.

Proposed Section 302.6.2 thus prevents the ill-advised use of a deficient structure for RC III or RC IV purposes where higher performance is expected and must be provided. This is consistent with other provisions already codified in the IEBC for specific cases. The idea of not extending an existing deficiency to affect new work is consistent with current IEBC Section 1101.2 (which applies only to additions, and only within the Work Area method). It is also similar to current Section 304.3.1, which requires the assumption of “ordinary” systems where there is no evidence (typically due to a building’s age) of more modern (“intermediate” or “special”) detailing.

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

This proposal SHOULD neither increase nor decrease the cost of construction, assuming that code officials and designers are already addressing this lack of guidance in the current IEBC with the rational rules provided here. However, to the extent that people are currently taking advantage of this loophole to expand RC III or RC IV uses in buildings that are deficient but nominally assigned to those same RC’s, it will increase the cost of certain projects.

EB10-22

EB11-22

IEBC: 302.5 (New), 302.5.1 (New)

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 Statement: 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

EB12-22

IEBC: SECTION 202 (New), SECTION 303, 303.1, 303.1.1 (New), 303.2 (New), 303.2.1 (New), 303.2.2 (New), 303.2, 303.2.1, 303.2.2

Proponents: Mike Nugent, representing Building Code Action Committee (bcac@iccsafe.org); Marc Levitan, representing ICC 500 Storm Shelter Standard Development Committee (icc500@iccsafe.org)

2021 International Existing Building Code

Add new definition as follows:

STORM SHELTER. A building, structure or portions thereof, constructed in accordance with ICC 500, designated for use during hurricanes, tornadoes or other severe windstorms.

SECTION 303 STORM SHELTERS

Revise as follows:

303.1 Storm shelters-General. This section applies to the design and construction of storm shelters constructed as rooms or spaces within existing buildings for the purpose of providing protection during storms that produce high winds, such as tornados, and hurricanes and other severe windstorms. Section 303.2 provides requirements for the evaluation, maintenance and repair of existing storm shelters. Section 303.3 specifies where storm shelters are required for additions to existing buildings. Such structures shall be designated to be hurricane shelters, tornado shelters, or combined hurricane and tornado shelters. Such structures shall be constructed in accordance with this code and ICC 500.

Add new text as follows:

303.1.1 Construction. Storm shelters shall be constructed in accordance with Section 423 of the International Building Code and ICC 500 and shall be designated as hurricane shelters, tornado shelters, or combined hurricane and tornado shelters.

Exception: Storm shelters added to critical emergency operations facilities or Group E occupancies are not required to comply with the travel distance in Section 423.4.2 or 423.5.2 of the International Building Code.

303.2 Evaluation, maintenance and repairs. Community storm shelters shall be evaluated, maintained and repaired in accordance with this section and ICC 500.

303.2.1 Evaluation. Community storm shelters shall be evaluated annually, and when requested by the authority having jurisdiction, in accordance with ICC 500.

303.2.2 Maintenance and Repairs. Community storm shelters shall be maintained in an operable condition. All structural and operational element shall be repaired or replaced in accordance with ICC 500 where damaged or found to be inoperable.

Revise as follows:

303.3 303.2 Addition to a Group E occupancy. Where an *addition* is added to an existing Group E occupancy located in an area where the shelter design wind speed for tornados is 250 mph (402.3 km/h) in accordance with Figure 304.2(1) of ICC 500 and the occupant load in the *addition* is 50 or more, the *addition* shall have a storm shelter constructed in accordance with ICC 500.

Exceptions:

1. Group E day care *facilities*.
2. Group E occupancies accessory to places of religious worship.
3. *Additions* meeting the requirements for shelter design in ICC 500.

303.3.1 303.2.1 Required Design occupant capacity. The required design occupant capacity of the storm shelter shall include all buildings on the site, and shall be the total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.

Exceptions:

1. Where an addition is being added on an existing Group E site, and where the addition is not of sufficient size to accommodate the required design occupant capacity of the storm shelter for all of the buildings on-site, the storm shelter shall at a minimum accommodate the required capacity for the addition.
2. Where approved by the code official, the required design occupant capacity of the shelter shall be permitted to be reduced by the design occupant capacity of any existing storm shelters on the site.

303.4 303.2.2 Occupancy classification. The occupancy classification for storm shelters shall be determined in accordance with Section 423.3 of the *International Building Code*.

Reason Statement: The intent of this proposal is to coordinate with the changes to the storm shelter requirements in IBC (G94-21 AS, G95-21 AM, G96-21 AM and G97-21 AM) and the latest edition of the storm shelter standard (ICC 500). Section 303.1 – The first sentence in the charging paragraph is proposed to match the phrase for the types of storms used in the ICC 500. The 2nd and 3rd sentences are the pointers for the sections on maintenance and additions. The deleted sentence is moved to a new section 303.1.1 for clarity and to allow for the exception for travel distance (added to shelters for critical emergency operations facilities by G95-21 AM, and in the current text for Educational facilities). In an existing site, the storm shelter may be part of a new building on the site and could not always meet the maximum exterior travel distances. It is important to get the shelter, and the extra travel time involved can be addressed in the operations plans.

Section 303.2 – The 2020 edition of ICC 500, which was incorporated by reference in the 2021 I-Codes, contains new provisions for the evaluation, maintenance, and repair of community storm shelters. The storm shelter owner or their authorized agent is required to have the shelter evaluated annually, and when requested by the authority having jurisdiction, to identify whether shelter envelope walls or roofs are damaged or whether any impact-protective systems (including doors, windows and shutters) are damaged or are not operational. Any shelter envelope wall, roof or impact-protective system found to be damaged or not operational is required to be repaired or replaced in accordance with Section 113 of ICC 500-2020. The ICC 500 provisions read as follows:

SECTION 113

EVALUATION, MAINTENANCE AND REPAIRS

113.1 General. Community shelters shall be evaluated and maintained in accordance with Sections 113.2 through 113.4.

113.2 Evaluation. The owner or owner's authorized agent shall evaluate the storm shelter annually and when requested by the authority having jurisdiction. The evaluation of the storm shelter shall include the following:

1. The storm shelter envelope shall be evaluated through visual observation to assess whether the walls and roofs are intact and undamaged.
 2. Impact-protective systems shall be evaluated for compliance with the manufacturer's operational and maintenance requirements.
- 113.3 Maintenance and repairs. Storm shelters shall be maintained in an operable condition at all times. All structural and operational elements shall be repaired or replaced where damaged or found to be inoperable.

113.3.1 Damaged or missing components. Storm shelters shall be maintained so that walls and roofs are intact and undamaged. Any damage to the storm shelter or its impact-protective systems that impair its functionality shall be repaired or replaced. Damaged or missing components shall be replaced with components that are specified within the tested or listed assembly.

113.3.2 Replacement assemblies and systems. Where it is necessary to replace certified or listed impact-protective systems, replacements shall comply with applicable ICC 500 requirements and shall be tested and installed as required by this standard for new installations or construction.

113.4 Recordkeeping. A record of the evaluations shall be maintained by the owner or owner's authorized agent. A record of the evaluations and any other tests, repairs or replacements and other operations and maintenance shall be kept on the premises or other approved location and consist of all changes to the original storm shelter envelope or impact-protective systems. Records shall include the date and person conducting the evaluations and maintenance or repairs. The proposed IEBC storm shelter provisions trigger evaluations of community storm shelters to verify that they can continue protecting occupants from extreme wind events. Door assemblies in multi-use storm shelters are especially vulnerable to disrepair when used frequently for their 'normal use' functions (e.g., gym, classroom, auditorium). Observations of existing storm shelter door assemblies have revealed the following common maintenance issues that can result in operational failure during an extreme wind event: debris in floor latch points preventing full connection, rust, and malfunctioning hardware. The new ICC 500 provision is specific to community storm shelters. Residential storm shelters are excluded so as not to burden homeowners who choose to incorporate a small residential storm shelter into their home or provide one in their yard.

Section 303.3 – Adding 'design' matches the terms used in the 2020 ICC 500 and the approved changes to 2024 IBC(G94-21 AM) and 2024 IPMC (PM11-20).

This proposal is submitted by the ICC Building Code Action Committee (BCAC) and the ICC 500 Committee, Standard for the Design and Construction of Storm Shelters.

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 ICC 500 (Standard for the Design and Construction of Storm Shelters) development committee has held several virtual meetings during the to develop the 2020 edition. In addition, there were numerous virtual Working Group meetings. All meetings included members of the committee as well as interested parties. The committee has now moved to continuous maintenance. Related documents and reports are posted on the ICC 500

website at <https://www.iccsafe.org/products-and-services/standards-development/is-stm/> .

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

The cost increase would be for the time and labor of the owner (or their agent) to conduct the annual visual inspection and/or hire an engineer or architect if needed for a more detailed evaluation. There would also be a cost to repair a damaged roof or wall or to replace a damaged component for an impact-protective system or the entire system if deemed necessary, but this is essential to the continued safe use of the shelter.

EB12-22

EB13-22

IEBC: 304.1 (New)

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:

304.1 Loads. The loads on structural members shall be in accordance with Chapter 16 of the *International Building Code* except as modified by this code.

Reason Statement: This change will clarify what is already understood, but never specifically stated: that the loads on structures affected by changes to existing buildings and existing structures are those that are obtained from the IBC.

This code does frequently modify those loads and that will continue to be the case and remain unchanged.

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

This proposal remedies a gap in the basic application of structural design to existing buildings by stating what is already the case: loads on structures undergoing changes are obtained from the IBC except for where the IEBC modifies those loads. As this is a clarifying statement to reduce confusion about how the existing code provisions are to be applied, there will be no cost difference in either the design or construction phases of projects.

EB13-22

EB14-22

IEBC: 304.1 (New)

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:

304.1 General. Structural design loads, evaluation, and design procedures shall be in accordance with Chapter 16 of the International Building Code except as otherwise required or permitted by this code.

Reason Statement: The IEBC defines a number of structural loads, including live loads, snow loads, wind loads, and earthquake loads, typically with reference to IBC Chapter 16, and modifies them as deemed appropriate. Several other structural loads are not defined, including dead loads, soil loads and hydrostatic pressure, rain loads, atmospheric ice loads, etc. As these loads are not explicitly referenced, it is not clear if the existing structures should be evaluated for these loads, and which design loads, and evaluation and design procedures should be used.

Revisions made by this proposal intend to clarify that structural design loads, evaluation procedures, and design procedures of the IBC apply by default, except as explicitly modified by the IEBC.

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

The intent of this code change proposal is for clarification. As it does not change the intent of the code, it will not increase or decrease the cost of construction.

EB14-22

EB15-22

IEBC: [BS] 304.3, [BS] 304.3.1, [BS] TABLE 304.3.1, [BS] 304.3.2, [BS] TABLE 304.3.2, [BS] 405.2.3.1, [BS] 405.2.3.3, [BS] 502.5, [BS] 503.4, [BS] 503.5, [BS] 503.6, [BS] 503.7, [BS] 503.8, [BS] 503.9, [BS] 503.10, [BS] 503.11, 506.5.3, 506.5.4, [BS] 706.3.1, [BS] 805.3, [BS] 906.2, [BS] 906.3, [BS] 906.4, [BS] 906.5, [BS] 906.6, [BS] 906.7, [BS] 1006.3, [BS] 1006.4, [BS] 1103.2

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:

[BS] 304.3 Seismic evaluation and design procedures. Where required, seismic evaluation or design shall ~~be based on~~ comply with the procedures and criteria in this section, regardless of which compliance method is used. The scope of the required evaluation or design shall be as indicated in applicable provisions of Chapters 4 through 12.

[BS] 304.3.1 ~~Compliance with full Full seismic forces criteria.~~ ~~Where compliance requires the use of full seismic forces, the criteria shall be in accordance with one of the following~~ Where required, seismic evaluation or design shall comply with one of the following:

- ~~One hundred percent of the values in Section 1613 of the International Building Code.~~ Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," values of R , Ω_0 and C_d used for analysis in accordance with Chapter 16 of the International Building Code shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system.
- ASCE 41, using a Tier 3 procedure and the two-level performance objective in Table 304.3.1 for the applicable *risk category*.

**[BS] TABLE 304.3.1 PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH FULL SEISMIC FORCES
CRITERIA**

RISK CATEGORY (Based on IBC Table 1604.5)	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1N EARTHQUAKE HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2N EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3)	Collapse Prevention (S-5)
II	Life Safety (S-3)	Collapse Prevention (S-5)
III	Damage Control (S-2)	Limited Safety (S-4)
IV	Immediate Occupancy (S-1)	Life Safety (S-3)

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

1. ~~The Section 1613 of 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. ~~Applicable chapters of Appendix A of this code, for 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 chapter~~ Appendix A chapters shall be deemed to comply with this section.
 - 2.1. ~~Chapter A1 for The seismic evaluation and design of unreinforced masonry bearing wall buildings in assigned to Risk Category I or II are permitted to be based on the procedures specified in Appendix Chapter A1.~~
 - 2.2. ~~Chapter A2 for Seismic evaluation and design of the wall anchorage system in reinforced concrete and reinforced masonry wall buildings with flexible diaphragms in assigned to Risk Category I or II are permitted to be based on the procedures specified in Chapter A2.~~
 - 2.3. ~~Chapter A3 for Seismic evaluation and design of cripple walls and sill plate anchorage in residential buildings of light-frame wood construction in assigned to Risk Category I or II are permitted to be based on the procedures specified in Chapter A3.~~
 - 2.4. ~~Chapter A4 for Seismic evaluation and design of soft, weak or open-front wall conditions in multiple-unit residential buildings of wood construction in assigned to Risk Category I or II are permitted to be based on the procedures specified in Chapter A4.~~
3. ASCE 41, using the performance objective in Table 304.3.2 for the applicable *risk category*.

[BS] TABLE 304.3.2 PERFORMANCE OBJECTIVES FOR USE IN ASCE 41 FOR COMPLIANCE WITH REDUCED SEISMIC FORCES CRITERIA

RISK CATEGORY (Based on IBC Table 1604.5)	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-1E EARTHQUAKE HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL FOR USE WITH BSE-2E EARTHQUAKE HAZARD LEVEL
I	Life Safety (S-3). See Note a	Collapse Prevention (S-5)
II	Life Safety (S-3). See Note a	Collapse Prevention (S-5)
III	Damage Control (S-2). See Note a	Limited Safety (S-4). See Note b
IV	Immediate Occupancy (S-1)	Life Safety (S-3). See Note c

- For Risk Categories I, II and III, the Tier 1 and Tier 2 procedures need not be considered for the BSE-1E earthquake hazard level.
- For Risk Category III, the Tier 1 screening checklists shall be based on the Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS*-factors that are the average of the values for Collapse Prevention and Life Safety.
- For Risk Category IV, the Tier 1 screening checklists shall be based on Collapse Prevention, except that checklist statements using the Quick Check provisions shall be based on *MS*-factors for Life Safety.

[BS] 405.2.3.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *code official*. The evaluation shall establish whether the lateral force-resisting system of the damaged building, if repaired to its predamage state, would comply with the provisions of the *International Building Code* for load combinations that include wind or earthquake effects, except that the seismic forces shall be the reduced seismic forces and with Section 304.3.2 of this code.

[BS] 405.2.3.3 Extent of repair for noncompliant buildings. If the evaluation does not establish that the lateral force-resisting system of the building in its predamage condition complies with the provisions of Section 405.2.3.1, then the building lateral force-resisting system shall be retrofitted to comply with the provisions of this section. The wind loads for the repair and retrofit shall be those required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the *International Building Code*. The seismic retrofit shall comply with Section 304.3.2 of this code, but the earthquake loads for this retrofit design shall not be less than those required by the building code in effect at the time of original construction, but not less than the reduced seismic forces.

[BS] 502.5 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 lateral force-resisting system of the existing structure and its addition acting together as a single structure shall be shown to meet the requirements of comply with Sections 1609 and 1613 of the *International Building Code* using full seismic forces and with Section 304.3.1 of this code.

Exceptions:

- 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* and Section 304.3.1 of this 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.
- 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] 503.4 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 lateral force-resisting system of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the *International Building Code* and Section 304.3.2 of this 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* and Section 304.3.1 or Section 304.3.2 of this 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 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~~ lateral force-resisting system of the altered building shall meet the requirements of Sections 1609 and 1613 of the *International Building Code* and Section 304.3.2 of this code. ~~Reduced seismic forces shall be permitted.~~

[BS] 503.6 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 evaluation of the existing condition or installation of parapet bracing to resist out-of-plane seismic forces to comply with Section 304.3.2, ~~unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.~~

[BS] 503.7 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 evaluation of the existing condition or installation of wall anchors at the roof line to comply with Section 304.3.2, ~~unless an evaluation demonstrates compliance of existing wall anchorage. Use of reduced seismic forces shall be permitted.~~

[BS] 503.8 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 evaluation of the existing condition or installation of wall anchors at the floor and roof lines to comply with Section 304.3.2, ~~unless an evaluation demonstrates compliance of existing wall anchorage. Reduced seismic forces shall be permitted.~~

[BS] 503.9 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, and the building has parapets constructed of unreinforced masonry, the alteration work shall include evaluation of the existing condition or installation of parapet ~~shall have~~ bracing installed as needed to resist out-of-plane seismic forces to comply with Section 304.3.2, ~~unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.~~

[BS] 503.10 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, and the building has unreinforced masonry partitions ~~and or~~ nonstructural walls, the alteration work shall include evaluation of the existing condition or removal, anchoring, or alteration of any such partitions or walls within the *work area* and adjacent to egress paths from the *work area*, to comply with Section 304.3.2, ~~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 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* and Section 304.3.2 of this 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.

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 lateral force-resisting system of the building shall satisfy the requirements of Section 1613 of the International Building Code comply with Section 304.3.1 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 compliance with Section 304.3.2 shall be permitted.~~

506.5.4 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~~ comply with Sections 1608, ~~and 1609 and 1613~~ of the International Building Code ~~and Section 304.3.1 of this 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.

[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 evaluation of the existing condition or installation of parapet bracing to comply with Section 304.3.2, ~~unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.~~

[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 lateral force-resisting system~~ of the altered building or structure shall meet the requirements of Sections 1609 ~~and 1613~~ of the International Building Code and Section 304.3.2 of this 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 and Section 304.3.1 or Section 304.3.2 of this 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] 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 and Section 304.3.2 of this 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 lateral force-resisting system~~ of the altered building shall meet the requirements of Sections 1609 ~~and 1613~~ of the International Building Code and Section 304.3.2 of this 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 evaluation of the existing condition or installation of wall anchors at the roof line of all subject buildings and at the floor lines of unreinforced masonry buildings to comply with Section 304.3.2, ~~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 evaluation of the existing condition or installation of wall anchors at the roof line to comply with Section 304.3.2, ~~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 their existing condition evaluated or shall have bracing installed to comply with Section 304.3.2, ~~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 have their existing conditions evaluated or shall be anchored, removed, or altered to resist out-of-plane seismic forces, to comply with Section 304.3.2, unless an evaluation demonstrates compliance of such items. 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 lateral force-resisting system of the building shall comply with Section 304.3.1 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~~ compliance with Section 304.3.2 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~~ comply with Sections 1608, and 1609 and 1613 of the International Building Code and Section 304.3.1 of this 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] 1103.2 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 lateral force-resisting system of the existing structure and its addition acting together as a single structure shall meet the requirements of ~~comply with Sections 1609 and 1613 of the International Building Code using full seismic forces and Section 304.3.1 of this code.~~

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* and Section 304.3.1 of this 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.

Reason Statement: This proposal clarifies the way the IEBC references seismic criteria. It makes important and practical clarifications consistent with the intent of the current code, but it is 100% clarification and simplification, with no substantive effect.

The proposal makes four types of changes, as needed, to various provisions that cite the seismic criteria in Section 304:

- Instead of referring vaguely to “full seismic forces” or “reduced seismic forces” – and relying on the user to know where to find those in Chapter 3 – it revises the many triggering provisions to point directly to Sections 304.3.1 or 304.3.2, respectively.
- It clarifies the scope of work within the triggering provisions by referring to the “lateral force-resisting system” instead of the generic “structure” or “building.” Otherwise, the references to IBC Section 1613 would invoke provisions for seismic bracing and anchorage of nonstructural components, which is not intended except in select cases.
- It removes potential confusion associated with references to IBC Section 1613. Instead, it references Section 304.3, which gives IBC Section 1613 as one of several options for seismic criteria.
- It makes revisions to Section 304.3 consistent with the other three changes. In particular, it changes the subsection titles from “forces” to the more complete and correct “criteria,” since the required criteria address more than just design forces.

In addition, the proposal makes various editorial revisions to improve readability and provide more consistent wording. The edit to Section 506.5.4

also corrects the old wording that should have been changed in a past cycle but was apparently missed.

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

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

The proposal is 100% simplification and clarification of intent. It clarifies references to the applicable seismic criteria already provided in Chapter 3, it clarifies the current understanding that those criteria typically apply only to the lateral force-resisting system (not to the structure generally), and it clarifies how the code already allows evaluation as a means of compliance. Thus the substantive effect of the current code is unchanged.

EB15-22

EB16-22

IEBC: [BS] 304.3.1, [BS] 304.3.2

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:

[BS] 304.3.1 Compliance with full seismic forces. Where compliance requires the use of full seismic forces, the criteria shall be in accordance with one of the following methodologies, which shall not be applied in combination with each other:

1. One-hundred percent of the values in the *International Building Code*. Where the existing seismic force-resisting system is a type that can be designated as "Ordinary," values of R , Ω_0 and C_d used for analysis in accordance with Chapter 16 of the International Building Code shall be those specified for structural systems classified as "Ordinary" in accordance with Table 12.2-1 of ASCE 7, unless it can be demonstrated that the structural system will provide performance equivalent to that of a "Detailed," "Intermediate" or "Special" system.
2. ASCE 41, using a Tier 3 procedure and both levels of the two-level performance objective in Table 304.3.1 for the applicable *risk category*.

[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 methodologies, which shall not be applied in combination with each other:

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. ASCE 41, using the performance objective in Table 304.3.2 for the applicable *risk category*.

Reason Statement: This proposal makes two clarifications to the application of seismic structural criteria, both of which merely reflect the current intent of the code. There is no substantive change.

In both Section 304.3.1 and 304.3.2, the provision clarifies that the listed options are not to be used in combination with each other. This proposal responds to reports of opportunistic or uninformed use of ASCE 41 force levels with IBC Section 1613 (ASCE 7) analysis procedures and acceptability criteria. The phrase "shall not be applied in combination with each other" is borrowed from IEBC Section 301.3.

