IPMC

2015 GROUP A PUBLIC COMMENT AGENDA

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PM1-15

301.4 (New), [A] 110.1, 202 (New), *Proposed Change as Submitted*

Proponent : Tom Leatherbee, Oklahoma Floodplain Managers Association, representing Oklahoma Floodplain Managers Association (tleatherbee@cityofdelcity.org); Rebecca Quinn, RCQuinn Consulting, Inc., representing on behalf of Federal Emergency Management Agency (rcquinn@earthlink.net)

2015 International Property Maintenance Code

Add new text as follows:

301.4 Structures located in flood hazard areas. For structures located in flood hazard areas as defined in the International Building Code, all costs of all repairs and improvements necessary to bring the exterior and interior of a structure, excluding exterior property, into compliance with the minimum standards of this code shall be included when determining substantial improvement, including all costs related to correcting cited violations.

Revise as follows:

[A] 110.1 General. The *code official* shall order the *owner* or owner's authorized agent of any *premises* upon which is located any structure, which in the *code official's* or owner's authorized agent judgment after review is (1) so deteriorated or dilapidated or has become so out of repair as to be dangerous, unsafe, insanitary or otherwise unfit for human habitation or occupancy, and such that it is unreasonable to repair the structure, to demolish and remove such structure; or (2) if such structure is capable of being made safe by repairs, to repair and make safe and sanitary, or to board up and hold for future repair or to demolish and remove at the *owner's* option; or (3) where there has been a cessation of normal construction of any structure for a period of more than two years, the *code official* shall order the *owner* or owner's authorized agent to demolish and remove such structure, or board up until future repair; or (4) where structures, if located in flood hazard areas established in the *International Building Code*, are determined to have incurred *substantial damage*, the *code official* shall order the owner to demolish and remove such structure, or board up until future repair. Boarding the building up for future repair shall not extend beyond one year, unless *approved* by the building official.

Add new definition as follows:

SECTION 202 DEFINITIONS

SUBSTANTIAL DAMAGE. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure as of the date the code official issues an order pursuant to this code.

SECTION 202 DEFINITIONS

SUBSTANTIAL IMPROVEMENT. Any repair, reconstruction, rehabilitation, alteration, addition or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, as defined in the International Building Code or the International Existing Building Code, any repairs are considered substantial improvement regardless of the actual repair work performed. For the purpose of this code, the term does not include any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

Reason: The broad scope and intent of the IPMC can create difficulties for code officials attempting to apply the code to dilapidated structures in flood hazard areas that when those structures are determined to not comply with IPMC provisions intended to ensure public health, safety and welfare. The flood provisions of the IBC, IRC, and IEBC apply to buildings in flood hazard areas if the code official determines that proposed improvements are "substantial improvement" and if the code official determines buildings have incurred "substantial damage. Both terms are defined in the IBC and IEBC and require comparison of costs to market value of the building. Substantial damage may be triggered by damage of any cause. Most damage results from sudden events, such as fire, tornado, earthquake, or flood.
When applied to structures that have been neglected and become dilapidated and unsafe over time, the basic substantial damage and substantial improvement requirements can be undermined by an existing provision in the IBC/IEBC definition of substantial improvement that allows exclusion of costs to correct identified code violations. Once a structure has been cited under the IPMC, it's conceivable that most if not all costs to correct cited conditions could be excluded.

Another aspect of the IBC/IEBC definition for substantial damage is problematic when applied to buildings that have been neglected and become dilapidated and unsafe over time, and that is the determination of market value of the building. When a building is damaged by a sudden event, it is relatively straightforward to determine the market value "before the damage occurred." It is not straightforward when the damage has occurred over time – what date should be used to determine the market value "before the damage occurred"?

This proposal has two objectives: (1) to specify, for substantial damage, the date of the market value is the date the code official issues an order pursuant to the IPMC; and (2) to remove the provision that allows excluding costs to correct cited violations from the substantial improvement determination when an owner proposes repairing a building pursuant to an order issued pursuant to the IPMC.

Section 110.1 is modified by including structures determined to have incurred substantial damage in the list of conditions that warrant an order of demolition or boarding up until future repair. If future repair is pursued by the owner, the substantial damage determination means the repairs would have to bring the building into compliance with the flood provisions in the IBC or IRC, as applicable. One result of this change is that many more owners are likely to consider demolition, in which case replacement structures would have to comply with all requirements of the IBC/IRC, resulting in all the benefits associated with compliance (resistance to all loads, improved fire safety, energy efficiency, etc.).