In Section 304.3.1, the use of ASCE 41 is clarified by noting that both columns of Table 304.3.1 must be applied. This proposal responds to questions about whether the two columns are interchangeable and to reports of projects complying with only half of the two-part objective. A similar clarification is not needed in Section 304.3.2 because for "reduced" seismic criteria, ASCE 41 usually requires application of only half of the two-part objective, as indicated in Table 304.3.2 footnote a.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This proposal is entirely a clarification of the current intent of the code, with no substantive effect.

EB16-22

EB17-22

IEBC: [BS] 304.3.2, ICC Chapter 16 (New)

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

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.

Reason Statement: 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.

EB18-22

IEBC: 304.4 (New), ICC Chapter 16 (New)

Proponents: Kelly Cobeen, representing ICC Residential Seismic Assessment and Retrofit Standard Consensus Committee (IS-RSARC) (kcobeen@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:

304.4 Seismic Retrofit of One- and Two-Family Dwellings and Townhouses. Voluntary seismic retrofit of detached one- and two-family dwellings and townhouses shall be permitted to be in accordance with ICC-1300.

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

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.

Reason Statement: This proposal adds to IEBC Section 304 "Structural Design Loads and Evaluation and Design Procedures" a new Section 304.4 to reference new standard ICC 1300-202X, *Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings*. Section 304.4 recognizes the standard and authorizes its use for owners, contractors, registered design professionals, and building officials where seismic retrofits may be desired. The new standard is also added to Chapter 16, Reference Standards. It is the general intent that voluntary seismic retrofit per ICC 1300 be permitted without triggering other requirements of the IEBC or the IRC, but discretion is left to the building official. A companion proposal provides a similar adoption of ICC 1300 into the IRC.

ICC 1300-202X is an optional design and construction standard that allows, under certain circumstances, one- and two-family dwelling units and townhouses to be assessed and retrofitted to provide a higher level of seismic resistance than structures built to legacy codes or prior to building codes being in effect. Damage assessments from earthquakes and application of modern seismic design standards and modeling techniques have shown hillside homes, crawl space homes, homes with living areas over garages, and brick masonry chimneys to be vulnerable to significant earthquake damage. Prestandard FEMA P-1100, *Vulnerability-Based Seismic Assessment and Retrofit of One- and Two-Family Dwellings*, developed by the Applied Technology Council, was used as the basis of the new ICC 1300 standard. Also included is the evaluation and retrofit of masonry chimneys.

As an ANSI accredited standards developing organization, the Code Council is developing New ICC 1300-202X. The Residential Seismic Assessment and Retrofit Standard Consensus Committee (IS-RSARC) has the primary responsibility for the development of minimum requirements to safeguard the public health, safety, general welfare by providing a methodology for the identification, evaluation and retrofit of specific known vulnerabilities for one- and two-family wood light-frame dwellings up to 2 stories in height located in Seismic Design Categories B through E. This includes the use of the best available seismic numerical modeling tools and engineering practices to assist in development of assessment methods and to identify retrofit criteria to best achieve targeted performance objectives. Use of the provisions is anticipated to improve earthquake performance but is not necessarily intended to prevent earthquake damage. IS-RSARC was appointed by the ICC Board of Directors in June 2020 and has primary responsibility for the development as an American National Standard. All standards development is subject to ICC's ANSI Approved Consensus Procedures. The development of the standard is currently ongoing. The first public ballot version is included with this proposal; the final version is anticipated to be available in late 2022, as required by ICC.

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 (FEMA P-1100), Federal Emergency Management Agency, Washington, D.C., 2018.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The code proposal does not increase nor decrease cost of construction, as the standard and the charging language is voluntary.

EB19-22

IEBC: 304.4 (New), [BS] 502.4, [BS] 502.5, 304.5 (New), [BS] 503.3, [BS] 503.4, [BS] 503.5, [BS] 503.6, [BS] 503.7, [BS] 503.8, [BS] 503.9, [BS] 503.10, [BS] 503.11, [BS] 503.12, [BS] 503.13, 304.6 (New), 506.5, 506.5.1, 506.5.2, 506.5.3, 506.5.4, SECTION 706, [BS] 706.1, [BS] 706.2, [BS] 706.3, [BS] 706.3.1, [BS] 706.3.2, SECTION 805, [BS] 805.1, [BS] 805.2, [BS] 805.3, [BS] 805.4, SECTION 906, [BS] 906.1, [BS] 906.2, [BS] 906.3, [BS] 906.4, [BS] 906.5, [BS] 906.6, [BS] 906.7, SECTION 1006, [BS] 1006.1, [BS] 1006.2, [BS] 1006.3, [BS] 1006.4, [BS] 1103.1, [BS] 1103.2, [BS] 1301.4.1

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] 905.4 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 Statement: 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

EB20-22

IEBC: 306.3, 306.3.1, 306.2

Proponents: Kevin Duerr-Clark, representing New York State Department of State (kevin.duerr-clark@dos.ny.gov); Chad Sievers, representing Department of State (chad.sievers@dos.ny.gov)

2021 International Existing Building Code

Revise as follows:

~~306.2~~ ~~306.3~~ General Maintenance and repair of facilities. A *facility* that is constructed or altered to be accessible shall be maintained accessible during occupancy. Required accessible means of egress shall be maintained during construction, demolition, remodeling or *alterations* and *additions* to any occupied building.

Exception: Existing means of egress need not be maintained where *approved* temporary means of egress and accessible means of egress systems and *facilities* are provided.

~~306.2~~ ~~306.3.1~~ Prohibited reduction in accessibility. An *alteration* 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* is prohibited. The number of accessible elements need not exceed that required for new construction at the time of *alteration*.

~~306.3~~ ~~306.2~~ Design. Buildings and *facilities* shall be designed and constructed to be accessible in accordance with this code and the *alteration* and *existing building* provisions in ICC A117.1, as applicable.

Reason Statement: In the last code cycle there were three proposals that modified Section 306.3, EB21, EB22, and EB23. However, when combining all three proposals together, the title for the section "Maintenance and repair," which was changed from "Maintenance of facilities," no longer fits all of the content and subsections that were added.

For example, the second sentence of the section discusses construction, demolition, remodeling or alterations and additions, and the new subsection discusses limitations on alterations specifically. This does not match the title of maintenance and repair.

This proposal moves the topic up to just after scope and renames the section to "General." This is more in-line with how other sections of code address sections that generally provide provisions on the main section topic. For example, see Section 1203 Fire Safety of the 2021 IEBC

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

This proposal rearranges the text to better layout the section to start with more general provisions and place the more specific maintenance requirement as a subsection therefore is not intended to change the cost of construction.

EB20-22

EB21-22

IEBC: 306.5

Proponents: David Renn, PE, SE, City and County of Denver, representing Code Change Committee of Colorado Chapter of ICC
(david.renn@denvergov.org)

2021 International Existing Building Code

Revise as follows:

306.5 Change of occupancy. ~~Where an existing~~Existing buildings that undergo ~~undergoes a change of occupancy~~change of group or occupancy ~~that includes alterations, such alterations~~ shall comply with Section 306.7.

Exception: ~~Type B dwelling or sleeping units required by Section 1108 of the International Building Code are not required to be provided in existing buildings and facilities undergoing a change of occupancy in conjunction with alterations where the work area is 50 percent or less of the aggregate area of the building.~~

Reason Statement: The current language of this section requires buildings with a change of occupancy to comply with Section 306.7, which only includes requirements for alterations. A change of occupancy, by definition, is not an alteration, so it is unclear what is intended by this section. A change of occupancy cannot comply with an alteration requirement unless there is also an alteration associated with the change of occupancy. Essentially, this section is moot as currently written since compliance with 306.7 is only applicable to alterations associated with the change of occupancy and is not applicable to the change of occupancy itself. Furthermore, alterations associated with a change of occupancy would have to comply with 306.7 whether there is a change of occupancy or not.

This proposal makes it clear that only alterations must comply with 306.7, not the change of occupancy. This is needed since some read the current language to imply that a change of occupancy should be treated as an alteration with an associated work area, which is incorrect and doesn't match the definition of work area that only includes reconfigured spaces. The exception to this section is proposed to be deleted since it only applies to a change of occupancy in conjunction with an alteration, and this is already covered by the alteration requirements in Section 306.7.4.

Please support this proposal to bring clarity to accessibility requirements (or lack thereof) for a change of occupancy.

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

This proposal will not change the cost of construction as it is simply a clarification of the accessibility requirements (or lack thereof) for a change of occupancy.

EB21-22

EB22-22

IEBC: 306.5

Proponents: China Clarke, representing NYS DOS Division of Building Standards and Codes (china.clarke@dos.ny.gov); Kevin Duerr-Clark, representing New York State Department of State (kevin.duerr-clark@dos.ny.gov)

2021 International Existing Building Code

Revise as follows:

306.5 Change of occupancy. *Existing buildings* that undergo a *change of occupancy* ~~change of group or occupancy~~ shall comply with Section 306.7.

Exception: Type B dwelling or sleeping units required by Section 1108 of the International Building Code are not required to be provided in *existing buildings* and *facilities* undergoing a *change of occupancy* in conjunction with *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

Reason Statement: In the last code cycle, all references to “group” were removed from the IEBC definition of “change of occupancy”, the definition was revised, and a definition for “change of use” was added (Code Change No: ADM 3-19 Part I). In light of those changes, the language of Section 306.5 of the 2021 IEBC no longer makes sense. The current use of the words “group or” in Section 305.4 implies that a “change of group” is something other than, or in addition to, a “change of occupancy,” but it is not. We propose to simplify the language of Section 306.5 of the IEBC by removing “group or” and italicizing “change of occupancy”.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This proposal is merely using the defined term “change of occupancy” and eliminates the term “Group” that is no longer used. The application of this section has not changed simply correlated more appropriately with a defined term.

EB22-22

EB23-22

IEBC: 306.6, 306.7, 306.7.3, 306.7.4, 306.7.10, 306.7.10.1, 306.7.10.2, 306.7.10.3

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

2021 International Existing Building Code

Revise as follows:

306.6 Additions. Where additions contain dwelling and sleeping units, the accessibility requirements shall apply only to the quantity of the dwelling or sleeping units in the addition. 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.

306.7 Alterations. A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of the International Building Code, ICC A117.1 and the provisions of Sections 306.7.1 through 306.7.16, unless *technically infeasible*. Where compliance with this section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.

1. The altered element or space is not required to be on an accessible route, unless required by Section .
2. Accessible means of egress required by Chapter 10 of the International Building Code are not required to be provided in existing *facilities*.
3. The *alteration* to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.
4. Type B dwelling or sleeping units required by Section 1107 of the International Building Code are not required to be provided in *existing buildings* and *facilities* undergoing *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

306.7.3 Alteration of Type A units. The *alteration* to Type A individually owned dwelling units within a Group R-2 occupancy shall be permitted to meet the provision for a Type B dwelling unit.

306.7.4 Type B units. Type B dwelling or sleeping units required by Section 1108 of the International Building Code are not required to be provided in *existing buildings* and *facilities* undergoing *alterations* where the *work area* is 50 percent or less of the aggregate area of the building.

Revise as follows:

306.7.10 Determination of number of units. Where Chapter 11 of the *International Building Code* requires Accessible, Type A or Type B units and where such units are being altered or added within an existing building, the number of Accessible, Type A and Type B units shall be determined in accordance with Sections 306.7.10.1 through 306.7.10.3.

306.7.10.1 Accessible dwelling or sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 dwelling or sleeping units are being altered or added within an existing building, the requirements of Section 1108 of the International Building Code for Accessible units apply only to the quantity of ~~spaces~~ dwelling or sleeping units being altered or added.

306.7.10.2 Type A dwelling or sleeping units. Where more than 20 Group R-2 dwelling or sleeping units are being altered or added within an existing building within an existing building, the requirements of Section 1108 of the International Building Code for Type A units apply only to the quantity of the ~~spaces~~ dwelling or sleeping units being altered or added.

306.7.10.3 Type B dwelling or sleeping units. ~~Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being added, the requirements of Section 1108 of the International Building Code for Type B units apply only to the quantity of the spaces being added.~~ Where Group I-1, I-2, R-1, R-2, R-3 or R-4 dwelling or sleeping units are being altered or added within an existing building and where the *work area* is greater than 50 percent of the aggregate area of the building, the requirements of Section 1108 of the International Building Code for Type B units apply only to the quantity of the ~~spaces~~ dwelling or sleeping units being altered or added.

Reason Statement: The intent of this proposal is to clarify where 'adding' units is for additions or for within existing buildings. With the current text change of occupancy for all or part of a building that converts from another use to apartments or hotel rooms could be interpreted as adding units, or an alteration.

The added sentence to Section 306.6 would clarify that only the dwelling units in the addition are considered for application of accessibility, not where the addition would now push the entire buildings to over 20 units (Type A) or 4 or more (Type B). This is consistent with FHA.

The text in the first sentence of Section 306.7.10.3 appears to addresses additions for Type B units in a section that is under alterations (306.7). The modification to Section 306.6 will address physical additions. Section 306.7.10.3 will address alterations and added units within existing buildings. This will also provide similar terminology for all three types – Accessible, Type A and Type B. This requirement exceed FHA. The current text for Accessible and Type A units is not clear if this is talking about additions; or units being added within an existing building where they did not exist before. The revised text in Sections 306.7.10, 306.7.10.1 and 306.7.10.2 would clarify that this section is for alterations, including a change of occupancy of part or all of a building.

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 proposal is merely trying to clear up the applicability of when Accessible units, Type A units and Type B units must be added. Clarification between additions to existing buildings and an addition of new units or alterations to existing units in the existing building is provided. This avoids counting units in the existing buildings inappropriately which will avoid requiring more Accessible Units, Type A units and Type Units than is required. The proposal is not intended as a technical change.

EB23-22

EB24-22

IEBC: 306.6.1 (New), 306.6.1.1 (New)

Proponents: Daniel Nichols, MTA Construction and Development, representing MTA Construction and Development (dnichols@mnrc.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 Statement: 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 exiting 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

EB25-22

IEBC: 306.7.1

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 Statement: 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

EB26-22

IEBC: 306.7.1

Proponents: Lee Kranz, representing Washington Association of Building Officials Technical Code Development Committee; Gene Boecker, representing self (geneb@codeconsultants.com); 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*. Priority shall be given to the improvements affecting the accessible route to the *primary function* area.

Exceptions:

1. The costs of providing the accessible route 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 Statement: The provisions of Section 306.7.1 are confusing and are not enforced in a consistent manner. Unless you've had ICC training on the topic, most people are not be able to discern what the intent of this section is or how it should be applied. This proposal is intended to provide guidance for building officials and designers to clearly state that the priority shall be given to the improvements affecting the *accessible route* to the *primary function* area over making other improvements such as updating restrooms and drinking fountains to become accessible. There is broad consensus that providing an accessible route to the primary function area is the most important aspect of this code section. It approved, this code change will create more consistent enforcement and accomplish the goal of allowing non-ambulatory occupants to access the areas of primary function being altered.

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

This code change will not affect the cost of construction. This proposal clarifies that the intent of this section is to give priority to improvements to the accessible route to the area of primary function over other improvements. The maximum 20% cost limitations will still apply.

EB26-22

EB27-22

IEBC: 306.7.7

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 Statement: 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

EB28-22

IEBC: 306.7.8

Proponents: Ardel Jala, Seattle Department of Construction & Inspections, representing Washington Association of Building Officials Technical Code Development Committee (ardel.jala@seattle.gov); Micah Chappell, representing Washington Association of Building Officials Technical Code Development Committee (micah.chappell@seattle.gov)

2021 International Existing Building Code

Add new text as follows:

306.7.8 Limited-use/Limited-application Elevators. Limited-use/Limited-application elevators installed in accordance with ASME A17.1 shall be permitted as a component of an accessible route.

Reason Statement: A Limited-use/Limited-application (LULA) elevator is a type of elevator often proposed as part of an accessible route in existing buildings. Technical requirements for LULAs can be found in ASME A17.1/CSA B44 Safety Code for Elevators and Escalators. In comparison to a commercial elevator; LULAs have smaller car sizes, smaller capacity, slower speeds and shorter rise. In comparison to a platform lift, a LULA provides greater capacity and faster speed. A LULA is more expensive than a platform lift but can cost less than a commercial elevator. Neither the IBC or IEBC currently provide guidance on where and when a LULA is accepted. Jurisdictions must look to other codes and guidelines to determine where a LULA is permitted. The Guide to the ADA Accessibility Standards explains criteria for elevators and platform lifts. Section 206.6 Required Compliance states: "In facilities not required to have an accessible route between stories or to mezzanines, a limited-use/limited-application (LULA) elevator is permitted. LULAs also are allowed as an alternative to platform lifts and private residence elevators." See: <https://www.access-board.gov/ada/guides/chapter-4-elevators-and-platform-lifts/>

Platform lifts are permitted as a component of an accessible route in an existing building or facility per IEBC Section 306.7.8. This proposal makes it clear that a LULA, given it is at least equivalent to a platform lift in function, should be allowed where and when a platform lift is allowed in an existing building or facility.

It has been argued that a LULA should be prohibited because it does not meet accessibility requirements. However ICC A117.1 Section 408 provides accessibility requirements for LULAs. Section 408 has requirements for the LULA elevator landing, door and car requirements. There are commercially available LULAs that meet the accessibility requirements of Section 408.

It has also been argued that a LULA is prohibited because it does not meet stretcher requirements. This proposal would not permit a LULA in an existing building where a stretcher sized elevator is required. Where there are multiple code provisions that apply, they all must be satisfied and the most restrictive applies when there is a conflict.

This proposal is appropriate to include in the IEBC and does not extend to new construction. This proposal is an extension of the flexibility that already exists in the IEBC for platform lifts.

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

This code change proposal permits use of a LULA where the IEBC already permits use of a platform lift. Use of a LULA over a platform lift is a voluntary increase over the base code requirement.

EB28-22

EB29-22

IEBC: 306.7.8

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

2021 International Existing Building Code

Revise as follows:

306.7.8 Platform lifts. Vertical and inclined platform (wheelchair) lifts installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.

Reason Statement: This code change is for clarification purposes only. The IEBC Commentary indicates that the term 'platform lift' is intended to include both vertical and inclined lifts so it should be stated that way in the code to eliminate the need for further research. Because ASME A18.1 covers three types of lifts (vertical and inclined lifts, and stairway chair lifts), the proposed language in Section 306.7.8 adds clarity for the reader as to what types of conveyances are allowed by this section of the code. It also reduces potential confusion whether IBC Section 1003.3.4 allows platform lifts to project into the required width of the stair while in operation, because this section is more specific than 1003.3.4, following the principle in Section 102.1 that more specific provisions govern over more general provisions. If approved, the proposed language will give building officials confidence that inclined lifts are permitted to be used as conveyances even though they protrude over the required width of the stair.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. This proposal is merely clarify the two types of lifts so further review of the standard is not necessary. Both types of lifts are already permitted so there are no substantive changes proposed so therefor no changes to the cost of construction are anticipated.

EB29-22

EB30-22

IEBC: 306.7.8

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:

306.7.8 Platform lifts. Platform (wheelchair) lifts installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route. Except as otherwise permitted by the International Building Code, wheelchair lifts in the stored position shall not encroach into the stairway width or obstruct access to handrails.

Reason Statement: Installing wheelchair lifts on existing stairways creates inclusion opportunities for those who would not otherwise be permitted to access rooms and areas on upper or lower floors. Unfortunately, they also have the potential to create conflicts for safe means of egress in existing buildings. This proposal intends to make it clear that wheelchair lifts, while permitted to be installed and used on existing stairways, are not allowed to be stored on the stairway width or create an obstruction for using handrails.

Some of the lifts we've seen extend as much as 16 inches out onto the stairway walking surface while in the stored position,. This would require occupants to let go of the handrail, go around the lift and then re-grasp the handrail once they get to the other side of the stored lift. This is dangerous and not permitted by IBC Section 1014.4 which states "Handrail gripping surfaces shall be continuous, without interruption by newel posts **or other obstructions.**" Approval of this code change will create consistency with IBC Section 1014.4. E73-21 was approved for inclusion in the 2024 IBC and will require handrails to be located within 6 inches of the edge of the stairway walking surface. If a wheelchair lift were allowed to be stored on the stairway, the potential reach could be as much as 22" which is not in compliance with this new provision (Section 1014.3) for the handrail reach limitation. We are aware of Exception #3 in Section 1011.2 of the 2021 International Building Code which specifically allows inclined platform lifts and stairway chair lifts in Group R-3 and individual dwelling units of Group R-2 to extend beyond the edge of the stairway so a reference has been added in our proposal to address this exemption. There is precedent for this language found in Section 302.4 of the 2021 IEBC.

Restricting the storage of wheelchair lifts on stairways will ensure safe use of stairways by maintaining continuity of the walking path and ergonomic use of handrails.

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

If approved, this code change will restrict the storage of wheelchair lifts on stairways so additional costs to design and construct alternate ways of storing the lift will most likely occur.

EB30-22

EB31-22

IEBC: 306.7.13, 306.7.14 (New)

Proponents: Marsha Mazz, representing United Spinal Association (mmazz@accessibility-services.com); Gene Boecker, representing self (geneb@codeconsultants.com); Gina Hilberry, representing United Cerebral Palsy (gina@cohenhilberry.com); Laurel Wright, representing Chair - A117.1 Adult Changing Table Subcommittee (lwwright8481@icloud.com)

2021 International Existing Building Code

306.7.13 Additional toilet and bathing facilities. In assembly and mercantile occupancies, where additional toilet fixtures are added, not fewer than one accessible family or assisted-use toilet room shall be provided where required by Section 1110.2.1 of the International Building Code. In recreational *facilities*, where additional bathing rooms are being added, not fewer than one family or assisted-use bathing room shall be provided where required by Section 1110.2.1 of the International Building Code.

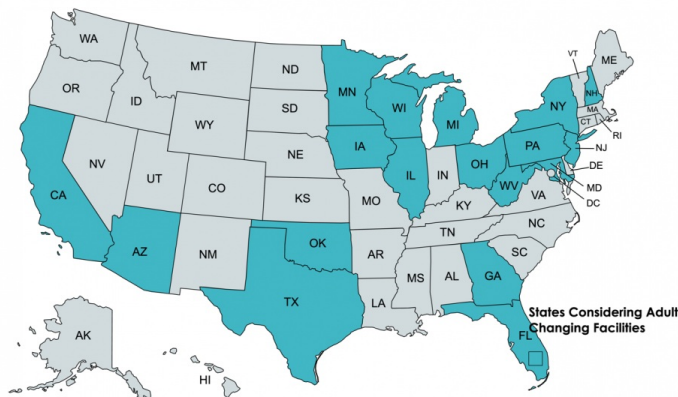
Add new text as follows:

306.7.14 Adult changing stations. Where additional toilet facilities are being added, in occupancies where adult changing stations are required by Section 1110.4.1 of the *International Building Code*, not fewer than one accessible family or assisted-use toilet room with an adult changing station shall be provided in accordance with Section 1110.4 of the *International Building Code*. The adult changing station shall be permitted to be located in an family or assisted-use toilet room or bathing room required by Sections 306.7.11, 306.7.12 or 306.7.13.

Reason Statement: The requirement for adult changing stations in large assembly, mercantile, college lecture halls and highway rest stops was added in the 2024 IBC by Code changes P37-21 Part 2(AMPC1), E141-21(AMPC1), E142-21 (AMPC1 & 2). In addition to the changing table, the room is required to have an accessible toilet and lavatory. This proposal is consistent with where family assisted use toilet rooms are required in the IEBC by Section 306.7.13. The last sentence makes it clear that both requirements can be met by the same toilet room.

An adult changing station contains a changing table large enough to accommodate an adult-sized person that is located in proximity to sanitary facilities, such as lavatories and trash disposal. Without such facilities, severely disabled people who cannot use toilets because of their disability suffer from severe isolation because they and their caregivers must return home to be changed. This lack of access has a profound impact not only on the person with a disability, but on their caregivers who are often their immediate family members. Normal activities outside the home such as shopping, entertainment, and travel must be curtailed because of a lack of safe and sanitary places to change. On occasion, caregivers report they have no option other than to change the adults for whom they care on restroom floors. Aside from the obvious sanitation concerns which is far from minimal, this practice raises serious questions about how we as a community afford people with significant disabilities a measure of human dignity and protect their right to privacy.

The ICC A117.1 is currently looking at proposals to the ICC A117.1 that will include the technical requirements for these tables. In order to address this problem, the ICC A117 committee established a task group to develop requirements for adult changing stations. The committee is expected to complete its work in March, 2021 - in time for consideration by the full committee for inclusion in the next edition of the standard which we expect to be available in time to be referenced by the 2024 IBC. The task group is comprised of committee members and interested parties - many of whom are parents of adult disabled children or who are caring for their parents. While these accommodations are not typically provided in any other type of occupancy, eleven airports, soon to be twelve, in the United States already voluntarily provide adult changing tables. Advocates for adult changing stations have had minimal success outside the code development process through state legislation, such as in California, Georgia, Canada, and the European Union. However, we believe that the building code is a far more appropriate vehicle for solving what amounts to a problem in the built environment and, we are convinced that a patchwork of state and local requirements is inefficient and presents unnecessary compliance challenges to building owners and managers.



Because there were two modifications to E142-21, a draft of the 2024 IBC for this section is included below.

1110.4 Adult Changing Stations. Where provided, adult changing stations shall be accessible. Where required, adult changing stations shall be accessible and shall comply with sections 1110.4.1 through 1110.4.4.

1110.4.1 Where required. At least one adult changing station shall be provided in all the following locations:

1. In assembly and mercantile occupancies, where family or assisted-use toilet or bathing rooms are required to comply with Section 1110.2.1.
2. In Group B occupancies providing educational facilities for students above the 12th grade, where an aggregate of twelve or more male and female water closets are required to serve the classrooms and lecture halls.
3. In Group E occupancies, where a room or space used for assembly purposes requires an aggregate of six or more male and female water closets for that room or space.
4. In highway rest stops and highway service plazas.

1110.4.2 Room. Adult changing stations shall be located in toilet rooms that include only one water closet and only one lavatory. Fixtures located in such rooms shall be included in determining the number of fixtures provided in an occupancy. The occupants shall have access to the required adult changing station at all times that the associated occupancy is occupied.

Exception: Adult changing stations shall be permitted to be located in family or assisted toilet rooms required in Section 1110.2.1.

1110.4.3 Prohibited location. The accessible route from separate-sex toilet or bathing rooms to an accessible adult changing station shall not require travel through security checkpoints.

1110.4.4 Travel distance. The adult changing station shall be located on an accessible route such that a person is no more than two stories above or below the story with the adult changing station and the path of travel to such facility shall not exceed 2000 feet.

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

There will be the cost of a changing table and the increase in room size. We have made every attempt to minimize costs by piggy backing on the existing requirements for family or assisted-use toilet rooms.

EB31-22

EB32-22

IEBC: SECTION 308, 308.1

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

SECTION 308 CARBON MONOXIDE DETECTION

Revise as follows:

308.1 Carbon monoxide detection. Where an *addition, alteration, change of occupancy* or relocation of a building is made to an existing building ~~Group I-1, I-2, I-4 and R occupancies and classrooms of Group E occupancies~~, the *existing building* shall be provided with carbon monoxide detection in accordance with the International Fire Code or Section R315 of the *International Residential Code*.

Exceptions:

1. Work involving the exterior surfaces of buildings, such as the replacement of roofing or siding, the addition or replacement of windows or doors, or the addition of porches or decks.
2. Installation, alteration or *repairs* of plumbing or mechanical systems, other than fuel-burning appliances.
3. Work classified as Level 1 *Alterations* in accordance with Chapter 7.
4. Carbon monoxide detection is not required in each sleeping unit where carbon monoxide detection, which transmits an alarm signal to an approved location, is provided in each space containing a carbon monoxide source.

Reason Statement: The change to the first paragraph in Section 308.1 to make this section consistent with the actions taken on Group A on F102-21 and F116-21 which broadened the requirements for CO detection to all occupancies that present a CO hazard.

Regarding the addition of Exception 4, the revised text in F102-21 and F116-21 expands the CO source to include stoves and fireplaces, not just fuel fired appliances. The Healthcare committee identified that this would require CO detectors in every sleeping unit in hospitals and nursing homes that had a CO source in the building, such as a gas stove or a fireplace, no matter how far away the sleeping rooms were from the CO source. The 2024 IBC/IFC exceptions for CO detectors in the room where the source is located is only for furnaces.

This is also a concern for other occupancies, such as jails, dorms or hotels. Since these locations are outside the scope of the Healthcare committee, the Healthcare committee worked with BCAC and FCAC to expand this proposal. The committees will work together next cycle to address this concern in the IBC/IFC.

Since the 2024 IBC/IFC is not yet available, the following 2024 draft is provided to show the concern. F102 -21 had an extensive public comment. The revisions to the current text would read as follows:

CARBON MONOXIDE SOURCE. A piece of commonly used equipment or permanently installed appliance, fireplace or process that produces or emits carbon monoxide gas.

915.1.1 Where required. Carbon monoxide detection shall be ~~installed provided in Group I-1, I-2 and I-4, and R occupancies~~ in the locations specified in Section 915.2 where any of the following conditions in Sections 915.1.2 through 915.1.6 exist.

1. In buildings that contain a CO source.
2. In buildings that contain or are supplied by a CO producing forced-air furnace
3. In buildings with attached private garages
4. In buildings that have a CO producing vehicle that is used within the building.

915.2 Locations . ~~Where required by Section 915.1.1, carbon~~ Carbon monoxide detection shall be installed in the locations specified in Sections 915.2.1 through 915.2.6 ~~915.2.3.~~

915.2.2 Sleeping units. Carbon monoxide detection shall be installed in *sleeping units*.

Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of

the *sleeping unit* where the *sleeping unit* or its attached bathroom does not contain a ~~fuel-burning appliance~~ CO source and is not served by a carbon monoxide producing forced-air furnace.

915.2.4 CO producing forced-air furnace. Carbon monoxide detection, complying with Item 2 of Section 915.1.1 shall be installed in all enclosed rooms and spaces served by a fuel-burning, forced-air furnace.

Exceptions:

1. Where carbon monoxide detector is provided in the first room or space served by each main duct leaving the furnace, and the carbon monoxide alarm signals are transmitted to an approved locations.
2. Dwelling units that comply with Section 915.2.1.

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 increase the cost of construction

This proposal is merely providing consistency with F102-21 and F116-21 which will in fact increase costs since it now requires CO detection more broadly across more occupancies types based upon the presence of CO sources. Without consistency with the revisions in the IBC and IFC will create confusion and difficulty in enforcement. The exception will help to reduce costs as it will allow the CO source for occupancies that have sleeping units to detect for CO at the source rather than in each sleeping unit or in each corridor in the area of sleeping units.

EB32-22

EB33-22

IEBC: 309.2.1 (New)

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 Statement: 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

EB34-22

IEBC: SECTION 202 (New), SECTION 310 (New), 310.1 (New), ASTM Chapter 16 (New), UL Chapter 16 (New)

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 (15.9 m) 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 m) 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

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

Reason Statement: 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.

EB34-22

EB35-22

IEBC: 401.2

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:

401.2 Compliance. The work shall not make the building less complying than it was before the *repair* was undertaken. 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 requirements for alterations.

Reason Statement: 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 clarification that work needed to facilitate repairs should not be considered an alteration project is added to Section 401.2. This provision was previously in 2015 IEBC Sections 404.1 and 502.3, excerpted below for reference. The wording proposed here is essentially identical.

For reference, here is the text of 2015 IEBC Sections 404.1 and 502.3:

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.

502.3 Related work. **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 provisions of Chapter 7, 8, 9, 10, or 11.

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

The proposal should not change the cost of any construction because it merely reflects a common understanding that was in the IEBC until it was inadvertently removed in 2018. If anything, the proposal could reduce the cost of some repairs if code officials are interpreting the current code differently.

EB35-22

EB36-22

IEBC: 401.4 (New)

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 Statement: 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 IEBC 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 IEBC 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 IEBC 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 IEBC 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 IEBC'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

EB37-22

IEBC: 401.1

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 Statement:

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

EB38-22

IEBC: [BS] 405.1

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:

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

Reason Statement: 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 wording of Section 405.1 is restored to the wording from 2015 IEBC Section 404.1, excerpted below for reference. This subtle change clarifies that structural damage must actually be repaired. Without it, one could argue that Sections 405.1, 405.2, and 405.2.1 merely *allow* restoring of the pre-damage condition but do not actually require repair unless there's *substantial structural damage*. 2015 Section 404.1 applied generally, but we are proposing this change only to the structural section where the potential confusion is most likely.

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 clarifies the existing provision, reflecting the most common interpretation, which was explicit in the IEBC until an inadvertent change in the 2018 edition, which has only been enforced in most jurisdictions for at most two years.

EB38-22

EB39-22

IEBC: [BS] 405.1, 405.1.1 (New), ACI (New), (New)

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 (BHorner@ndtcorporation.com); Dave Tepke, representing SKA Consulting Engineers, Inc. (dgtepk@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

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.

Reason Statement: 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."

EB39-22

EB40-22

IEBC: 405.2.1 (New)

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 Statement: 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

EB41-22

IEBC: [BS] 405.2.3.1, [BS] 405.2.3.3, [BS] 405.2.4

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] 405.2.3.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *code official*. The evaluation shall establish whether the damaged building including its foundation, if repaired to its predamage state, would comply with the provisions of the *International Building Code* for load combinations that include wind or earthquake effects, except that the seismic forces shall be the reduced seismic forces.

[BS] 405.2.3.3 Extent of repair for noncompliant buildings. If the evaluation does not establish that the building in its predamage condition complies with the provisions of Section 405.2.3.1, then the building shall be retrofitted to comply with the provisions of this section. The portion of the foundation supporting damaged elements shall be shown to comply with or altered to comply with the provisions of this section. The wind loads for the *repair* and *retrofit* shall be those required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be in accordance with the *International Building Code*. The seismic loads for this *retrofit* design shall be those required by the building code in effect at the time of original construction, but not less than the reduced seismic forces.

[BS] 405.2.4 Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions for dead, live and snow loads in the *International Building Code*. The portion of the foundation supporting damaged elements shall be shown to comply with or altered to comply with the provisions of this section. Undamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated if required to comply with the design loads of the *rehabilitation* design.

Reason Statement: Where structures have been extensively damaged and require repair, the building codes are silent on questions regarding reuse of existing foundations. Just as structural integrity of the superstructure depends on the original design and condition prior to being damaged, so does the structural integrity of the foundation depend on the same.

This proposal requires the affected portion of the foundation system to be included in the scope of the structural evaluation of the building. Just like the superstructure, if the foundation is found to be compliant and undamaged, no upgrades or repairs are required.

It provides a false sense of security in the structural integrity of the building to require the repaired superstructure to conform to current building code requirements if the foundation is unable to transfer the structure reactions at the soil-structure interface.

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

EB41-22

EB42-22

IEBC: [BS] 405.2.4

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] 405.2.4 Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained *substantial structural damage* shall be ~~rehabilitated~~ retrofitted to comply with the applicable provisions for dead, live and snow loads in the *International Building Code*. Undamaged gravity load-carrying components that receive dead, live or snow loads from ~~rehabilitated~~ retrofitted components shall also be ~~rehabilitated~~ retrofitted if required to comply with ~~the these~~ design loads ~~of the rehabilitation design~~.

Reason Statement: This is an editorial change intended to replace the use of the all-encompassing terms *rehabilitation* and "rehabilitated" with the more specific terms "retrofit" and "retrofitted" to be consistent with the other sub-sections in Section 405.2.

The term *repair* is defined in Chapter 2 as "The reconstruction, replacement or renewal of any part of an *existing building* for the purpose of its maintenance or to correct damage." The term *addition* is defined as "An extension or increase in floor area, number of stories, or height of a building or structure." And *alteration* is defined as "any construction or renovation to an *existing structure* other than a *repair* or *addition*."

The IEBC goes to some effort to keep the possible categories of actions regarding modification of existing buildings simple: actions are either repairs, additions, or alterations.

Rehabilitation, on the other hand, is defined in Chapter 2 as "Any work, as described by the categories of work defined herein, undertaken in an *existing building*" -- or basically any permitted work done to an existing building. Yet there are only three sections of the IEBC that actually use this term; Sections 104.2.1, 115.5, and 405.2.4.

This proposal only deals with Section 405.2.4. In Section 405.2.4, the word *rehabilitation* (or the related word "rehabilitated") is used as a synonym for "retrofit" or "retrofitted". The other code upgrade triggers in this section use the word "retrofit" and eschew the word "rehabilitation". For example, Section 405.2.3 requires that buildings that exceed this component of substantial structural damage trigger be "repaired and retrofitted", and it contains two exceptions that eliminate the need to "retrofit" in certain circumstances. Similarly, Sections 405.2.3.3 and 405.2.5 also contain the word "retrofitted" and do not use the term "rehabilitation" or "rehabilitate". Even Section 405.2.4.1 and its associated exceptions (which are themselves subparts of Section 405.2.4) only use the word "retrofit" and do not use the term "rehabilitation".

It is thus clear that the terms *rehabilitation* and "rehabilitated" in Section 405.2.4 are being used as synonyms for "retrofit" or "retrofitted" (or "strengthened") and not in the all-encompassing (and consequently less meaningful) manner of the definition of *rehabilitation*. To provide more consistent wording in all of the structural upgrade trigger provisions in Section 405.2, this proposal replaces the few instances of "rehabilitation" and "rehabilitated" in this section with the more specific terms "retrofit" and "retrofitted."

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

This is strictly an editorial change that does not change the scope or reach of the IEBC. Rather, it is intended to replace a general and less specific term with a more specific term that is used in adjacent subsections and even in subsections of the provision in question..

EB42-22

EB43-22

IEBC: SECTION 406, 406.1, 406.1.1 (New), 406.1.1, 406.1.2, 406.1.3, 406.1.4, 406.1.5

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

2021 International Existing Building Code

SECTION 406 ELECTRICAL

Revise as follows:

406.1 Material-General. ~~Repairs to existing~~ Existing electrical wiring and equipment ~~undergoing repair~~ shall be ~~allowed to be repaired or replaced with like material~~ in accordance with NFPA 70.

Add new text as follows:

406.1.1 Reconditioned Electrical Equipment. Reconditioned electrical equipment shall comply with NFPA 70. Electrical equipment prohibited from being reconditioned by the applicable sections of NFPA 70 shall not be reconditioned.

Delete without substitution:

406.1.1 Receptacles. ~~Replacement of electrical receptacles shall comply with the applicable requirements of Section 406.4(D) of NFPA 70.~~

406.1.2 Plug fuses. ~~Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of over fusing or tampering per applicable requirements of Section 240.51(B) of NFPA 70.~~

406.1.3 Nongrounding-type receptacles. ~~For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system or to any accessible point on the grounding electrode conductor in accordance with Section 250.130(C) of NFPA 70.~~

Revise as follows:

406.1.4 406.1.2 Health care facilities. Portions of electrical systems being repaired in Group I-2, ambulatory care *facilities* and outpatient clinics shall comply with NFPA 99 requirements for *repairs*.

Delete without substitution:

406.1.5 Grounding of appliances. ~~Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Section 250.140 of NFPA 70.~~

Reason Statement: The 2020 National Electrical Code (NEC) was revised to include requirements for reconditioned electrical equipment. Numerous sections were added to identify whether a specific piece of electrical equipment was suitable to be reconditioned. Not all electrical equipment is suitable to be reconditioned, rebuilt or remanufactured due to its design features or critical role in electrical safety. For example, a molded case circuit breaker by design is not able to be opened and reconditioned. Molded case circuit breakers that are subjected to flood or fire damage can't be reconditioned and must be replaced. The 2020 NEC includes requirements for specific equipment that cannot be reconditioned, such as molded case circuit breakers.

This proposal is intended to update the requirements in the IEBC to match that of the current edition of NFPA 70 the NEC. Section 406.1 was modified to include a reference to NFPA 70 for reconditioning. A new section 406.1.1 was added to clarify what equipment can be reconditioned and to identify the requirements that reconditioned electrical equipment be specifically marked in accordance with Section 110.21(A)(2) of NFPA 70.

The existing Sections 406.1.1, 406.1.2, 406.1.3 and 406.1.5 were deleted since these sections were repeats of requirements found in NFPA 70. There are differences between the requirements as written in the 2020 NEC and the existing sections in the IEBC. The requirements found in the sections are best left in NFPA 70. Additionally, the existing Section 406.1.4 was renumbered to 406.1.2 and left since this section references NFPA 99 for health care facilities.

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 proposal will provide direction to the appropriate existing requirements for repair and reconditioning of electrical systems. The current provisions were not aligned with NFPA 70. These revisions simply makes the requirements consistent for enforcement and will not increase costs.

EB43-22

EB44-22

IEBC: 502.1, 503.1

Proponents: Michael Fillion, representing National Council of Structural Engineers Associations (mrf.structure@verizon.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*, unless explicitly permitted elsewhere in this section. An *existing building* together with its *additions* shall comply with the height and area provisions of Chapter 5 of the International Building Code.

503.1 General. *Alterations* to any building or structure shall comply with the requirements of the *International Building Code* for new construction. *Alterations* shall be such that the *existing building* or structure is not less complying with the provisions of the *International Building Code* than the *existing building* or structure was prior to the *alteration*, unless explicitly permitted elsewhere in this section.

Reason Statement: Clarifies requirements for structural alterations based on 2018 SEAOC survey. Reference Survey Question 4, associated results, and discussion in the attached conference paper (Zepeda et al, 2019). Code is not clear on how to evaluate whether the building is considered "less complying."

Revisions made by this proposal intend to clarify that the triggers for requiring structural upgrades are as defined in these sections for additions and alterations, with applicable exceptions, and that this statement is not the a trigger in itself.

<https://www.cdpassess.com/proposal/8703/25651/files/download/3153/>

Bibliography: Zepeda, D., Hagen, G., O'Connell, K., McLellan, R., Buckalew, J., and Sumer, A., "Existing Buildings and the "10% Rule": Survey Results, Opinions, and Recommendations." 2019 SEAOC Convention Proceedings (pp. 116-147), Sacramento, CA: Structural Engineers Association of California.

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

The intent of this code change proposal is for clarification. As it does not change the intent of the code, it will not increase or decrease the cost of construction.

EB44-22

EB45-22

IEBC: 502.1, 1102.2, 1102.3, 1301.2.3

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 Statement: 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.

EB46-22

IEBC: 502.1, CHAPTER 11, SECTION 1101, 1101.1, 1101.2, 1101.3, 1101.4, 1101.5 (New), 1301.2.3

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 Statement: 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.

EB47-22

IEBC: 502.1.1 (New), 1101.3 (New)

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 Statement: 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

EB48-22

IEBC: 502.1.1 (New), 1101.2

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 Statement: 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

EB50-22

IEBC: SECTION 202 (New), [BS] 502.3, [BS] 1103.3, [BS] 1301.3.3

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 Statement: 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

EB51-22

IEBC: [BS] 502.3, [BS] 1103.3

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

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 new foundations, foundations raised or extended in the vertical, and replacement foundations, the foundations shall be in 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.

[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.
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.~~
45. For a new foundation, or replacement foundation, or a foundation raised or extended in the vertical, the foundation shall comply with Section 1612 of the International Building Code, or Section R322 of the International Residential Code, as applicable.

Reason Statement: Whether an existing building will have a new foundation, replacement foundation, or a foundation that is raised or extended in the vertical, the construction process is generally the same: the building must be detached from the existing foundation and jacked up to allow the foundation work to proceed. Then, after the foundation work is complete, the building is lowered and structurally attached to the foundation. The costs to detach the building, jack it up, and lower and attach it to the foundation, do not change significantly based on how tall the new foundation will be.

The existing provisions in Section 502.3 and Section 1103.3 allow a building in a flood hazard area to remain below the required elevation (and possibly on an incompatible foundation type) if the work is determined to not constitute substantial improvement (a defined term). If a foundation is already being raised or extended in the vertical, it should be raised to the same elevation required for new construction in flood hazard areas. The I-Codes define "addition" to include an increase in height, which is why foundation work is included in IEBC Sec. 1103.3 and why the proposed change amends a section in Chapter 5 Additions.

When owners of buildings in flood hazard areas have already decided to invest in this type of extensive work, having the final foundation be resistant to identified flood conditions and flood loads is appropriate to protect that investment, as well as the investment in and safety of the building itself. The incremental cost of adding additional height to a foundation that is already being replaced or raised or extended in the vertical is offset by the benefits of lower risk of flood damage and lower NFIP flood insurance policy premiums which are, in part, a function of elevation.

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

A change in cost would only occur for buildings in flood hazard areas that are already having their foundations raised or extended in the vertical, and then only if those foundations need to be higher to meet the elevations specified in ASCE 24 (which requires at least base flood elevation plus one foot). The code change proposal requires foundations that are raised or extended in the vertical to comply with flood resistant requirements, regardless of whether the cost of the work triggers the substantial improvement requirement. This type of project involves extensive work, with the majority of costs associated with the work elements other than the foundation construction. Because an owner proposing to raise, extend, or replace a foundation is already willing to incur those costs for foundations at lower heights, any additional costs are only those for added height to reach the elevation required by the Code. The per-foot cost of additional height is a function of the additional height and of the type of foundation, which typically are columns or perimeter walls.

FEMA manages a number of mitigation grant programs that fund elevation-in-place projects in flood hazard areas. Using cost sheets for two FEMA funded projects to elevate homes on concrete columns and CMU skirting (one smaller footprint but higher elevation, the other larger footprint but lower elevation), the foundation-only costs per additional foot of height average 2.3% of the total elevation projects. In a 2018 review of the per-foot cost for adding height to the foundation of a 2000 square foot light framed construction building (dwelling), FEMA estimated the cost per additional foot was \$2144 (concrete perimeter wall with interior piers) and \$1,850 (CMU perimeter wall with interior piers).

Offsetting benefits of having raised or extended foundations fully comply include long-term damage avoided. Also, flood insurance policies written by the National Flood Insurance Program may be reduced because the rating is based, in part, on the elevation of the top of the lowest floor.

EB51-22

EB52-22

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)

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 Statement: 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

EB53-22

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

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

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 ~~the most critical gravity load combination 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 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 ~~the most critical gravity load combination 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] 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 ~~the most critical gravity load combination 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] 805.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in ~~the most critical gravity load combination 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] 1103.1 Additional gravity loads. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in the ~~most critical gravity load combination 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*.

Reason Statement: This proposal intends only to clarify the existing provisions that were made a bit harder to follow in the 2018 IEBC when the structural provisions were made more uniform across the different IEBC compliance methods in code change proposals EB15-16 and EB18-16. The 2015 IEBC states "...an increase in design gravity load..." and this change returns to this type of approach and extends the approach to the critical gravity load combination. This design methodology using the critical load combination is used by the "Wind Design Manual Based on the 2018 IBC and ASCE/SEI 7-16 Examples for Wind Forces on Buildings and Solar Photovoltaic Systems" that is jointly published by SEAOC, NCSEA, and ICC. This controlling load combination methodology is also the most widely used form of showing compliance in the structural design industry, yet currently is not code compliant.

The current wording tried to clarify what was meant by gravity load, but only included some of the many possible sources of gravity load and missed critical ones such as rain, ice, and fluid loads. Additionally, the current wording introduced an unfortunate "or" when listing the gravity load types. This caused an increased dead load of 1.1psf on a 20psf dead load roof to need to meet the current IBC, when that roof may have been designed to support heavy snow loads that dwarf its dead load which undoes the purpose of this 5% rule. This heavily influenced the placement of photovoltaic panels on existing light roofs as their new dead load is almost always an increase in the roof dead load of more than 5% but is not more than 5% of the controlling load combination due to the offset roof live load where snow loads are low, unless those panels are ballasted.

This change is still imperfect as many of the load combinations of the IBC include both lateral loads and gravity loads being applied simultaneously, but this imperfection is necessary so long as different IEBC sections for gravity and lateral loads are maintained with different thresholds. A more precise approach could be to identify exactly what load combinations are considered gravity and which are considered lateral, but this would greatly increase the complexity of the IEBC.

This proposal also removes the unnecessary wording about snow drifts. Those drifts are simply part of the snow load. Going into detail about how snow loads are to be applied gives the impression that details about other types of loads are OK to be ignored - such as live load reductions.

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

The intent of the code section does not change as part of this proposal so there should not be an increase in the cost of construction. However, if the code section was being interpreted to apply to small increases in dead load only the cost of construction could decrease and if the code section was being interpreted to not apply to rain, fluid, and ice loads the cost could increase.

EB54-22

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

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

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, of more than 5 percent shall be analyzed and then if necessary 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, of more than 5 percent shall be analyzed and then if necessary 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] 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 analyzed and then if necessary 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, of more than 5 percent shall be analyzed and then if necessary 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] 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 analyzed and then if necessary 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 Statement: This proposal does two things:

1. It clarifies that an analysis of the existing structural members only needs to take place after the loading has passed the 5% threshold.
2. It clarifies that analysis methods of the existing structural members should follow the IBC, specifically section 1604.4 to capture the principles of engineering mechanics.

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

This proposal will likely decrease the cost of construction by placing the structural analysis requirements of existing members after the 5% rule. If existing structural analysis methods used do not meet the IBC analysis requirements then this proposal could increase the cost of construction.

EB54-22

EB55-22

IEBC: [BS] 502.4, [BS] 502.5, [BS] 1103.1, [BS] 1103.2

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, 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: Horizontal additions to buildings ~~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 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. Horizontal additions to buildings ~~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] 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: Horizontal additions to buildings ~~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. Horizontal additions to buildings ~~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.

Reason Statement: This proposal limits the use of exceptions for small Group R occupancies to horizontal additions only. Vertical additions and the increased loads they impose on the existing supporting structure are beyond the scope of both the IRC or the light-frame construction methods (2308) section of the IBC. Neither the IRC or IBC 2308 include prescriptive direction on how to evaluate or alter existing elements for the increased loads, which leads the user back to the IEBC for guidance.

Prescriptive provisions in both IBC 2308 and the IRC are written for use with new construction. Under a vertical addition, the existing structure is required to support increased gravity loads from the material dead load of the addition and from live loads imposed by use of the addition. Shear loads on shear walls/braced wall lines will increase:

- 1) Under wind loading due to the larger surface area presented by the taller structure height
- 2) Under seismic loading due to the increased mass from the material dead load of the addition.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. The intent of the proposal is to direct the user to the appropriate code when considering vertical additions.

EB55-22

EB56-22

IEBC: 502.5 (New), 1101.4 (New)

Proponents: John Williams, representing Committee on Healthcare (ahc@iccsafe.org)

2021 International Existing Building Code

Add new text as follows:

502.5 Smoke Barriers in Group I-1, Condition 2. Where an addition to an existing Group I-1, Condition 2 building adds sleeping areas that result in more than 50 care recipients on a story, smoke barriers shall be provided to subdivide such story into not fewer than two smoke compartments in accordance with Section 420.6 of the International Building Code.

Exception: Where the existing building is divided into smoke compartments, and the addition does not result in any individual smoke compartment exceeding the size and travel distance requirements in Section 420.6 of the International Building Code, additional smoke barriers are not required.

1101.4 Smoke Barriers in Group I-1, Condition 2. Where an addition to an existing Group I-1, Condition 2 building adds sleeping areas that result in more than 50 care recipients on a story, smoke barriers shall be provided to subdivide such story into not fewer than two smoke compartments in accordance with Section 420.6 of the International Building Code.

Exception: Where the existing building is divided into smoke compartments, and the addition does not result in any individual smoke compartment exceeding the size and travel distance requirements in Section 420.6 of the International Building Code, additional smoke barriers are not required.

Reason Statement: The intent of this proposal is to clarify what is required where an existing Group I-1, Condition 2 has an addition. It is not reasonable for a small addition to trigger a major renovation to create smoke compartments (IBC Section 420.6). This code change adds clarification for when smoke compartments are required to be added to existing Group I-1, Condition 2 buildings when being expanded with an addition. Many Group I-1 occupancy buildings, built prior to 2015, were not required to have smoke compartments. This code change triggers requirements to add smoke barriers to those buildings once a story reaches a certain size; sleeping rooms for 50 care recipients. The trigger for 50 care recipients is consistent with Section 420.6 of the *IBC* for new Group I-1 Conditions 2. This requirement does not address additions of other uses. Either the number of care recipients is not be increased in the facility, or the addition is large enough that new construction requirements would apply.

The exception clarifies that this only applies to buildings that do not already have smoke compartmentalization, and only if those additions expand the compartment size beyond the thresholds set by Section 420.6 of the *International Building Code*.

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 increase the cost of construction

This proposal would potentially require smoke compartments to be constructed where the addition to an existing Group I-1, Condition 2 would result in more than 50 care recipients on a story. The exception provides some relief where existing smoke compartments still comply including the addition. Overall this section triggers the need for smoke compartments in existing buildings that was not required in the 2021 IEBC.

EB56-22

EB57-22

IEBC: [BS] 502.5, [BS] 503.4, [BS] 805.3, [BS] 1103.2

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] 502.5 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. Altered existing elements shall not be required to meet detailing requirements of the International Building Code.

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*.

[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. Altered existing elements shall not be required to meet detailing requirements of the International Building Code.

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] 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. Altered existing elements shall not be required to meet detailing requirements of the International Building Code.

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] 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. Altered existing elements shall not be required to meet detailing requirements of the International Building Code.

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.

Reason Statement: Clarifies requirements for structural alterations based on 2018 SEAOC survey. Reference Survey Question 15, associated results, and discussion in the attached conference paper (Zepeda et al, 2019). Code is not clear about detailing requirements for altered existing structural elements as opposed to newly added structural elements.

Revisions made by this proposal intend to clarify that only **materials** are required to meet IBC requirements where existing structural elements are altered, whereas both **materials and detailing** must meet IBC requirements newly added structural elements.

<https://www.cdpassess.com/proposal/8703/25651/files/download/3153/>

Bibliography: Zepeda, D., Hagen, G., O'Connell, K., McLellan, R., Buckalew, J., and Sumer, A., "Existing Buildings and the "10% Rule": Survey Results, Opinions, and Recommendations." 2019 SEAOC Convention Proceedings (pp. 116-147), Sacramento, CA: Structural Engineers Association of California.

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

The intent of this code change proposal is for clarification. As it does not change the intent of the code, it will not increase or decrease the cost of construction.

EB58-22

IEBC: [BS] 502.5, [BS] 503.4, [BS] 805.3, [BS] 1103.2

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

2021 International Existing Building Code

Revise as follows:

[BS] 502.5 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 governing 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*.

[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 governing 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] 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 governing 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] 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 governing 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.

Reason Statement: Clarifies requirements for structural alterations based on 2018 SEAOC survey. Reference Survey Questions 8, associated results, and discussion in the attached conference paper (Zepeda et al, 2019). Limiting changes in demand-capacity ratios of every action of every element (whereby element may be interpreted by some as coupled walls or beam-column systems) in 3D computer models can lead to unintended retrofit requirements at times where changes in relative demand do not directly affect performance. For example, a 10% change in small shear demands in a steel column controlled by flexure should not be the target of these provisions.

Revisions made by this proposal intend to clarify that the 10% threshold should apply to the controlling (governing) action.

<https://www.cdpassess.com/proposal/8703/25651/files/download/3153/>

Bibliography: Zepeda, D., Hagen, G., O'Connell, K., McLellan, R., Buckalew, J., and Sumer, A., "Existing Buildings and the "10% Rule": Survey Results, Opinions, and Recommendations." 2019 SEAOC Convention Proceedings (pp. 116-147), Sacramento, CA: Structural Engineers Association of California.

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

The intent of this code change proposal is for clarification. As it does not change the intent of the code, it will not increase or decrease the cost of construction.

EB58-22

EB59-22

IEBC: [BS] 502.5, [BS] 503.4, [BS] 805.3, [BS] 1103.2

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] 502.5 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. For the purpose of evaluating cumulative effects, original construction shall be permitted to alternatively refer to a time at which the structure was demonstrated to be in conformance by evaluation or upgrade to meet new building performance objectives which are substantially equivalent to that required by the International Building Code, at the time of the upgrade.
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*.

[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. For the purpose of evaluating cumulative effects, original construction shall be permitted to alternatively refer to a time at which the structure was demonstrated to be in conformance by evaluation or upgrade to meet new building performance objectives which are substantially equivalent to that required by the International Building Code, at the time of the upgrade.
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] 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. For the purpose of evaluating cumulative effects, original construction shall be permitted to alternatively refer to a time at which the structure was demonstrated to be in conformance by evaluation or upgrade to meet new building performance objectives which are substantially equivalent to that required by the International Building Code, at the time of the upgrade.

[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. For the purpose of evaluating cumulative effects, original construction shall be permitted to alternatively refer to a time at which the structure was demonstrated to be in conformance by evaluation or upgrade to meet new building performance objectives which are substantially equivalent to that required by the International Building Code, at the time of the upgrade.

Reason Statement: Clarifies requirements for structural alterations based on 2018 SEAOC survey. Reference Survey Questions 11 and 12, associated results, and discussion in the attached conference paper (Zepeda et al, 2019). Questions were raised over whether buildings that were determined to meet new building code performance objectives of a more recent building code either by evaluation or full retrofit could have the "clock restart" on cumulative alterations.

Revisions made by this proposal intend to clarify that the time of completion of a full evaluation or retrofit to new building code requirements may be considered the time of original construction for the purposes of the cumulative effects of additions and alterations.

<https://www.cdpassess.com/proposal/8703/25651/files/download/3153/>

Bibliography: Zepeda, D., Hagen, G., O'Connell, K., McLellan, R., Buckalew, J., and Sumer, A., "Existing Buildings and the "10% Rule": Survey Results, Opinions, and Recommendations." 2019 SEAOC Convention Proceedings (pp. 116-147), Sacramento, CA: Structural Engineers Association of California.

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

The intent of this code change proposal is for clarification. As it does not change the intent of the code, it will not increase or decrease the cost of construction.

EB59-22

EB60-22

IEBC: [BS] 502.5, [BS] 503.4, [BS] 805.3, [BS] 1103.2

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] 502.5 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. A nonlinear analysis shall be permitted to be used to evaluate the change in demand-capacity ratio using the same analysis procedure with and without the alteration considered.
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*.

[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. A nonlinear analysis shall be permitted to be used to evaluate change in demand-capacity ratio using the same analysis procedure with and without the alteration considered.
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] 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. A nonlinear analysis shall be permitted to be used to evaluate change in demand-capacity ratio using the same analysis procedure with and without the alteration considered.

[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. A nonlinear analysis shall be permitted to be used to evaluate change in demand-capacity ratio using the same analysis procedure with and without the alteration considered.

Reason Statement: Clarifies requirements for structural alterations based on 2018 SEAOC survey. Reference Survey Question 19, associated results, and discussion in the attached conference paper (Zepeda et al, 2019). Questions were raised as to whether nonlinear analysis could be used to justify 10% exception of structural alterations.

Revisions made by this proposal intend to clarify that nonlinear analysis may be used in conjunction with the permitted 10% exception for additions and alterations.

<https://www.cdpassess.com/proposal/8703/25651/files/download/3153/>

Bibliography: Zepeda, D., Hagen, G., O'Connell, K., McLellan, R., Buckalew, J., and Sumer, A., "Existing Buildings and the "10% Rule": Survey Results, Opinions, and Recommendations." 2019 SEAOC Convention Proceedings (pp. 116-147), Sacramento, CA: Structural Engineers Association of California.

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

The intent of this code change proposal is for clarification. As it does not change the intent of the code, it will not increase or decrease the cost of construction.

EB61-22

IEBC: [BS] 502.5, [BS] 503.4, [BS] 805.3, [BS] 1103.2

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); Robert Pekelnicky, representing FEMA Seismic Code Support Committee (rpekelnick@degenkolb.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] 502.5 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.

When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior retrofit in compliance with Section 1609 of the *International Building Code* or the codes or standards in effect at the time of the retrofit. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior retrofit in compliance with Section 304.3.1 or the codes or standards in effect at the time of the retrofit.

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*.

[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.

When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior retrofit in compliance with Section 1609 of the *International Building Code* or the codes or standards in effect at the time of the retrofit. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior retrofit in compliance with Section 304.3.1 or Section 304.3.2 item 1 or item 3 or the codes or standards in effect at the time of the retrofit.

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] 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. When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior retrofit in compliance with Section 1609 of the International Building Code or the codes or standards in effect at the time of the retrofit. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior retrofit in compliance with Section 304.3.1 or Section 304.3.2 item 1 or item 3 or the codes or standards in effect at the time of the retrofit.

[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.
- When calculating demand-capacity ratios for wind, the date of original construction shall be permitted to be taken as the date of completion of a prior retrofit in compliance with Section 1609 of the International Building Code or the codes or standards in effect at the time of the retrofit. When calculating demand-capacity ratios for earthquake, the date of original construction shall be permitted to be taken as the date of completion of a prior retrofit in compliance with Section 304.3.1 or the codes or standards in effect at the time of the retrofit.

Reason Statement: This proposal clarifies the meaning of “original construction” used to assess “cumulative effects” in the current “10% rule” exceptions for additions and alterations. The clarification rationally resets the baseline for assessing these cumulative effects when a qualifying retrofit is done.

The proposal ensures that lateral (wind and seismic) upgrades are not triggered too easily for buildings that should not need them because they have already been retrofitted. In clarifying this exception, the proposal makes no change in the intent of the exception overall. Further, since this is a rational interpretation of a point on which the current code is incomplete, it should not change the effect of the triggering provision or the exception.

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

For each project type (addition or alteration), the qualifying prior retrofit matches the criteria applicable to the overall provision -- “full” seismic criteria for additions, and “reduced” criteria for alterations. However, in the case of alterations, only a full-building retrofit should be deemed to qualify, so a retrofit by Appendix A (Section 304.3.2 item 2) is not allowed.

Since prior retrofits would not typically be done to current standards in Section 304.3, all of the proposed changes also allow the qualifying retrofit to be one based on the corresponding criteria from the time of the retrofit.

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

The proposal should have no impact on project cost because it merely clarifies a common-sense interpretation of the existing provisions. Where the current provision is misunderstood or misapplied, the proposal could actually result in lower project costs.

EB62-22

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

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] 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, 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- provided that the R-value of the additional material does not exceed 5 where the ground snow load, determined in accordance with Section 1608 of the *International Building Code*, is 20 psf or greater.

[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- provided that the R-value of the additional material does not exceed 5 where the ground snow load, determined in accordance with Section 1608 of the *International Building Code*, is 20 psf or greater.

[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- provided that the R-value of the additional material does not exceed 5 where the ground snow load, determined in accordance with Section 1608 of the *International Building Code*, is 20 psf or greater.

Reason Statement: This proposal prevents the over insulation of roofs in higher snow zones without an engineering evaluation while at the same time enables the roofing industry to properly install an additional layer of roofing over an existing single layer of roofing. In some instances, to properly install an additional second layer of roofing over an existing single layer, a layer of protective surface over the existing layer is required. Typically, cover board or sprayed foam insulation is installed over an existing roof surface before the second layer of roof covering is installed.

Normally, the R-value for the protection board or sprayed foam insulation and the EPDM roofing is just under 3. Recent research by Michael O'Rourke, Phd of Rensselaer Polytechnic Institute and the ASCE 7 Snow Loads Committee has concluded higher Thermal Factors, C_t , used to derive the roof snow load in relation to an increase in roof R-values. The higher Thermal Factors have recently been published in tables 7.3-2 & 7.3-3 of ASCE 7. The higher thermal factor values indicate that a roof R-value of 50 could result in a 20% increase in roof snow load. 9.5 inches of extruded poly styrene roof insulation and one layer of EPDM roofing weights just below the 3 psf limit specified in this exception while at the same time increasing the roof R-value by approximately 50.

A 20 psf ground snow load or greater area was considered as it represents a transition zone to higher northern ground snow loads where hundreds of roofs were damaged or collapsed as observed with the Northeast Winters of 2011 & 2015 and the Spokane Wa / Cour'd Alene Idaho winter of 2009. In all three events, an Artic Trough resulted in prolonged periods of sub-freezing weather which resulted in cumulations of snow on roofs due to successive events within that period. An increase in roof snow load of these Older and lighter framed roofs due over insulating, without a proper evaluation, put these buildings at greater risk to damage or collapse.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The code change proposal is for clarification and will not add cost.

EB62-22

EB63-22

IEBC: [BS] 503.4, [BS] 805.3

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] 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. The same loads shall be considered in the evaluation of both the altered and unaltered structures. 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] 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. The same loads shall be considered in the evaluation of both the altered and unaltered structures. 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.

Reason Statement: Misinterpretation of this exception can lead to unconservative determinations on whether existing structural elements carrying lateral load need to meet the requirements of the *International Building Code* or not. This proposal clearly states when considering the 10% exception, there must be consistency in the seismic loads used for comparing the unaltered and altered structures. In other words, if reduced seismic loads are used to evaluate the unaltered structure, reduced seismic loads must also be used to evaluate the altered structure. If full seismic loads are used to evaluate the unaltered structure, full seismic loads must also be used to evaluate the altered structure.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. There is no cost impact associated with this proposal as it is intended for clarification of the intent of this code provision.

EB63-22

EB64-22

IEBC: SECTION 202 (New), [BS] 503.4, [BS] 805.3

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 Statement: 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.

EB65-22

IEBC: [BS] 503.5, [BS] 906.3

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:

[BS] 503.5 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. Supports and attachments for nonstructural components serving any portion of the building with a use included in Risk Category IV shall comply with Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

[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. Supports and attachments for nonstructural components serving any portion of the building with a use included in Risk Category IV shall comply with Section 1613 of the *International Building Code* or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

Reason Statement: This proposal protects essential nonstructural systems and components in existing Risk Category IV buildings. The 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 in the rare cases where it triggers seismic upgrade, does not even require bracing of existing nonstructural components (let alone ruggedness to ensure functionality).

This proposal provides a basic level of protection, limited to the most crucial and cost-beneficial situations where structural retrofit is already triggered. It applies only to major (Level 3) alterations to buildings already assigned to RC IV *and* located in areas with very high seismicity (SDC F), 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 keep the RC IV areas functional. In addition, consider its limited scope:

- Common alterations (Level 1 or Level 2) are exempt.
- RC IV buildings in areas of low, moderate, and even some high seismicity are exempt.
- Existing nonstructural systems that are not needed to serve the RC IV uses are exempt.
- Even where not exempt, reduced seismic design criteria are allowed, as is typical in the IEBC for alteration projects.
- By allowing reduced criteria, the proposal waives any retroactive certification or testing of the existing components themselves.

As is normal in the IEBC, “reduced” seismic criteria, represented by the specified ASCE 41 objective, are allowed for alteration triggers. (The code-based criteria are not reduced because there’s no simple way to do that except to say “pretend it’s a RC II building,” which would be confusing. So Section 1613 is allowed for those not yet familiar with ASCE 41, the national standard for seismic evaluation and retrofit, while those who practice in SDC F areas are most likely to be familiar already with ASCE 41.)

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.

Notes on phrasing:

- “occupancy included in the risk category” is the phrasing already in Sec 1605.4.1.

- The proposal applies to nonstructural systems that “serve” RC IV uses within the building. 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.

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

The proposal will increase costs only for RC IV facilities in very high seismic areas undergoing major alterations, and therefore already subject to structural retrofit. In addition, its scope and criteria are limited to minimize cost increases, as explained in the Reason Statement, and the proposal affects only nonstructural components that are deficient relative to the reduced criteria.

EB65-22

EB66-22

IEBC: [BS] 503.11, [BS] 906.2

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:

[BS] 503.11 Substantial structural alteration. Where the *work area* exceeds 50 percent of the building area and where the 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. Where the building is assigned to Seismic Design Category D or F, supports and attachments for nonstructural components required to serve any portion of the building with a use included in Risk Category IV shall comply with Section 1613 of the International Building Code or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

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 structural components of the lateral load-resisting system above components in and below that story need not comply with this section.

[BS] 906.2 Existing structural elements resisting lateral loads. Where the 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. Where the building is assigned to Seismic Design Category D or F, supports and attachments for nonstructural components required to serve any portion of the building with a use included in Risk Category IV shall comply with Section 1613 of the International Building Code or shall comply with ASCE 41 using an objective of Position Retention nonstructural performance with the BSE-1E earthquake hazard level.

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 structural components of the lateral load resisting system above components in and below that story need not comply with this section.

Reason Statement:

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

The 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 in the rare cases where it triggers seismic upgrade, does not even require bracing of existing nonstructural components (let alone ruggedness to ensure functionality).

This proposal provides a basic level of protection, limited to the most crucial and cost-beneficial situations where structural retrofit is already triggered. It applies only to major (Level 3) alterations to buildings already assigned to RC IV and located in areas with moderate or high seismicity (SDC D or F), 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 keep the RC IV areas functional. In addition, consider its limited scope:

- Common alterations (Level 1 or Level 2) are exempt.
- Nonstructural alteration projects are exempt, as the proposal applies only where there is an intended substantial structural alteration.
- RC IV buildings in areas of low seismicity are exempt.
- Existing nonstructural systems that are not needed to serve the RC IV uses are exempt.
- Even where not exempt, reduced seismic design criteria are allowed, as is typical in the IEBC for alteration projects.
- By allowing reduced criteria, the proposal waives any retroactive certification or testing of the existing components themselves.

As is normal in the IEBC, “reduced” seismic criteria, represented by the specified ASCE 41 objective, are allowed for alteration triggers. (The code-based criteria are not reduced because there’s no simple way to do that except to say “pretend it’s a RC II building,” which would be confusing. So Section 1613 is allowed for those not yet familiar with ASCE 41, the national standard for seismic evaluation and retrofit, while those who practice in SDC D-F areas are most likely to be familiar already with ASCE 41.)

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.

In addition to its main purpose, the proposal makes a necessary edit to one of the exceptions to clarify that it applies only to the structural part of the trigger. This exception cannot apply to the proposed nonstructural trigger, since nonstructural systems are commonly located on the roof or in a mechanical room separate from the work area.

The proposal makes matching edits to the Prescriptive and Work Area methods. Notes on phrasing:

- “occupancy included in the risk category” is the phrasing already in Sec 1605.4.1.
- The proposal applies to nonstructural systems required to “serve” RC IV uses within the building. 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.

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

The proposal will increase costs for RC IV facilities in moderate and high seismic areas undergoing major alterations AND substantial structural alterations. In addition, its scope and criteria are limited to minimize cost increases, as explained in the Reason Statement, and the proposal affects only nonstructural components that are deficient relative to the reduced criteria.

EB67-22

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

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} , ~~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} , ~~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 Statement: 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

EB68-22

IEBC: [BS] 503.13, [BS] 805.4

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)

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 subject to the structural requirements of Section 503 required to meet the requirements of Section 1609 or 1613 of the International Building Code, provided that all of the following apply:

1. With the alteration complete, the 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~~.
3. Supports and attachments for New or relocated nonstructural elements removed and reinstalled to facilitate the work comply with 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 subject to the structural requirements of this chapter or Chapter 7 required to meet the requirements of Section 1609 or Section 1613 of the International Building Code, provided that the following conditions are met:

1. With the alteration complete, the 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~~.
3. Supports and attachments for New or relocated nonstructural elements removed and reinstalled to facilitate the work comply with 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 Statement: This proposal makes clarifying edits and recognizes that voluntary retrofit criteria need not be (and usually is not) the same as IBC Section 1609 or Section 1613 criteria for new construction.

In the main provision, the proposal replaces obsolete wording. The current wording suggests that IEBC alteration provisions would normally require a building to “meet the requirements of Section 1609 or 1613 of the [IBC],” but that is not the case. Typically, the IEBC does not trigger any lateral system upgrade for alteration projects, and where it does, it allows alternative criteria in Section 304.3. Therefore, what’s really being waived is not compliance with the IBC, but compliance with the various triggers in the alteration section (or chapter, for the Work Area method).

In Item 1, the proposal clarifies that existing capacity can be reduced by removing certain elements, as long as that capacity is replaced by new retrofit elements.

In Item 2, the proposal recognizes that selected retrofit criteria can be different from the code for new construction. In particular, retrofit criteria such as ASCE 41 recognize that connections of retrofit elements need only develop the strength of critical load path elements, which might be less than what the IBC might require for new construction.

In item 3, the scope is clarified to apply to nonstructural elements that are removed and reinstalled to facilitate the structural retrofit. Components provided new or relocated for other reasons are outside the scope of this provision, which is meant for work “intended exclusively to improve the [LFRS].”

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

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

The proposal merely clarifies what is already the current understanding of these sections. Also, these sections apply only to voluntary work.

EB69-22

IEBC: [BS] 503.13, [BS] 805.4

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] 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.
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.

Exception: Where alterations create a structural irregularity or make an existing structural irregularity more severe, the irregularity is permitted provided the altered building complies with Section 304.3.2 Item 3 and Table 304.3.2 using ASCE 41 Tier 3 procedures.

[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.

Exception: Where alterations create a structural irregularity or make an existing structural irregularity more severe, the irregularity is permitted provided the altered building complies with Section 304.3.2 Item 3 and Table 304.3.2 using ASCE 41 Tier 3 procedures.

Reason Statement: Clarifies requirements for structural alterations based on 2018 SEAOC survey. Reference the attached conference paper (Zepeda et al, 2019). During discussions regarding the responses to Question 4, questions were raised as to why introduction of irregularities that would be permitted in accordance with ASCE 7 would prohibit structural alterations if ASCE 41 were used to explicitly evaluate such irregularities. Revisions made by this proposal intend to clarify that it is permitted to make existing structural irregularities more severe, and introduce new structural irregularities as part of voluntary seismic improvements, provided the altered building complies with ASCE 41 BPOE performance objectives under a full Tier 3 evaluation.

<https://www.cdpaccess.com/proposal/8703/25651/files/download/3153/>

Bibliography: Zepeda, D., Hagen, G., O'Connell, K., McLellan, R., Buckalew, J., and Sumer, A., "Existing Buildings and the "10% Rule": Survey Results, Opinions, and Recommendations." 2019 SEAOC Convention Proceedings (pp. 116-147), Sacramento, CA: Structural Engineers Association of California.

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

The intent of this code change proposal is for clarification. As it does not change the intent of the code, it will not increase or decrease the cost of construction.

EB69-22

EB70-22

IEBC: [BS] 503.13, [BS] 805.4

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 Statement: 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

EB71-22

IEBC: SECTION 202 (New), 503.15, 804.11

Proponents: John Williams, representing Committee on Healthcare (ahc@iccsafe.org)

2021 International Existing Building Code

Add new definition as follows:

AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered incapable of self-preservation by the services provided or staff has accepted responsibility for care recipients already incapable.

Revise as follows:

503.15 Refuge areas. Where *alterations* affect the configuration of an area utilized as a refuge area, the capacity of the refuge area shall not be reduced below the required capacity of the refuge area for horizontal exits in accordance with Section 1026.4 of the *International Building Code*. Where the horizontal exit also forms a smoke compartment, the capacity of the refuge area for Group I-1, I-2 and I-3 occupancies and ~~Group B~~ ambulatory care *facilities* shall not be reduced below that required in Sections 407.5.3, 408.6.2, 420.6.1 and 422.3.2 of the *International Building Code*, as applicable.

804.11 Refuge areas. Where *alterations* affect the configuration of an area utilized as a refuge area, the capacity of the refuge area shall not be reduced below the required capacity of the refuge area for horizontal exits in accordance with Section 1026.4 of the *International Building Code*. Where the horizontal exit also forms a smoke compartment, the capacity of the refuge area for Group I-1, I-2 and I-3 occupancies and ~~Group B~~ ambulatory care *facilities* shall not be reduced below that required in Sections 407.5.3, 408.6.2, 420.6.1 and 422.3.2 of the *International Building Code*, as applicable.

Reason Statement: The definition proposed is the same definition used in the IBC. It is hoped that this definition can be scoped to the General committee so they will remain consistent.

The 'Group B' as part of 'ambulatory care' was utilized when this subject was originally added in the the I-codes. Removing this is no change to technical criteria, and would make these sections consistent with Sections 406.1.4, 408.3, 501.3, 707.1, 806.3, and 808.1.

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 proposal is merely making the same revisions as made to the IBC. The use of the term "Group B" is not necessary and does not change the application of the code. The use of the definition is provided to assist in code application and will not change the cost of compliance. It is the same definition as used in the IBC.

EB71-22

EB72-22

IEBC: 503.16 (New), 503.16.1 (New), 902.2 (New), 902.2.1 (New)

Proponents: John Williams, representing Committee on Healthcare (ahc@iccsafe.org)

2021 International Existing Building Code

Add new text as follows:

503.16 Conditions for I-1 Occupancies. Group I-1 Occupancies that are being altered and where the work area is greater than 50 percent of the aggregate building area, shall be classified as Condition 1 or Condition 2 in accordance with Section 308.2 of the International Building Code.

503.16.1 Smoke Barriers in Group I-1, Condition 2. In Group I-1, Condition 2 occupancies where the work area is on a story used for sleeping rooms for more than 30 care recipients, the story shall be divided into not less than two compartments by smoke barrier walls in accordance with Section 420.6 of the International Building Code.

902.2 Conditions for I-1 Occupancies. Group I-1 Occupancies shall be classified as Condition 1 or Condition 2 in accordance with Section 308.2 of the International Building Code.

902.2.1 Smoke Barriers in Group I-1, Condition 2. In Group I-1, Condition 2 occupancies where the work area is on a story used for sleeping rooms for more than 30 care recipients, the story shall be divided into not less than two compartments by smoke barrier walls in accordance with Section 420.6 of the International Building Code.

Reason Statement: The intent of this proposal is to specify where an existing Group I-1 would need to subdivide into smoke compartments similar to Section 420.6 in the IBC.

Prior to changes to the 2015 I-Codes, many Assisted Living communities were already operating as I-1 Occupancies, without having a Condition 1 or Condition 2 declaration. A clear requirement is needed for when these buildings would need to declare a Condition and meet the current code requirements for Smoke Barriers and Sprinklers. This code change sets the threshold at a Level 3 Alteration (greater than 50% of the aggregate building area), because that level of work equates to a larger expenditure level, and it matches the requirements already in Section 904 requiring upgraded fire protection for I-2 occupancies.

Many Assisted Living and Memory care communities operate on very slim budgets. These communities should be able to operate as they currently are, and make certain cosmetic renovations to their building without triggering the current code requirements of a Condition 1 or Condition 2, Group I-1 Occupancy. However, once they reach the Level 3 alteration threshold (renovation of 50% of building) they must declare a condition, and if they choose Condition 2, they must add smoke barriers in the work area. The requirement to add sprinklers in the work area is already contained in Section 904.1.4 of the IEBC.

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 increase the cost of construction

This proposal would required the addition of a smoke barrier in Group I-1 undergoing a Level 3 alteration. The 2021 IEBC does not require that existing Group I-1 occupancies must upgrade to providing smoke compartments when alterations are undertaken.

EB72-22

EB73-22

IEBC: 503.16 (New), 902.3 (New)

Proponents: John Williams, representing Committee on Healthcare (ahc@iccsafe.org)

2021 International Existing Building Code

Add new text as follows:

503.16 Ambulatory care facilities. Where a work area exceeds 50 percent of the building area the and work area includes an existing ambulatory care facility, the following shall be provided:

1. A smoke compartment in accordance with Section 422.3 of the International Building Code where the alteration results in an ambulatory care facility greater than 10,000 square feet on one story.
2. Separation from adjacent spaces in accordance with Section 422.2 of the International Building Code, where any such facility has the potential for four or more care recipients are to be incapable of self-preservation at any time.

902.3 Ambulatory care facilities.. Where a Level 3 work area includes an existing ambulatory care facility, the following shall be provided:

1. A smoke compartment in accordance with Section 422.3 of the International Building Code where the alteration results in an ambulatory care facility greater than 10,000 square feet on one story.
2. Separation from adjacent spaces in accordance with Section 422.2 of the International Building Code, where any such facility has the potential for four or more care recipients are to be incapable of self-preservation at any time.

Reason Statement: This code change intends to address ambulatory care facilities in building where a substantial renovation is occurring. Ambulatory care presents a substantially different set of risks from a normal group B occupancy. To ensure that existing facilities in existing building address some of these unique risk, we are proposing that when there is a 50%/level 3 alteration of a building, and that alteration includes an existing ambulatory care facility, that users of the code are prompted to review two key aspects of the building code. The thresholds to add these requirements are the same as the building code requirement (10,000 square feet to add smoke compartment and 4 people incapable to add separation). Practically, existing care facilities that are certified through Medicare will already have these requirements. A subset of existing facilities will not, and since the special requirements in Chapter 4 of the building code did not exist prior to the 2009 version, these will require upgrade. The CHC considered several different thresholds to require upgrades. For Group I-2 facilities, smoke compartmentation is required at Level 2 alterations. Ambulatory care facilities are often located in multi-tenant buildings where other tenants could be impacted, so we are suggesting these requirements be triggered by a higher threshold.

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 increase the cost of construction

While many existing facilities will already have separation and smoke compartmentation, some will require adding these features which will increase the cost of compliance for some facilities that must upgrade or add smoke barrier separations. .

EB73-22

EB74-22

IEBC: 505.2, 702.4

Proponents: Jennifer Hatfield, representing Fenestration & Glazing Industry Alliance (formerly AAMA) (jen@jhatfieldandassociates.com); Craig Drumheller, representing WDMA (cdrumheller@wdma.com)

2021 International Existing Building Code

Revise as follows:

505.2 Window ~~fall prevention opening control devices~~ on replacement windows. In Group R-2 or R-3 buildings containing dwelling units, and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices or other window fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable.
2. One of the following applies:
 - 2.1. The window replacement includes replacement of the sash and frame.
 - 2.2. The window replacement includes the sash only where the existing frame remains.
3. One of the following applies:
 - 3.1. In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
 - 3.2. In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
5. The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

Exception: Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.

702.4 Window ~~fall prevention opening control devices~~ on replacement windows. In Group R-2 or R-3 buildings containing dwelling units and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, window opening control devices or other fall prevention devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable.
2. One of the following applies:
 - 2.1. The window replacement includes replacement of the sash and frame.
 - 2.2. The window replacement includes the sash only where the existing frame remains.
3. One of the following applies:
 - 3.1. In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
 - 3.2. In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
5. The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

Exception: Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.

Reason Statement: These sections are about fall prevention and window opening control devices (WOCDs) are one of several options in addressing fall prevention. This proposal changes the titles of sections 505.2 and 702.4 to properly reflect that these sections are addressing fall prevention in replacement windows and not just specifically WOCDs. Then within the body of each section the proposal clarifies that window opening control devices or other types of window fall prevention devices complying with ASTM F2090 must be installed during replacement when all the following existing code language applies.

This proposal will not change the current requirements but simply provides clarity and a more proper title to these sections. It also provides for consistency between the two sections as currently section 702.4 does not include "or other fall prevention devices" whereas section 505.2 does.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. The proposal will have no effect on the cost of construction as the changes presented are not meant to alter the current requirements but simply meant to provide better clarity that other methods of fall prevention are available. This will lead to more consistent enforcement.

EB75-22

IEBC: 506.5.3, [BS] 1006.3

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 Statement:

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.

EB76-22

IEBC: 506.5.5 (New), 1006.5 (New)

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 Statement: 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

EB77-22

IEBC: 506.5.5 (New), 1006.5 (New)

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 Statement: 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

EB78-22

IEBC: 601.1

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

2021 International Existing Building Code

Revise as follows:

601.1 Scope. The provisions of this chapter shall be used in conjunction with Chapters 7 through 12 and shall apply to the *alteration, addition and change of occupancy of existing structures*, including historic ~~and moved~~ structures, as referenced in Section 301.3.2. The work performed on an *existing building* shall be classified in accordance with this chapter.

Reason Statement: Moved structures are no longer addressed in the work area method as noted in Section 301.4. Therefore, this term should be deleted from this section.

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

This proposal is for clarification as moved buildings are no longer addressed by the work area method and keeping the term within Section 601.1 is confusing.

EB78-22

EB79-22

IEBC: 702.4, 702.5

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

2021 International Existing Building Code

Revise as follows:

702.4 Window opening control devices on replacement windows. In Group R-2 or R-3 buildings containing dwelling units and one- and two-family dwellings and townhouses regulated by the International Residential Code, window opening control devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:

1. The window is operable.
2. One of the following applies:
 - 2.1. The window replacement includes replacement of the sash and frame.
 - 2.2. The window replacement includes the sash only where the existing frame remains.
2. The window replacement includes replacement of the sash and the frame.
3. One of the following applies:
 - 3.1. In Group R-2 or R-3 buildings containing dwelling units, the bottom of the clear opening of the window opening is at a height less than 36 inches (915 mm) above the finished floor.
 - 3.2. In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the bottom of the clear opening of the window opening is at a height less than 24 inches (610 mm) above the finished floor.
4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.
5. The vertical distance from the bottom of the clear opening of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).

Exception-Exceptions:

1. Operable windows where the bottom of the clear opening of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with F2090.

702.5 Replacement window for emergency escape and rescue openings. Where windows are required to provide *emergency escape and rescue openings* in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Section 1031.3 of the International Building Code and Section R310.2 of the International Residential Code, provided that the replacement window meets the following conditions:

1. The replacement window is the manufacturer's largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.
2. Where the replacement window is part of a *change of occupancy* it shall comply with Section 1011.5.6.

Reason Statement: The proposed language is included in the requirements for replacement windows in IEBC. The requirements for the work area method and the prescriptive method should be the same for replacement EEROs.

702.4 – ASTM F2090 address both opening control devices and fall prevention devices. This is already stated in IEBC Section 505.2 and IRC Appendix AJ102.4.4. If this is approved, the titles of these sections should also be revised.

702.5 – This would be consistent with IEBC Section 505.3 and IRC Section 310.5 for replacement windows. This phrase is also included in existing emergency escape and rescue opening with a change of occupancy in IEBC 506.4, 1011.5.6 and IRC 310.7.1.

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

There are not changes to construction requirements. These revisions are focused upon making the work area method and prescriptive method verbiage match one another.

EB79-22

EB80-22

IEBC: 803.2.2, 803.2.5

Proponents: Chad Sievers, representing Department of State (chad.sievers@dos.ny.gov); Kevin Duerr-Clark, representing New York State Department of State (kevin.duerr-clark@dos.ny.gov)

2021 International Existing Building Code

Revise as follows:

803.2.2 Groups A, B, E, F-1, H, I-1, I-3, I-4, M, R-1, R-2, R-4, S-1 and S-2. In buildings with occupancies in Groups A, B, E, F-1, H, I-1, I-3, I-4, M, R-1, R-2, R-4, S-1 and S-2, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with automatic sprinkler protection where both of the following conditions occur:

1. The *work area* is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction.
2. The *work area* exceeds 50 percent of the floor area.

Exception: If the building does not have ~~an existing sufficient municipal water supply present at for the floor of the proposed work area with sufficient pressure and flow for the design of a fire sprinkler system available to the floor and~~ without installation of a new fire pump, the work areas shall be protected by an automatic smoke detection system throughout all occupiable spaces other than sleeping units or individual dwelling units that activates the occupant notification system in accordance with Sections 907.4, 907.5 and 907.6 of the International Building Code.

803.2.5 Other required automatic sprinkler systems. In buildings and areas listed in Table 903.2.11.6 of the *International Building Code*, *work areas* that have exits or corridors shared by more than one tenant or that have exits or corridors serving an occupant load greater than 30 shall be provided with an automatic sprinkler system under the following conditions

1. The *work area* is required to be provided with an automatic sprinkler system in accordance with the *International Building Code* applicable to new construction; and
2. The building has ~~an existing sufficient municipal water supply present at for the floor of the proposed work area with sufficient pressure and flow for the design of an automatic sprinkler system available to the floor and~~ without installation of a new fire pump.

Reason Statement: There is confusion surrounding the language of the exception to this section. Some interpret that "sufficient municipal supply available to the floor" means the water main is in the ROW with adequate pressures and flow, and available to tap into with new piping to the building and work area. As supported by the ICC IEBC Interpretation No. 12-04 (see attached), it was never intended for a new water service/supply pipe or vertical/riser pipes to be installed which originated outside the floor of the work area as a requirement for "sufficient municipal supply" to satisfy this code section. The newly proposed language makes it clear that the existing sufficient water supply is to exist and be available to the floor where the work area is located without the installation of new supply piping, fire pump, or riser piping. Commentary to this code section states "One exception to these requirements states that if the building does not have a sufficient municipal water supply for a sprinkler system at the floor where the work area is located, then sprinklers are not required; however, that same exception does require an automatic smoke detection system throughout the work area. The smoke detection coverage is required throughout all occupiable spaces other than areas already required to install smoke alarms." While useful in understanding this code section, in many cases the Commentary is not available or enforceable. This proposal brings the stated intention of in the Commentary into the actual Code language. This code change should eliminate the need for code users to reference the Code Interpretation. New York State has made a similar change to the code and request for technical assistance on this topic has been eliminated.

CHAPTER 6 ALTERATIONS - LEVEL 2

SECTION 604.2.2 IEBC Interpretation No. 12-04 2003 Edition Issued: 04-07-05

604.2.2 Groups A, E, F-1, H, I, M, R-1, R-2, R-4, S-1, and S-2. In buildings with occupancies in Groups A, E, F-1, H, I, M, R-1, R-2, R-4, S-1, and S-2, work areas that include exits or corridors shared by more than one tenant or that serve an occupant load greater than 30 shall be provided with automatic sprinkler protection where all of the following conditions occur:

1. The work area is required to be provided with automatic sprinkler protection in accordance with the *International Building Code* as applicable to new construction;
2. The work area exceeds 50 percent of the floor area; and
3. The building has sufficient municipal water supply for design of a fire sprinkler system available to the floor without installation of a new fire pump.

Exception: Work areas in Group R occupancies three stories or less in height.

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GIVEN: Assume Level 2 alterations to an existing building that is not classified as a high-rise building. The building is not a Group R occupancy. All the listed conditions, including Items 1 and 2, are applicable. The municipal water supply for the building is sufficient for design of a fire sprinkler system to the floor containing the work area, without requiring the installation of a new fire pump.

Q1: Is a fire sprinkler system required to be provided to the work area if a new water service pipe is required to be installed between the municipal water supply and the building?

A1: No. Section 604.2.2, condition 3 indicates that "the building has sufficient...". Therefore it was not intended that new water service pipes be installed from the water main to the building.

Q2: Is a fire sprinkler system required to be provided to the work area if a new water distribution pipe (or riser) is required to be installed between the water service pipe and the work area?

A2: No. Sprinkler system will not be required if a new riser must be constructed to bring water from lower floors.

STAFF COMMENTARY: For both of these answers, please note that the language in Section 604.2.2 is distinctly different from that found in Section 704.1.1 (Level 3 Alterations, high-rise buildings), where sprinklers will be required if the municipal water main at the site has sufficient municipal water supply.

One of the main resource documents upon which the IEBC was based is the Nationally Applicable Recommended Rehabilitation Provisions (NARRP). The origin of many of the IEBC Sections can be traced to similar provisions in the NARRP. The NARRP does not require sprinkler systems in work areas for the level of construction called "Alterations" (this is approximately the same level as IEBC Level 2 Alterations and is found in NARRP Chapter 5). Section 606.1 of NARRP for the level called "Reconstruction" (approximately similar to Level 3 Alterations of IEBC), requires sprinkler system, but provides an exception if "...an automatic water supply for sprinkler protection is not available at that floor, the building official shall be permitted to accept alternative protection". A review of this history indicates the intent of the IEBC drafting committee to require sprinkler system in Level 2 Alterations only if sufficient municipal water supply is available at the floor under discussion.

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

This is simply a clarification of the language as already interpreted by ICC and the commentary, so no change in the construction cost is anticipated.

EB81-22

IEBC: 803.2.6, NFPA Chapter 16

Proponents: Jeffrey Hugo, representing NFSA (hugo@nfsa.org)

2021 International Existing Building Code

Revise as follows:

803.2.6 Supervision. ~~Automatic Fire~~ sprinkler systems required by this section shall be electrically supervised in accordance with the International Building Code, by one of the following methods:

- ~~1. Approved central station system in accordance with NFPA 72.~~
- ~~2. Approved proprietary system in accordance with NFPA 72.~~
- ~~3. Approved remote station system of the jurisdiction in accordance with NFPA 72.~~
- ~~4. Where approved by the code official, approved local alarm service that will cause the sounding of an alarm in accordance with NFPA 72.~~

Exception: Supervision is not required for the following:

- ~~1. Underground key or hub gate valves in roadway boxes.~~
- ~~2. Halogenated extinguishing systems.~~
- ~~3. Carbon dioxide extinguishing systems.~~
- ~~4. Dry and wet chemical extinguishing systems.~~
- ~~5. Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic and automatic sprinkler systems and a separate shutoff valve for the automatic sprinkler system is not provided.~~

Delete without substitution:

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

NFPA 13R—19

~~Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height~~

Reason Statement: This proposal eliminates the conflict of having Level 2 and Level 3 alterations that require sprinkler systems with different supervision requirements. Correlating to the IBC for supervision provides a consistent and clearer installation of both sprinkler and alarm systems. Where automatic sprinkler systems are required by the IEBC, it refers the user to the IBC for installation and design to the appropriate sprinkler standard, i.e. NFPA 13, NFPA 13R, or NFPA 13D. With this reference to the IBC, sprinkler systems are required to be supervised per IBC, Section 903.4.1. However, the sprinkler system installation per IEBC, Section 803.2.6 has different supervision requirements and references than the IBC. The current 2024 IBC, Section 903.4.1 (see F73-21, Public Comment 1) list of exceptions is more robust than the current IEBC. Furthermore, the current IEBC, Section 803.2.6 exceptions 2,3, and 4 are not automatic sprinkler systems and those exceptions should not exist in the sprinkler section.

Reference to NFPA 13R is deleted to correlate with the removal of the reference in Section 803.2.6.

F73-21

Proposed Change as Submitted

Proponents: Chase Browning, representing Medford Fire Department

2021 International Fire Code

Revise as follows:

903.4.2 Alarms. *For automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2, an approved audible device, located on the exterior of the building in an approved location, shall be connected to each automatic sprinkler system. Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system.*

2021 International Building Code

Revise as follows:

[F] 903.4.2 Alarms. *For automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2, an approved audible device, located on the exterior of the building in an approved location, shall be connected to each automatic sprinkler system. Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system.*

Reason: It is appropriate to provide an audible alarm for NFPA 13 and NFPA 13R systems, however, NFPA 13D (903.3.1.3) does not require such a device.

Cost Impact: The code change proposal will decrease the cost of construction. Not including the exterior bell will reduce costs.

F73-21

Public Hearing Results

Committee Action:

Disapproved

Committee Reason: The committee stated that the reason for disapproval was that an exception already exists in the section charging text and all the other sections are subsections to that charging text. Additionally, it was noted that NFPA 13D systems are allowed for some structures that are not single family dwellings, which could be historic resources, and not having a bell that is going to tell you that there's a water flow going on inside is potentially going to damage those structures beyond repair. (Vote: 8-7)

F73-21

Individual Consideration Agenda

Public Comment 1:

IFC: 903.4 (New), 903.4, 903.4.1, 903.4.2, 903.4.3; IBC: 903.4 (New), [F] 903.4, [F] 903.4.1, [F] 903.4.2, [F] 903.4.3

Proponents: Jeffrey Shapiro, representing Self (jeff.shapiro@intcodeconsultants.com); Chase Browning, representing Medford Fire Department requests As Modified by Public Comment

Replace as follows:

2021 International Fire Code

903.4 Sprinkler system supervision and alarms. *Automatic sprinkler system supervision and alarms shall comply with Sections 903.4.1 through 903.4.3.*

~~903.4 903.4.1 Electronic supervision~~ *Sprinkler system supervision and alarms. Valves controlling the water supply for automatic sprinkler*

systems, pumps, tanks, water levels and temperatures, critical air pressures and waterflow switches on all sprinkler systems shall be electrically supervised by a *listed* fire alarm control unit.

Exceptions:

1. *Automatic sprinkler systems* protecting one- and two-family dwellings.
2. Limited area sprinkler systems in accordance with Section 903.3.8, provided that backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position unless supplying an occupancy required to be equipped with a fire alarm system, in which case the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.
3. *Automatic sprinkler systems* installed in accordance with NFPA 13R where a common supply main is used to supply both domestic water and the *automatic sprinkler system*, and a separate shutoff valve for the *automatic sprinkler system* is not provided.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, preaction and deluge sprinkler systems that are sealed or locked in the open position.
8. Underground key or hub gate valves in roadway boxes.

903.4.1 903.4.2 Monitoring . Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved supervising station or, where approved by the fire code official, shall sound an audible signal at a constantly attended location.

~~**Exception:** Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.~~

903.4.2 903.4.3 Alarms . An approved audible and visual sprinkler waterflow alarm device, located on the exterior of the building in an approved location, shall be connected to each *automatic sprinkler system*. Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a water flow switch is required by Section 903.4.1 to be electrically supervised, such sprinkler waterflow alarm devices shall be powered by a fire alarm control unit or, where provided, a fire alarm system. Where a fire alarm system is provided, actuation of the *automatic sprinkler system* shall actuate the building fire alarm system.

Exception: *Automatic sprinkler systems* protecting one- and two-family dwellings.

903.3.9 903.4.3 High-rise building floor control valves . Approved supervised indicating control valves shall be provided at the point of connection to the riser on each floor in high-rise buildings.

2021 International Building Code

903.4 Sprinkler system supervision and alarms.

Automatic sprinkler system supervision and alarms shall comply with Sections 903.4.1 through 903.4.3.

[F] 903.4 903.4.1 Electronic supervision Sprinkler system supervision and alarms . Valves controlling the water supply for *automatic sprinkler systems*, pumps, tanks, water levels and temperatures, critical air pressures, and waterflow switches on all sprinkler systems shall be electrically supervised by a *listed* fire alarm control unit.

Exceptions:

1. *Automatic sprinkler systems* protecting one- and two-family dwellings.
2. Limited area sprinkler systems in accordance with Section 903.3.8, provided that backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position unless supplying an occupancy required to be equipped with a fire alarm system, in which case the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.
3. *Automatic sprinkler systems* installed in accordance with NFPA 13R where a common supply main is used to supply both domestic water and the *automatic sprinkler system*, and a separate shutoff valve for the *automatic sprinkler system* is not provided.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, preaction and deluge sprinkler systems that are sealed or locked in the open position.
8. Underground key or hub gate valves in roadway boxes.

[F] ~~903.4.1~~ **903.4.2 Monitoring** . Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved supervising station or, where approved by the fire code official, shall sound an audible signal at a *constantly attended location*.

~~**Exception:** Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow prevention valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.~~

[F] ~~903.4.2~~ **903.4.3 Alarms** . An approved audible and visual sprinkler waterflow alarm device, located on the exterior of the building in an approved location, shall be connected to each *automatic sprinkler system*. Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a water flow switch is required by Section 903.4.1 to be electrically supervised, such sprinkler waterflow alarm devices shall be powered by a fire alarm control unit or, where provided, a fire alarm system. Where a fire alarm system is provided ~~installed~~, actuation of the *automatic sprinkler system* shall actuate the building fire alarm system.

~~**Exception:** Automatic sprinkler systems protecting one- and two-family dwellings.~~

[F] ~~903.4.3~~ **903.3.9 High-rise building floor floor control valves** . Approved supervised indicating control valves shall be provided at the point of connection to the riser on each floor in high-rise buildings.

Commenter's Reason: Discussion at the committee hearing and the 8:7 vote clearly demonstrated varying interpretations of how Section 903.4 should be applied and that the section needs a more comprehensive rewrite to fix the existing issues. This public comment does the following to address all points of concern:

1. Creates a scoping section. Some interpret the existing exceptions in 903.4 as applying to the subsections under Section 903.4, while others do not. The revision clarifies scoping and that the exceptions in 903.4 of the 2021 edition only apply to that section, and not the subsections that followed.
2. Moves/merges the exception currently under 903.4.1 (monitoring) into the retitled section above (electronic supervision). The exception primarily relates to the need for electronic supervision, not monitoring by a supervising station or constantly attended location. Thereby, it was misplaced. Further, the current exception #2 in 903.4 exempted ALL limited area systems from any electronic supervision, so one could have argued that the exception under "monitoring" never applied. Merging the exceptions fixes that conflict in a way that clarifies logical application of the current code provisions.
3. Incorporates the committee recommendation on F74 but with improved text vs. the floor amendment that was accepted by the committee. The intent of F74 is to add visual alarm devices where audible devices are currently required. As modified by the committee, F74 also clarified that water flow switches required to be electrically supervised have to be powered by a fire alarm control unit or a fire alarm system. If this public comment is approved, it is intended to replace the committee action on F74 since this will be the last action on this section in the 2024 edition cycle.
4. Section 903.4.3 is being relocated to Section 903.3 (installation). The requirement is more appropriately co-located with installation provisions because it is requiring floor control valves.
5. The original F73 proposed exception for one- and two-family dwellings is being added to Section 903.4.3. There was general agreement at the hearing that one- and two-family dwellings should not require exterior water flow alarms, but some felt that the original proposal was unnecessary (per the scoping misinterpretation issue discussed in #1 above). Others did not support extending an outdoor water flow alarm exception to all 13D installations, as originally proposed, so this public comment only applies the exception to one- and two-family dwellings.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction. Outside alarm will now clearly not be required for one- and two-family dwelling sprinkler systems. Remainder of the proposal is cleanup of existing text and new provisions added by F74.

Public Comment# 2879

Public Comment 2:

Proponents: Dan Nichols, representing ICC Code Correlation Committee (ccc@iccsafe.org)

Commenter's Reason: The Code Correlation Committee (CCC) is not taking a position on this code change. The CCC submitted this public comment in order to bring a correlation issue to the attention of the full voting membership for the Public Comment Hearings and the Online Governmental Consensus Vote to allow the voting membership to coordinate actions on Code Changes F73-21 and F74-21. If the final actions on F73-21 is AMPC and F74-21 is AM, the resulting text will not be correlated.

The Code Correlation Committee is a standing committee of the International Code Council whose objectives, procedures and organization are set forth in Council Policy CP44-13. The objective of the Code Correlation Committee is to maintain technical and editorial consistency among the International Codes and to assist staff in the evaluation and processing of code change proposals and comments that are exclusively editorial.

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

When fire sprinkler supervision requirements change or are different from other model codes, it adds construction and maintenance cost. The proposal correlates the supervision requirement across the IEBC, IBC, and IEBC. Removal of the standard is merely correlative to the revisions to Section 803.2.6

EB82-22

IEBC: 803.4, 803.4.1, 803.4.1.1, 803.4.1.5, 803.4.2, 803.4.3 (New)

Proponents: Michael O'Brian, representing Brighton Area Fire Authority (mobrian@brightonareafire.com)

2021 International Existing Building Code

Revise as follows:

803.4 Fire alarm and detection. An *approved* fire alarm system shall be installed in accordance with Sections 803.4.1 through ~~803.4.2~~ 803.4.3. Where automatic sprinkler protection is provided in accordance with Section 803.2 and is connected to the building fire alarm system, automatic heat detection shall not be required.

~~An *approved* automatic fire detection system shall be installed in accordance with the provisions of this code and NFPA 72. Devices, combinations of devices, appliances, and equipment shall be *approved*. The automatic fire detectors shall be smoke detectors, except that an *approved* alternative type of detector shall be installed in spaces such as boiler rooms, where products of combustion are present during normal operation in sufficient quantity to actuate a smoke detector.~~

803.4.1 Occupancy requirements. A fire alarm system shall be installed in accordance with Sections 803.4.1.1 through 803.4.1.6. Existing alarm-notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm-notification appliances within the *work area* shall be provided and automatically activated.

Exceptions:

1. Occupancies with an existing, previously *approved* fire alarm system.
2. Where selective notification is permitted, alarm-notification appliances shall be automatically activated in the areas selected.

Revise as follows:

803.4.1.1 Group E. A fire alarm system shall be installed in *work areas* of Group E occupancies as required by Chapter 11 of the *International Fire Code* ~~for existing~~ Group E occupancies.

803.4.1.5 Group R-1. A fire alarm system shall be installed in Group R-1 occupancies as required by Chapter 11 of the *International Fire Code* ~~for existing~~ Group R-1 occupancies.

803.4.2 Supplemental fire alarm system requirements. Where the *work area* on any floor exceeds 50 percent of that floor area, Section 803.4.1 shall apply throughout the floor.

Exception: Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the *work area*.

Add new text as follows:

803.4.3 Installation. Where a fire alarm system is required to be installed in accordance with Sections 803.4.1 or 803.4.2 the *fire alarm system* shall be installed in accordance with the provisions of this code, Section 907 of the *International Building Code* and NFPA 72

Reason Statement: This proposed change is based on clarifying the requirements for a Fire Alarm and detection system in a level 2 alteration as well as clarifying that a Group E and Group R-1 are per Chapter 11 of the IFC.

The first paragraph is modified as the language does not appear to be consistent with the installation requirements found in the IFC/IBC. The language was re-worded and a new section 803.4.3 Installation is proposed to be added.

This section is intended to clarify that it installed per the provisions of 907 and NFPA 72. Section 907 contains specific installation requirements for systems that are beyond when systems are required. It is not the intention of this new language to require compliance with 907.2 "where required for new systems" in a level 2 alteration.

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

This change is intended to clarify that the requirements for fire alarm installations are not required to be installed as would be required for new construction since these requirements are found in the alteration section and focus on existing buildings. This is simply a clarification of the intent of application and will not increase the cost of construction.

EB82-22

EB83-22

IEBC: 804.4, 804.4.1, 804.4.1.1, TABLE 804.4.1.1(1), TABLE 804.4.1.1(2)

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 occupiable 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 Statement: 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 than 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

EB84-22

IEBC: SECTION 202 (New), 804.4.1.1, 902.1

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

2021 International Existing Building Code

Add new definition as follows:

OCCUPIABLE ROOF. An exterior space on a roof that is designed for human occupancy, other than maintenance or repair, and which is equipped with a means of egress system meeting the requirements of this code.

Revise as follows:

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).

902.1 High-rise buildings. Any building having occupied floors or occupiable roof more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall comply with the requirements of Sections 902.1.1 and 902.1.2.

Reason Statement: This revision is for coordination with G12-21 and G20-21.

Over the last several cycles, code provisions have been added to address issues related to occupied/occupiable, vegetative and landscaped roofs. In some cases, the terms have been used interchangeably, in others applying to specific types of roof systems. With the increasing number of provisions, a definition is needed. A proposal last cycle (G7-19) attempted to add a definition for occupiable roof but was disapproved for several reasons including the fact it did not correlate with the fact the code uses "occupied roof" in some sections and "occupiable roof" in others. This code proposal both adds a definition for "occupiable roof" and changes terminology throughout the code to be consistent with use of "occupiable roof" rather than "occupied roof". The definition is intended to parallel the existing code definition for occupiable space:

[BG] OCCUPIABLE SPACE. A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes or in which occupants are engaged at labor, and which is equipped with means of egress and light and ventilation facilities meeting the requirements of this code.

The proposed definition is different in a few key ways: The laundry list of uses is left out, and the one clarification made that access for maintenance of rooftop mechanical equipment or other maintenance does not trigger assembly live load requirements or other provisions related to occupiable roofs. The references to light and ventilation are left out as occupiable roofs are exterior spaces. No mechanical ventilation is necessary, and the code does not require lighting for exterior spaces other than portions of the means of egress.

The change to 804.4.1.1 is using the defined term.

The change to 902.1 coordinates with the change to the definition for 'high-rise building' approved in G12-21.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC) and 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 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: FCAC.

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

The code change is for consistency with the action taken on G12-21 and G20-21. Without consistency with the IBC proposals the IEBC would be more difficult and unclear to apply and enforce making compliance more complicated and expensive.

EB84-22

EB85-22

IEBC: 804.4, 804.4.1

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 Statement: 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

EB86-22

IEBC: 804.5.2

Proponents: Kevin Scott, representing KH Scott & Associates LLC (khscottassoc@gmail.com)

2021 International Existing Building Code

Revise as follows:

804.5.2 Door swing. In the *work area* and in the egress path from any *work area* to the exit discharge, all egress doors serving an occupant load ~~greater than~~ of 50 or more shall swing in the direction of exit travel.

Reason Statement: This proposal is to make this section consistent with IBC Section 1010.1.2.1 for door swing which includes 50 occupants versus 51. See IBC section below.

1010.1.2.1 Direction of swing.

Side-hinged swinging doors, pivoted doors and balanced doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons or a Group H occupancy.

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

This proposal is simply to make the provisions for door swing consistent with the IBC and should not have an affect on the cost of construction or enforcement.

EB86-22

EB87-22

IEBC: 804.11 (New), 804.12 (New), 804.10, 804.10.1, 804.10.2, 804.12, 804.12.1, 804.12.2, 804.11

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

2021 International Existing Building Code

Add new text as follows:

804.11 Stairways. An existing stairway shall not be required to comply with the requirements of Section 1011 of the *International Building Code* where the existing space and construction does not allow a reduction in pitch or slope.

804.12 Escalators. Where provided in below-grade transportation stations, existing and new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).

Revise as follows:

~~804.10~~ **804.13 Handrails.** The requirements of Sections ~~804.10.1~~ 804.13.1 and ~~804.10.2~~ 804.13.2 shall apply to handrails from the *work area* floor to, and including, the level of exit discharge.

~~804.10.1~~ **804.13.1 Minimum requirement.** Every required exit stairway that is part of the means of egress for any *work area* and that has three or more risers and is not provided with not fewer than one handrail, or in which the existing handrails are judged to be in danger of collapsing, shall be provided with handrails for the full length of the stairway on not fewer than one side. Exit stairways with a required egress width of more than 66 inches (1676 mm) shall have handrails on both sides.

~~804.10.2~~ **804.13.2 Design.** Handrails required in accordance with Section ~~804.10.1~~ 804.13.1 shall be designed and installed in accordance with the provisions of the *International Building Code*.

Exception: Handrails otherwise required to comply with Section 1011.11 of the *International Building Code* shall not be required to comply with the requirements of Section 1014.6 of the *International Building Code* regarding full extension of the handrails where such extensions would be hazardous because of plan configuration.

~~804.12~~ **804.14 Guards.** The requirements of Sections ~~804.12.1~~ 804.14.1 and ~~804.12.2~~ 804.14.2 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~~ **804.14.1 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.

~~804.12.2~~ **804.14.2 Design.** Guards required in accordance with Section ~~804.12.1~~ 804.14.1 shall be designed and installed in accordance with the *International Building Code*.

~~804.11~~ **804.4 Refuge areas.** Where *alterations* affect the configuration of an area utilized as a refuge area, the capacity of the refuge area shall not be reduced below the required capacity of the refuge area for horizontal exits in accordance with Section 1026.4 of the *International Building Code*. Where the horizontal exit also forms a smoke compartment, the capacity of the refuge area for Group I-1, I-2 and I-3 occupancies and Group B ambulatory care *facilities* shall not be reduced below that required in Sections 407.5.3, 408.6.2, 420.6.1 and 422.3.2 of the *International Building Code*, as applicable.

Reason Statement: The intent of this proposal is to put in the same allowances in the prescriptive method and work area method for 1) existing stairways being replaced, 2) handrail extensions and 3) escalators to below-grade transportation systems. The prescriptive method contains these allowances in Section 503.1 for alterations.

503.1 General. Alterations to any building or structure shall comply with the requirements of the International Building Code for new construction. Alterations shall be such that the existing building or structure is not less complying with the provisions of the International Building Code than the existing building or structure was prior to the alteration.

Exceptions:

1. An existing stairway shall not be required to comply with the requirements of Section 1011 of the International Building Code where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1011.11 of the International Building Code shall not be required to comply with the requirements of Section 1014.6 of the International Building Code regarding full extension of the handrails where such extensions would be hazardous because of plan configuration.
3. Where provided in below-grade transportation stations, existing and new escalators shall be permitted to have a clear width of less than 32 inches (815 mm).

While the purpose of this change is for correlation between IEBC options, the BCAC was informed that there were an issue in the current section on escalators regarding coordination with the ADA (503.1). There is a proposal submitted by Marsha Mazz addressing this issue. If this proposal is successful, the text here should be coordinated. The reordering in Section 804 allows for the requirements for stairways, escalators, handrails and

guards to be located together and refuge areas to be moved behind Group I-2. The end result would be as follows.

SECTION 804

MEANS OF EGRESS

804.1 Scope.

804.2 General.

804.3 Group I-2.

804.4 ~~804.11~~ Refuge areas.

804.5 ~~804.4~~ Number of exits.

804.6 ~~804.5~~ Egress doorways.

804.7 ~~804.6~~ Openings in corridor walls.

804.8 ~~804.7~~ Dead-end corridors.

804.9 ~~804.8~~ Means-of-egress lighting.

804.10 ~~804.9~~ Exit signs.

804.11 Stairways.

804.12 Escalators.

804.13 ~~804.10~~ Handrails.

804.14 ~~804.12~~ Guards.

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 proposal merely correlates the stairway and handrail allowances and requirements for the prescriptive method with the work area method.

Otherwise without this allowance when applying the work area method stairways and handrails would be required to strictly comply with the IBC whereas the prescriptive method may not require such compliance. Therefore the intent is provide the same allowance which may either reduce or not change the cost of compliance for the work area method.

EB88-22

IEBC: 904.1.8 (New)

Proponents: Michael O'Brian, representing Brighton Area Fire Authority (mobrian@brightonareafire.com)

2021 International Existing Building Code

Add new text as follows:

904.1.8 Supervision and Alarms. Where an automatic sprinkler system is required by Sections 904.1.1 through 904.1.7 such systems shall be provided with supervision and alarms in accordance with Section 903.4 of the *International Building Code*.

Reason Statement: This change is intended to clarify that buildings undergoing a level 3 alterations, their automatic sprinkler systems are required to be supervised in accordance with IBC 903. From time to time, AHJ's will find where sprinkler systems were not supervised electronically and this section would clarify on those level 3 alterations, the system would be electronically supervised.

In Group A this section in the IBC/IFC underwent a major revision and clarification for supervision of valves and alarm devices on automatic sprinkler systems.

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

This change, although intended to clarify the existing requirement, could add costs to construction if the existing automatic sprinkler system is not supervised electronically. IBC 903 does include uniform provisions for where valves and sprinklers system do not need to be electronically supervised.

EB88-22

EB89-22

IEBC: 904.2, 904.2.1, 904.2.2, 904.2.3 (New)

Proponents: Michael O'Brian, representing Brighton Area Fire Authority (mobrian@brightonareafire.com)

2021 International Existing Building Code

904.2 Fire alarm and detection systems. Fire alarm and detection shall be provided in accordance with Section 907 of the International Building Code as required for new construction.

904.2.1 Manual fire alarm systems. Where required by the *International Building Code*, a manual fire alarm system shall be provided throughout the *work area*. Alarm notification appliances shall be provided on such floors and shall be automatically activated as required by the *International Building Code*.

Exceptions:

1. Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the *work area*.
2. Visual alarm notification appliances are not required, except where an existing alarm system is upgraded or replaced or where a new fire alarm system is installed.

904.2.2 Automatic fire detection. Where required by the *International Building Code* for new buildings, automatic fire detection systems shall be provided throughout the *work area*.

Add new text as follows:

904.2.3 Emergency voice/alarm communication systems. Where required by the *International Building Code* for new buildings emergency voice/alarm communication systems shall be installed throughout the fire area containing the work area.

Reason Statement: This proposed code change, is intended to include requirements for voice evacuation, fire alarm systems in Group E occupancies and Group A occupancies with 1,000 or more occupants. The proposed language indicates that the system would be provided within the fire area which includes the work area undergoing a level 3 alteration. This language is consistent with the IBC/IFC requirements for these occupancies. When these use groups undergo a level 3 alteration, this is the time for these systems to be upgraded to provide the specific level of safety for those occupancies.

Cost Impact: The code change proposal will increase the cost of construction. Section 907 of the IBC would already require these systems. This proposal would require the installation within the fire area containing the work area. That could be an entire building in some cases and could increase installation costs beyond what would have been anticipated by the limitation to work areas as noted in Sections 904.2.1 and 904.2.2.

EB89-22

EB90-22

IEBC: 905.5 (New)

Proponents: Eirene Knott, representing Self (eirene.knott@brrarch.com)

2021 International Existing Building Code

Add new text as follows:

905.5 Exit and Exit Access Doorway Configuration. Exits, exit access doorways, and exit access stairways and ramps serving spaces, including individual building stories, shall be separated in accordance with the *International Building Code*.

Reason Statement: The IEBC has multiple references to the IBC when it comes to the means of egress for an existing building. When a building is undergoing an Alteration at a Level 3, a significant amount of work is being done. At this point, there should be some requirement to separate at least two of the required exits. Otherwise, there is currently no direction within the IEBC on separating exits, only that the number must be provided per the IBC. This code change is to provide direction on when two or more exits are required for a Alteration Level 3, that at least two of those exits be separated as per new construction.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This should not have any cost impact to a project as the number of required exits is not changing.

EB90-22

EB91-22

IEBC: SECTION 908 (New), 908.1 (New), 908.1.1 (New), 908.1.2 (New)

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

2021 International Existing Building Code

Add new text as follows:

SECTION 908

EMERGENCY RESPONDER COMMUNICATIONS ENHANCEMENT SYSTEM COVERAGE

908.1 Emergency Responder Communication Enhancement System Coverage. The existing building shall undergo an evaluation of the emergency responder communication signal strength and coverage area within the entire building in accordance with 908.1.1 and 908.1.2.

Exception: Where it is determined by the fire code official that the emergency responder communication enhancement system (ERCES) is not needed.

908.1.1 Evaluation. The evaluation shall determine the current signal strength and coverage capabilities of the public safety communication systems utilized by the jurisdiction, measured at the exterior of the building.

908.1.2 Compliance. The evaluation report shall be submitted for approval by the fire code official and the frequency license holder. Where the coverage area, signal strength or DAQ does not comply with Section 510 of the International Fire Code, the existing building shall be provided with emergency responder communication enhancement system coverage. The fire code official is authorized to establish the timeframe for such installation or modification.

Reason Statement: Any building undergoing a Level 3 Alteration is likely to have a change in the ERCES coverage areas, signal strength and DAQ within that existing building. This proposal does not require an ERCES installation. The proposal simply adds a requirement for this building to undergo an evaluation of the public communication system coverage to ensure the altered building still complies with the IFC Section 510. The exception in this proposal aligns with the current language in the IFC (510.1 Exception 2).

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 increase the cost of construction

The code change proposal will increase the cost of construction as there is a cost associated with the ERCES evaluation being required. Fees are typically \$1K for the evaluation. The ERCES contractor would typically credit the evaluation fee against the purchase or upgrade of an ERCES system. There would be a cost associated with enhancing or installing a new ERCES system within a building that will vary based upon the characteristics of the building including size, location, type of construction and other factors.

EB91-22

EB92-22

IEBC: 1001.2.1, 1001.2.2, 1001.2.2.1

Proponents: China Clarke, representing NYS DOS Division of Building Standards and Codes (china.clarke@dos.ny.gov); Kevin Duerr-Clark, representing New York State Department of State (kevin.duerr-clark@dos.ny.gov)

2021 International Existing Building Code

Revise as follows:

1001.2.1 Change of use. Any work undertaken in connection with a ~~change in use~~ change of use ~~that does not involve a change of occupancy classification or a change to another group within an occupancy classification~~ shall conform to the applicable requirements for the work as classified in Chapter 6 and to the requirements of Sections 1002 through 1010.

Exception: As modified in Section 1204 for *historic buildings*.

1001.2.2 Change of occupancy classification ~~or group~~. Where ~~a building undergoes a change of occupancy classification~~ a building undergoes a change of occupancy classification ~~the occupancy classification of a building changes~~, the provisions of Sections 1002 through 1011 shall apply. ~~This includes a change of occupancy classification and a change to another group within an occupancy classification.~~

1001.2.2.1 Partial change of occupancy. Where ~~a portion of an existing building undergoes a change of occupancy classification~~ a portion of an existing building undergoes a change of occupancy classification ~~the occupancy classification or group of a portion of an existing building is changed~~, Section 1011 shall apply.

Reason Statement: In the last code cycle, all references to "group" were removed from the IEBC definition of "change of occupancy", the definition was revised, and a definition for "change of use" was added (Code Change No: ADM 3-19 Part I). In light of those changes, the references to "group" in Sections 1001.2.1, 1001.2.2, and 1001.2.2.1 of the 2021 IEBC no longer make sense. We propose cleaning up the language by removing references to "change of group" and by modifying the language to include the defined terms "Change of Occupancy" and "Change of Use."

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

This proposal is simply aligning with the definitions for "change of occupancy" and "change of use" and is not intended to increase the cost of construction.

EB92-22

EB93-22

IEBC: 1001.2, 1004.1, 1011.1, 1011.2, 1011.2.1, 1011.2.2

Proponents: Kevin Scott, representing KH Scott & Associates LLC (khscottassoc@gmail.com)

2021 International Existing Building Code

Revise as follows:

1001.2 Certificate of occupancy. A *change of occupancy* or a *change of occupancy* within a space where there is a different fire protection system threshold requirement in Chapter 9 of the current International Building Code than exists in the current building or space shall not be made to any structure without the approval of the *code official*. A certificate of occupancy shall be issued where it has been determined that the requirements for the *change of occupancy* have been met.

1004.1 General. Fire protection requirements ~~of in~~ Section 1011 shall apply where either of the following occur:

1. ~~a A building, or portions thereof, undergo~~ undergoes a *change of occupancy* ~~classification or where~~
2. ~~there is a A building, or portion thereof, undergoes a~~ change of occupancy within a space where and there is a different fire protection system threshold requirement in Chapter 9 of the current International Building Code than exists in the current building or portion thereof.

1011.1 General. The provisions of this section shall apply to buildings or portions thereof undergoing a *change of occupancy* classification. This includes a *change of occupancy* classification within a group as well as a *change of occupancy* classification from one group to a different group. The provisions of this section shall also apply or ~~where there is a change of occupancy within a space where building or portion thereof and there~~ is a different fire protection system threshold requirement in Chapter 9 of the current International Building Code than exists in the current building or space. Such buildings shall also comply with Sections 1002 through 1010 of this code.

1011.2 Fire protection systems. Fire protection systems shall be provided in accordance with Sections 1011.2.1 and 1011.2.2.

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 current International Building Code than exists in the current building or space 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*.

1011.2.2 Fire alarm and detection 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 current International Building Code than exists in the current building or space that requires a fire alarm and detection system to be provided based on the new occupancy in accordance with Chapter 9 of the *International Building Code*, such system shall be provided throughout the area where the *change of occupancy* occurs. Existing alarm notification appliances shall be automatically activated throughout the building. Where the building is not equipped with a fire alarm system, alarm notification appliances shall be provided throughout the area where the *change of occupancy* occurs in accordance with Section 907 of the *International Building Code* as required for new construction.

Reason Statement: The definition of change of occupancy was revised last cycle to specify that a change in the use or occupancy of a building, or portion thereof, shall be treated as a Change of Occupancy if the current IBC requires a greater degree of protection than exists in the building. This proposal intends to correlate other sections of the IEBC with the new definition and to clarify how this concept is to be applied. The intent of the IEBC is to compare the current fire safety requirements in the building with the fire safety requirements applicable to the proposed

occupancy in the current IBC. However, this comparison has been erroneously made to compare the thresholds for each occupancy in the IBC. Consider a Group R-1 being converted to a Group R-2. The existing building is not sprinklered. The intent of the IEBC, and the clarification offered by this code change, is that the features of the existing building are compared to the requirements in the current IBC for the proposed occupancy. Unfortunately, it has occurred that the sprinkler thresholds for each occupancy in the current IBC are compared, and since the thresholds are the same, it has been determined that sprinklers are not required. This is not the intent of the IEBC or the code change that approved last cycle.

This proposal intends to clarify that the fire safety features of the existing building are to be compared to the current requirements in the IBC. The building needs to comply with the requirements in the current IBC for fire safety features.

This would specifically mean that if a nonsprinklered Group R-1 is changed to Group R-2, sprinklers would now be required in accordance with the IBC. In other words, even though those two occupancies have the same sprinkler threshold in the IBC, that is not what is compared. The existing building is compared to the current threshold for sprinklers in the IBC.

The same process would be followed for a Group M being changed to Group S-1. Even though the sprinkler threshold for both occupancies requires sprinklers where a fire area exceeds 12,000 square feet is not relevant. The question is - does the building comply with the sprinkler requirements in the current code for the proposed occupancy?

An extreme example is an existing Group I-3 being changed to a Group H-2. The fire sprinkler threshold for both occupancies is "sprinklers installed in all". If the existing Group I-3 did not have sprinklers, would you require sprinklers for a change of occupancy to Group H-2? Of course! The existing building does not comply with the requirements in the current IBC.

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

This proposal is merely clarifying that the intent is that the current conditions of the existing building experiencing any change in occupancy be compared with the fire protection triggers in Chapter 9 of the current IBC. This may require the installation of a new system such as an automatic sprinkler system but that was the intent of the current language when it was placed in the code. Therefore it was not intended to change of the cost of construction.

EB93-22

EB94-22

IEBC: 1002.1

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 Statement: 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

EB95-22

IEBC: 1002.3

Proponents: John Williams, representing Committee on Healthcare (ahc@iccsafe.org)

2021 International Existing Building Code

Revise as follows:

1002.3 Change of occupancy in health care. Where a *change of occupancy* occurs to a Group I-2 or I-1 facility, the *work area* with the *change of occupancy* shall comply with the International Building Code.

Exception-Exceptions:

1. A change in use or occupancy in the following cases shall not be required to meet the International Building Code:
 - 1.1. Group I-2, Condition 2 to Group I-2, Condition 1.
 - 1.2. Group I-2 to ambulatory health care.
 - 1.3. Group I-2 to Group I-1.
 - 1.4. Group I-1, Condition 2 to Group I-1, Condition 1.
2. In a Group I-1 occupancy, where a change of use is not in conjunction with a Level 3 alteration, a smoke barrier in accordance with Section 420.6 of the IBC is not required to be added.

Reason Statement: The intent of this proposal is to clarify what is required where an existing Group I-1 has partial change of use within the facility. It is not reasonable for a small change of use to trigger a major renovation to create smoke compartments. This is consistent with the Healthcare committee proposal for alterations in these facilities.

Prior to changes to the 2015 I-Codes, many Assisted Living communities were already operating as I-1 Occupancies, without having a Condition 1 or Condition 2 declaration. A clear requirement is needed for when these buildings would need to declare a Condition and meet the current code requirements for Smoke Barriers and Sprinklers. This code change sets the threshold at a Level 3 Alteration (greater than 50% of the aggregate building area), because that level of work equates to a larger expenditure level, and it matches the requirements already in Section 904 requiring upgraded fire protection for Group I-1 occupancies.

Many Assisted Living and Memory care communities operate on very slim budgets. These communities should be able to operate as they currently are, and make certain cosmetic renovations to their building without triggering the current code requirements of a Condition 1 or Condition 2, Group I-1 Occupancy. However, once they reach the Level 3 alteration threshold (renovation of 50% of building) they must declare a condition, and if they choose Condition 2, they must add smoke barriers in the work area. The requirement to add sprinklers in the work area is already contained in Section 904.1.4 of the IEBC.

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 increase the cost of construction

This proposal clarifies where compliance with the special use requirements for Group I-1 occupancies in accordance with the IBC apply. Such upgrades are required where there is a level 3 alteration in conjunction with a change in use. This then does allow minor changes (up through alteration level 2) to occur without full compliance. Where the exception cannot be met it may require installation of a smoke barrier thus increasing the cost of construction.

EB95-22

EB96-22

IEBC: 1011.2.1

Proponents: Jeffrey Grove, representing Jensen Hughes (jgrove@jensenhughes.com)

2021 International Existing Building Code

Revise as follows:

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 an automatic sprinkler system shall be required where there is a change of occupancy classification and Chapter 9 of the International Building Code requires an automatic fire sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in 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 a nonrated permanent partition and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier, or fire wall, 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*.

Reason Statement: This section was revised from the 2018 IEBC. In the 2021 IEBC, the section begins with a subordinate clause fragment. A revision is necessary to provide proper sentence structure and a complete thought. This is intended to clarify the intent and is not intended to be a substantive change.

Alternatively a simpler solution to addressing this issue could be as follows:

Revise as follows:

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~~ 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.

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

There is no cost impact as it is an editorial change to fix the sentence structure to provide the proper regulatory language intended.

EB96-22

EB97-22

IEBC: 1011.2.1, 1011.2.1.1 (New), 1011.2.1.1.1 (New)

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 Statement: 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

EB98-22

IEBC: 1011.5.1, 1011.5.2, 804.12, 804.12.1, 804.12.2

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 Statement: 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.

EB98-22

EB99-22

IEBC: 1011.6.1

Proponents: Jeffrey Grove, representing Jensen Hughes (jgrove@jensenhughes.com)

2021 International Existing Building Code

Revise as follows:

1011.6.1 Height and area for change to a higher-hazard category. Where a change of occupancy classification is made to a higher-hazard category as shown in Table 1011.6, heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the *International Building Code* for the new occupancy classification.

Exception-Exceptions:

1. For high-rise buildings constructed in compliance with a previously issued permit, the type of construction reduction specified in Section 403.2.1 of the *International Building Code* is permitted. This shall include the reduction for columns. The high-rise building is required to be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 of the *International Building Code*.
2. Buildings that were constructed in compliance with a previously issued permit that have floor assemblies with a 1-1/2 hour fire resistance rating shall not be required to comply with Chapter 5 of the *International Building Code* where all of the following apply:
 - 2.1. Chapter 5 of the *International Building Code* requires Type IB construction.
 - 2.2. The building does not include Group H occupancies.
 - 2.3. The building is protected throughout with an automatic sprinkler system in accordance Section 903.3.1.1 of the *International Building Code*.

Reason Statement: In general, the IEBC is written such that the extent to which an existing building is required to comply with the requirements of the IBC is proportional to the extent to which the existing building is being changed. The IEBC requires compliance with IBC chapter 5 (which may require upgrading the fire resistance ratings of existing building elements) when there is a change of occupancy classification to a higher hazard. See IEBC section 1011.6.1.

The legacy BOCA code had a construction classification (type 2A) that consisted of 2 hour rated columns, 1-1/2 hour rated floors and a one hour rated roof. This construction type was permitted for buildings up to 8 stories in height.

Many existing office buildings are converted to residential use as part of adaptive reuse projects. Per IEBC section 1011.6.1, a change in occupancy classification to a higher hazard category (like B to R-1 or R-2) would require upgrading these existing floor assemblies from a 90 minute rating to a 2 hour fire resistance rating. Upgrading 90 minute rated floor assemblies to a 2 hour fire resistance rating would be disproportionate to the risk associated with change from business to residential use in a building 8 stories in height or less. In general, the occupant load of residential occupancies is less than the occupant load of business occupancies.

Although IBC section 403.2.1 permits reduction from type IB to type IIA construction in some high rise buildings, not all legacy BOCA type 2A buildings are high rises.

This new exception is proposed to be limited to fully sprinklered buildings and to buildings that do not include type H occupancies. Additionally, we do not propose applying this exception to buildings that are required by IBC chapter 5 to have type IA construction.

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

This code change would reduce the cost of construction such that this specific type of existing construction would not require fire resistance upgrades.

EB99-22

EB100-22

IEBC: 1011.7.1

Proponents: China Clarke, representing NYS DOS Division of Building Standards and Codes; Kevin Duerr-Clark, representing New York State Department of State (kevin.duerr-clark@dos.ny.gov)

2021 International Existing Building Code

Revise as follows:

1011.7.1 Exterior wall rating for change of occupancy classification to a higher-hazard category. Where a change of occupancy classification is made to a higher hazard category as shown in Table 1011.7, exterior walls shall have fire resistance, ~~and~~ exterior opening areas, and opening protectives as required by the *International Building Code*.

Exception: A 2-hour fire-resistance rating shall be allowed where the building does not exceed three stories in height and is classified as one of the following groups: A-2 and A-3 with an occupant load of less than 300, B, F, M or S.

Reason Statement: The exterior walls of buildings, or portions thereof, undergoing a change of occupancy classification to a higher-hazard category, are required to comply with the provisions of Section 1011.7.1. The provisions require that users comply with the "fire resistance" and the "exterior opening protectives" of the IBC. In instances where existing exterior walls have existing openings that are, either not allowed or their area exceeds the maximum area allowed by section 705.8 of the IBC, the existing language may be interpreted as allowing those openings to remain unchanged. We propose to clarify the intent of the section by adding language that directs the user to be aware of the maximum allowable area of those openings also.

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

This proposal is intended to make sure exterior openings including opening protectives comply with the IBC. Without this revision it is unclear whether this is the intent of the section. It was not intended to make a technical change.

EB100-22

EB101-22

IEBC: 1011.8.2

Proponents: Jeffrey Hugo, representing NFSA (hugo@nfsa.org)

2021 International Existing Building Code

Revise as follows:

1011.8.2 Stairways. Where a change of occupancy classification is made to a higher-hazard category as shown in Table 1011.5, interior stairways shall be enclosed as required by the *International Building Code*.

Exceptions:

1. In other than Group I occupancies, an enclosure shall not be required for openings serving only one adjacent floor and that are not connected with corridors or stairways serving other floors.
2. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by 1-hour fire-resistance-rated construction or *approved* wired glass set in steel frames and all exit corridors are sprinklered in accordance with the *International Building Code*. The openings between the corridor and the ~~occupant~~ tenant space shall have not fewer than one sprinkler head above the openings on the tenant side. ~~The sprinkler system shall be permitted to be supplied from the domestic water supply systems, provided that the system is of adequate pressure, capacity and sizing for the combined domestic and sprinkler requirements.~~
3. Existing penetrations of stairway enclosures shall be accepted if they are protected in accordance with the *International Building Code*.

Reason Statement: The requirement for installation of automatic sprinkler systems in the IEBC goes back to the IBC, which therein references the installation standards, such as NFPA 13, NFPA 13R, etc. This change provides the same and constant IEBC path back to the IBC for new sprinkler installations. The allowance for the connection to domestic water systems, adequate pressure, and sizing of limited area systems is handled better through the IBC, Where this exception is used, a limited area sprinkler system per IBC, Section 903.3.8, has prescriptive rules for classification, water connections, supervision, and calculations.

Cost Impact: The code change proposal will decrease the cost of construction
This change decreases the cost of construction by referencing a known installation standard.

EB101-22

EB102-22

IEBC: CHAPTER 12, 1201.1

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

2021 International Existing Building Code

Revise as follows:

CHAPTER 12 HISTORIC BUILDINGS AND STRUCTURES

1201.1 Scope. This chapter is intended to provide means for the preservation of *historic buildings and structures*. *Historic buildings and structures* shall comply with the provisions of this chapter relating to their *repair, alteration, relocation and change of occupancy*.

Reason Statement: For far too long, the title and charging language of this chapter have given historic structures a feeling of inadequacy and inferiority. The time to stop this outrage is now! Please join with me as we validate the existence, importance, and significance of historic structures everywhere!

In all seriousness, historic structures are specifically mentioned in Sections 1202.1, 1203.10.2, 1204.3, 1204.12, and 1206.1; however, the title and the charging language of this chapter do not mention historic structures. This proposal corrects that oversight.

While I could propose adding "and structures" to every provision within this chapter, that would not be appropriate in some cases and may create confusion, since many of the provisions deal with occupancy, and structures are effectively defined as being unoccupied (as compared to the definition of *building*, which specifically mentions occupancy). To keep things simple, for this code cycle, in this specific proposal, I am only addressing the lack of charging language in Section 1201.1, Scope, and the title of the chapter (which is an editorial change).

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

This proposal merely corrects the lack of charging language in Section 1201.1. The chapter clearly addresses historic structures in several different sections, but the charging language that would allow the user to access those provisions is missing.

As such, this proposal merely corrects an oversight and provides a path to get to the relevant provisions. No change in scope or requirements is intended or provided. Consequently, this proposal has no cost implications.

EB102-22

EB103-22 Part I

IEBC: SECTION 202 (New), CHAPTER 12

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 A-sprinkler shall be 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.

EB103-22 Part I

EB103-22 Part II

IEBC: SECTION 202 (New), [BS] 1201.2, 1205.4 (New)

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-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 Statement: 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.

Cross reference – Section 1203 and 1204 Revisions

2024 SECTION - Proposed Section 1203 1203 General Safety	2021 Section	Change	Sections of origin in 1203 AND 1204
1203.1 Scope	1203.1	Clarify	1203.1
1203.2 Automatic fire extinguishing system	1203.2 (1203.12 deleted)	Rename/edit	1203.2, 1203.12 (deleted)
1203.3 Means of egress	1203.3	Edit/combine	1203.3, 1204.6
1203.4 Transoms	1203.4	Edit/combine/renumber	1203.4, 1204.8
1203.5 Interior finishes	1203.5	Edit/combine	1203.5
1203.6 Flame Spread Index	1204.9	Edit/combine/renumber	1204.9
1203.7 Stairway enclosure	1203.6	Edit/combine/renumber	1204.11
1203.8 One-hour fire-resistant assemblies	1203.7	Edit/combine/renumber	1203.7, 1204.4, 1204.10
1203.9 Occupancy Separation	1204.4		
1203.10 Glazing in fire-resistance-rated systems	1203.8	Edit/combine/renumber	1203.8
1203.11 Stairways	1203.9	Edit/combine/renumber	1204.11
1203.12 Guards and handrails	1203.10 (1203.10.1 and 1203.10.2 deleted)	Edit/combine/renumber	1203.9, 1203.10
1203.13 Exit signs	1203.11	Edit/combine/renumber	1203.11, 1204.12
1203.14 Door swing	1204.7	Edit/combine/renumber	1204.7
1203.15 Roof covering	1204.5	Edit/combine/renumber	1204.5
1203.16 Building area	1204.2	Edit/combine/renumber	1204.2
1203.17 Exterior ratings	1204.3	Relocated	1204.3
1203.18 Natural light	1204.14	Relocated	1204.14

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.

By permitting the allowances to be available to Alterations and Changes of Occupancy, in some cases the cost of construction will be reduced.

EB104-22

IEBC: [BS] 1201.2

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] 1201.2 Report. ~~A historic building or structure undergoing 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 required by 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 description of 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 included prepared. Additionally, the report shall describe the components of the building or structure that provide a level of safety substantially below that required of existing non-historic buildings and structures. 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.~~

Reason Statement: The provisions in Section 1201.2 that govern the investigation, evaluation, and report are unclear at best. The Commentary is similarly vague and provides no substantive guidance regarding the intent of this provision.

The section contains a general reference to Chapter 1 (i.e., "in accordance with Chapter 1), but the only provisions in Chapter 1 that refer to such a report are in Section 115, which deals with unsafe conditions. Section 115 does not deal with "required safety features that are in compliance with this chapter" (whether the phrase "this chapter" refers to Chapter 1 or Chapter 12 is also unclear) and does not deal with "compliance with other chapters of these provisions".

It makes little sense to refer the user generally to Chapter 1 regarding a report if the only mention of a such a report in Chapter 1 is in Section 115, so a more direct pointer is proposed.

Further, the term "required safety feature" is undefined and unclear, and a vague requirement to assess compliance with all of the chapters makes little sense, when only alterations and changes of occupancy are covered by Section 1201.2.

The requirement to "describe each feature that is not in compliance with these provisions and demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety" is also unclear and largely unenforceable.

This proposal simplifies and improves the language in Section 1201.2 by providing a direct pointer to Section 115 and eliminating vague and unenforceable language. If this proposal is accepted, the section will read as follows:

A historic building or structure undergoing alteration or change of occupancy shall be investigated and evaluated, and a written 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 or structure that provide a level of safety substantially below that required of existing non-historic buildings and structures.

While I would prefer to be able to say that this revised language matches the intent of the existing provision, I honestly cannot say that because the existing provision is extremely vague and unclear. What I can say is that this revised language is both reasonable and fair; it addresses unsafe conditions; and if an assessment of the level of safety provided by existing components must be provided, it requires comparison to that required of existing buildings (as opposed to that required of new buildings).

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

It is impossible to tell for sure whether this proposal will result in an increase or a decrease in the cost of construction because the existing language is so vague. Streamlining the provision and making it enforceable will arguably reduce the amount of time spent trying to intuit the meaning of the section, so that should reduce costs. Making the provision clear and enforceable may result in increased enforcement, so that could arguably increase the cost of construction.

In any event, the total change in the cost of construction is likely negligible as this provision only applies to alterations and changes of occupancy in historic buildings, and, even then, only where required by the building official. It's a very small subset of projects in a small subset of buildings.

EB105-22

IEBC: [BS] 1201.2

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] 1201.2 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 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 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. 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.

Exception: 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*.

Reason Statement: The requirements for a report for historic structures are not particularly clear. What is a "required safety feature" and where are these defined? What are "other chapters of these provisions" and why would it be necessary to comply with all of them when only a Level 1 alteration is being proposed?

Further, and more importantly, there is no need for a report for a historic building or structure for a minor alteration that will not make the building or structure less complying with the building code than it was prior to the alteration. These are historic buildings, and typically they do not meet the requirements of the code for new construction. Itemization of all the ways that a building does not meet the current code for new construction and figuring out all the ways to upgrade the building or structure and then determining whether such upgrades would damage the contributing historic features can be a fairly onerous task.

According to the IEBC, Level 1 alterations include such minor things as replacement of roofing or like-for-like replacement of a piece of broken equipment. For historic buildings and structures that have necessarily existed for many decades or even several centuries, any Level 1 alteration that does not make the building less compliant with current code is not changing the status quo and should not trigger a costly report with all of these requirements.

This proposal makes it clear that Level 1 alterations that do not make the building or structure less compliant do not trigger the need for a report. Alterations more extensive than Level 1, alterations that would make the building less compliant with respect to code, and changes of occupancy would still be covered by this section. But Level 1 alterations that do not make any noncompliances with the current code for new construction worse should be exempted from this requirement.

Note that Building Officials still retain the authority to order remedy of dangerous conditions per Section 1205.2, order inspections per Section 109.2, order abatement of unsafe conditions per Section 115, and order emergency measures per Section 116. This proposal will not alter those powers.

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

This proposal relaxes the requirements for a report for historic buildings and structures that are undergoing Level 1 alterations that do not make the building less compliant with the building code for new construction. As a report to determine all the ways that an existing historic building or structure does not meet the current building code for new construction can be a fairly onerous task, exemption of the requirement for a report will reduce the cost of these minor alterations where the alterations do no harm and do not make any noncompliances worse.

EB105-22

EB106-22

IEBC: 1201.3

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 Statement: 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

EB107-22

IEBC: 1201.5 (New)

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 Statement: 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

EB108-22

IEBC: 1203.2, 1203.12

Proponents: John Swanson, representing NFSA (swanson@nfsa.org)

2021 International Existing Building Code

Revise as follows:

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 ~~sprinkler fire-extinguishing~~ system as determined appropriate by the *code official*. However, an automatic ~~sprinkler fire-extinguishing~~ system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.

1203.12 Automatic ~~sprinkler 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 ~~sprinkler fire-extinguishing~~ system.

Exception: Where the *code official* approves an alternative life-safety system.

Staff Analysis: Note that Proposal EB108-22 and EB109-22 are identical proposals.

Reason Statement: The intent of this code change proposal is to coordinate terminology between the IBC, IFC and IEBC when referring to “automatic sprinkler system” since this term is used and defined in the International Building Code and International Fire Code. The term “automatic fire-extinguishing system” is typically used for fire protection systems covered in IBC Section 904.

Cost Impact: The code change proposal will not increase or decrease the cost of construction. There are no technical changes to this code section. This proposal is being made to correlate across the I-Codes the term “automatic sprinkler system” as intended.

EB108-22

EB109-22

IEBC: 1203.2, 1203.12

Proponents: Stephen Thomas, representing Colorado Chapter ICC (sthomas@coloradocode.net)

2021 International Existing Building Code

Revise as follows:

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 sprinkler~~ system as determined appropriate by the *code official*. However, an automatic ~~fire-extinguishing sprinkler~~ system shall not be used to substitute for, or act as an alternative to, the required number of exits from any *facility*.

1203.12 Automatic ~~fire-extinguishing sprinkler~~ 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 sprinkler~~ system.

Exception: Where the *code official* approves an alternative life-safety system.

Staff Analysis: Note that Proposal EB108-22 and EB109-22 are identical proposals.

Reason Statement: The intent of this proposal is to provide language that is consistent with the building code regarding automatic sprinkler systems. Code Change Proposal IBC 3-09 CCC made similar revisions to clarify the use of sprinklers versus a fire-extinguishing system and fire suppression system. The change was submitted by the National Fire Sprinkler Association. They had the same reasoning to promote consistency throughout the code. We believe this proposal also provides consistency between the IBC and the IEBC regarding this language.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change is just a clarification and provides consistency with the language in the codes for automatic sprinkler systems.

EB109-22

EB110-22

IEBC: 1203.3

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

2021 International Existing Building Code

Revise as follows:

1203.3 Means of egress. ~~Existing door openings and corridor and stairway widths less than those specified elsewhere in this code may be approved, provided that, Where~~ 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, ~~existing door openings and corridor and stairway widths are not required to meet the widths required by the *International Building Code* or this code.~~ 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.

Reason Statement: There was change EB111-19 that had an editorial correction. This addresses non mandatory language and also addresses the fact that this is likely intending to refer also to the IBC. This proposal also addresses the grammar concern that caused this proposal to disapproved last cycle.

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 proposal is merely provided to appropriately revise the language to be more mandatory and clearly provide the correct reference to the IBC as intended. This was a follow-up to a similar proposal EB111-19 and is not intended to change the intent of the section to allow reduced door widths in historic buildings therefore the cost of compliance will not change.

EB110-22

EB111-22

IEBC: SECTION 1205 (New), 1205.1 (New), 1205.1.1 (New), 1205.1.2 (New), 1205.2 (New)

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

2021 International Existing Building Code

Add new text as follows:

SECTION 1205 **AUTOMATIC SPRINKLER SYSTEM EQUIVALENCIES**

1205.1 Sprinkler system alternatives. The following alternatives shall be permitted in lieu of full compliance with the Prescriptive Compliance Method or Work Area Method when undergoing alterations or a change of occupancy.

1205.1.1 Group A-2, M or R-2 Occupancies. Group A-2, M, or R-2 occupancies, can be rehabilitated without an automatic sprinkler system provided the following conditions are met:

1. Building is less than 4 stories in height above grade plane and less than 3000 sqft per floor
2. Group A-2 and M occupancies shall be located on the first floor. Group R-2 shall be located on upper floors.
3. Type IIIB construction.
4. Two exits per story.
5. Vertical openings have 2-hour fire-resistance rating.
6. Fire-resistance rated separations in accordance with the *International Building Code*.
7. Compliance with Section 907 of the *International Building Code* and Item 4 of Section 1205.1.2.

1205.1.2 Other than Group A-2, M or R-2 Occupancies. In other than A-2, M, R-2 occupancies, where an automatic sprinkler system is required a fire alarm system compliant with Section 907 of the *International Building Code* shall be accepted in lieu of the automatic sprinkler system provided that:

1. Buildings are less than 4 stories in height above grade plane and less than 3000 sqft per floor
2. The required number of exits are provided.
3. Carbon monoxide detection is in accordance with Section 915 of the *International Building Code*.
4. The fire alarm system contains the following components and capabilities:
 - 4.1 Manual pull stations
 - 4.2 Full coverage smoke detection in accordance with NFPA 72.
 - 4.3 Occupant notification in accordance with Section 907.5 of the *International Building Code*.
 - 4.4 Emergency lighting in accordance with Section 1008 of the *International Building Code*.

1205.2 Automatic sprinkler system type. Where an automatic sprinkler system is not required but will be used as an alternative to other provisions of this code, the following systems are acceptable:

1. Buildings four stories above grade plane or less: NFPA 13R
2. Buildings five stories above grade plane or greater, NFPA 13
3. Free standing buildings or with property line separation, two stories above grade plane or less and limited to 1500 sqft per floor: NFPA 13D
4. An alternative life-safety system as approved by the code official.

Reason Statement: This code change proposal adds a sub-Section to address and describe fire safety equivalencies in small historic buildings. It specifies the highest level of a fire alarm system, and other mandatory conditions, that would be acceptable in lieu of an automatic fire extinguishing suppression system for small, mixed-use historic buildings, as is typically located in downtown areas and referred to as 'main street' buildings. It describes other small historic buildings where the highest level of a fire alarm system is acceptable in lieu of an automatic fire extinguishing suppression system and the conditions that must be met. It also specifies the type of automatic fire extinguishing suppression system that is acceptable when used as an alternative to other code provisions.

The basis of this code change proposal originates with projects using the Performance Compliance method, where an automatic fire extinguishing suppression system is not required for smaller historic building projects when that method's other stringent requirements are met.

This code change proposal brings together, expands and clarifies this part of fire safety, providing specific guidance to 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.

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

This code change will provide great cost savings for small historic rehabilitation projects where no water exists or where the cost of providing water and installing a fire extinguishing suppression system render a project infeasible. The code change also eliminates the need to pursue burdensome variances that are costly in time and money for the code official, design professional, and owner.

EB111-22

EB112-22

IEBC: [BS] 1205.1

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 existing live loads and to approve operational controls that limit the live load on any floor.
2. Repair of damage that was caused by or related to snow load effects is not required to comply with Sections 402.2.1.1 or 405.2.5.
3. Repair of *disproportionate earthquake damage* is not required to comply with Section 405.2.2. *Disproportionate earthquake damage* shall be repaired in accordance with Section 405.2.1.
- ~~2-4.~~ *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.

Staff Analysis: Code Change proposals EB112-22 and EB113-22 addresses requirements in a different or contradicting manner. The committee is urged to make their intentions clear with their actions on these proposals.

Reason Statement: During the development of the 2018 IEBC, proposal EB41-16 was modified by public comment to further clarify that historic buildings are exempt from the then-existing structural upgrade triggers in Chapter 4 that apply to non-historic buildings. The public comment was accepted at the public comment hearings, and was then approved by the voting membership of the ICC.

However, at the same time that the proposal to clarify that historic buildings are exempted from the then-existing structural upgrade triggers, two new triggers -- the disproportionate earthquake damage trigger (now Section 405.2.2) and the snow-load damage trigger (now Section 405.2.5 and Section 405.2.1.1) -- were added to the IEBC, thus unintentionally contravening both the intent of the IEBC and that of the voting membership with respect to historic buildings. This proposal corrects that oversight by referring users to Section 405.2.1 for nearly all repairs, regardless of the level of damage.

As was discussed during the public comment hearing (and even in the committee action hearing prior to that), the intent is to make repair of historic buildings as least onerous as possible. Exemption of historic buildings from upgrade triggers had been in the code for several code cycles; however, the 2018 IEBC made it more clear, except for these two new upgrade triggers. This proposal brings the Exceptions portion of 1205.1 into alignment with the other exceptions and removes an unintended conflict. Note that building officials still retain the ability to order remedy of dangerous conditions; the intent of this proposal (and the prior proposals that came before) is to prevent upgrade triggers from mandating structural interventions that end up destroying the character-defining features of the structures that this chapter is intended to preserve.

Note that a separate proposal by this author attempts to simplify and improve this section; if the other proposal is accepted, this proposal will become moot and will be withdrawn.

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

Because this proposal adds exceptions to the existing requirements, this proposal has the potential to decrease the cost of construction for the repairs of historic buildings that experience disproportionate earthquake damage or snow-related damage. The costs associated with repairs to historic buildings that do not experience disproportionate earthquake damage or snow-related damage will remain unchanged, as will the cost to repair non-historic buildings.

EB112-22

EB113-22

IEBC: [BS] 1205.1

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 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.~~ Regardless of the level of damage, repairs need only comply with Section 405.2.1. Repairs need not comply with Section 405.2.1.1 or Sections 405.2.2 through 405.2.6.

Staff Analysis: Code Change proposals EB112-22 and EB113-22 addresses requirements in a different or contradicting manner. The committee is urged to make their intentions clear with their actions on these proposals.

Reason Statement: During the development of the 2018 IEBC, proposal EB41-16 was modified by public comment to further clarify that historic buildings are exempt from the then-existing structural upgrade triggers in Chapter 4 that apply to non-historic buildings. The public comment was accepted at the public comment hearings, and was then approved by the voting membership of the ICC.

However, at the same time that the proposal to clarify that historic buildings are exempted from the then-existing structural upgrade triggers, two new triggers -- the disproportionate earthquake damage trigger (now Section 405.2.2) and the snow-load damage trigger (now Section 405.2.5 and Section 405.2.1.1) -- were added to the IEBC, thus unintentionally contravening both the intent of the IEBC and that of the voting membership with respect to historic buildings. This proposal corrects that oversight by simplifying the entire section, referring users to Section 405.2.1 for nearly all repairs, regardless of the level of damage.

As was discussed during the public comment hearing (and even in the committee action hearing prior to that), the intent is to make repair of historic buildings as least onerous as possible. Exemption of historic buildings from upgrade triggers had been in the code for several code cycles; however, the 2018 IEBC made it more clear, except for these two new upgrade triggers. This proposal brings the Exceptions portion of 1205.1 into alignment with the other exceptions and removes an unintended conflict. Note that building officials still retain the ability to order remedy of dangerous conditions; the intent of this proposal (and the prior proposals that came before) is to prevent upgrade triggers from mandating structural interventions that end up destroying the character-defining features of the structures that this chapter is intended to preserve.

This proposal does one other thing: it also exempts qualified historic structures from the flood hazard upgrade trigger associated with substantial damage. This is for the same reason that the historic structures are exempted from the other upgrade triggers -- namely that mandatory upgrade triggers often result in the removal or destruction of the character-defining features that make the structure historic. In editions of the IEBC prior to 2018, Chapter 12 contained fairly clear exceptions to any upgrades; however, it also contained a circular reference to the requirements in then-Chapter 5, which garbled the message. The changes in the 2018 IEBC removed much of the circular references and made the exceptions clear, except that the flood load trigger was NOT excepted. Whether this was by accident or on purpose is not clear; however, the same logic that necessitates the exemption of the other upgrade triggers also necessitates exemption of the flood load trigger for historic structures.

By addressing all of the structural upgrade triggers in a single exception, the intent of Chapter 12 with respect to upgrade triggers is made both clear and streamlined.

Note that a separate proposal by this author attempts to match the existing language in Exception 2; however, that language becomes clunky when all of the various upgrade triggers have to be specifically mentioned. If this proposal is accepted (which is the preferred solution), the other proposal becomes moot and will be withdrawn.

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

Because this proposal makes the existing exception to the upgrade triggers broader, this proposal has the potential to decrease the cost of construction for the repairs of historic buildings that experience disproportionate earthquake damage or damage from snow-load-related effects, or that might otherwise trigger flood upgrades as a result of substantial damage. The costs associated with repairs to historic buildings that do not experience disproportionate earthquake damage or snow-load-related damage or *substantial damage* will remain unchanged, as will the cost to repair non-historic buildings.

EB114-22

IEBC: [BS] 1205.1

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 Statement: 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

EB116-22

IEBC: APPENDIX E (New)

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

STANDARD ACRONYM	STANDARD NAME	SECTION REFERENCED HEREIN
NFPA 550-2017	Guide to the Fire Safety Concepts Tree	E106.5.3

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>

Reason Statement: 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.

EB116-22