Section 202 is modified by adding definitions for Substantial Damage and Substantial Improvement; however, both definitions differ from those in the IBC and IEBC. The proposed definition of Substantial Damage makes clear that the market value of the structure is the date of the code official's order pursuant to the IPMC, avoiding an ambiguity. Without this clarification, an owner may claim the market value should be the value of the building before maintenance starting being neglected, which could be many years in the past (and typically not easy to determine). The proposal to specify the market value as of the date of an order is likely be a higher market value (thus raising the 50% threshold) than the market value as of the date an application for a permit to perform repairs is received (which may be a year or more after the citation is issued), as recommended in FEMA guidance in Section 4.5 of FEMA's Substantial Improvement/ Substantial Damage Desk Reference (FEMA P-758).

The proposed definition of Substantial Improvement removes the provision that allows exclusion of certain costs, thus requiring the costs of all work to be included in the calculation.

Section 301 is modified by adding a new section with plain language that makes it clear all interior and exterior costs are included when Substantial Improvement is determined, and emphasizes that all costs of all repairs and improvements necessary to correct existing cited violations must be included.

Without these amendments, dilapidated and unsafe buildings in flood hazard areas might not trigger the substantial improvement and substantial damage requirements, and thus could be repaired and remain vulnerable to future flooding. In many communities, many buildings that are cited under the IPMC are low income housing. If allowed to remain at-risk of flooding, people who have few resources to recover loss of personal property will remain exposed to flooding.

The combined result of these amendments is to strengthen the applicability of the IPMC as it relates to structures in flood hazard areas by identifying substantial damage as a trigger for a demolition order, removing ambiguity with regard to determining market value for substantial damage determinations, and eliminating an enforcement problem created by the exclusion of some repair costs from the substantial improvement calculation.

A real-life example illustrates the difficulties that will be easier to address if this proposal is approved. A code official was faced with ordering demolition of a dilapidated apartment complex that had been damaged by flooding and left unrepaired for several years (see Figure). The code official, pursuant to the IBC and the community's floodplain management regulations, determined that the structures were substantially damaged. The code official concurrently issued a demolition order pursuant to Section 110 of the IPMC, as the structures were unsafe, insanitary, and unreasonable to repair. This demolition order cited specific exterior and interior conditions in making these determinations. Subsequent application for a remodel permit was denied because the work proposed was determined to be substantial improvement, and the applicant did not propose bringing the building into compliance with the flood requirements. On appeal, the property owner challenged the substantial damage/substantial improvement determinations because virtually all of the proposed repairs would be to correct cited violations of the IPMC, and thus the applicant claimed those costs should be excluded from the determination.

Had the code official's order to demolish or bring the building into compliance been overturned, the apartment buildings could have been repaired in a manner that left them at continued risk for flooding, contrary to the intent of IBC 1612 and local flood damage prevention regulations. These specific buildings, as a result of a somewhat unrelated proceeding, were eventually demolished and the land redeveloped with commercial buildings that incorporate significant flood mitigation measures.

Figure. Interior Condition at Kristie Manor Apartments at time of Demolition Order and Substantial Damage Declaration. The buildings had flooded multiple times, each time experiencing further deterioration. Note the high water mark and mold. Had the apartment buildings been repaired without bringing it into compliance with the flood requirements, the structures and occupants would have remained at risk for this sort of damaging and life-threatening flooding due to their location in a floodway.

Bibliography: Substantial Improvement/Substantial Damage Desk Reference, FEMA P-758. Federal Emergency Management Agency. 2010.
http://www.fema.gov/library/viewRecord.do?id=4160

Cost Impact: Will not increase the cost of construction
The effect on costs will vary on a case-by-case basis. There are scenarios where demolishing and rebuilding fully compliant will likely be less expensive than retrofitting or elevating an existing building to bring it into compliance with the flood requirements. Long-term maintenance and operations cost would also be less, and the cost of NFIP flood insurance will be considerably lower. Costs may increase in other scenarios, especially when Substantial Improvement is triggered because costs to correct existing cited violations are not subtracted, although the cost of NFIP flood insurance will be considerably lower than if the building remains at risk to flooding.

PM1-15 : 301.4 (New)-LEATHERBEE4956

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt this change would create a conflict with the IBC and IEBC with regard to the proposed definitions. Also, the definition of substantial improvement is not used as a trigger for any requirements it is only mentioned when calculating costs. The committee also has concerns about the limiting language that would require the property to be boarded up rather than secured against unlawful entry.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : Tom Leatherbee, Oklahoma Floodplain Managers Association, representing Oklahoma Floodplain Managers Association (tleatherbee@cityofdelcity.org) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Property Maintenance Code

SECTION 202 DEFINITIONS

~~**SUBSTANTIAL IMPROVEMENT.** Any repair, reconstruction, rehabilitation, alteration, addition or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, as defined in the International Building Code or the International Existing Building Code, any repairs are considered substantial improvement regardless of the actual repair work performed. For the purpose of this code, the term does not include any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.~~

SECTION 202 DEFINITIONS

~~**SUBSTANTIAL DAMAGE.** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure as of the date the code official issues an order pursuant to this code.~~

301.4 Structures located in flood hazard areas. For structures located in flood hazard areas ~~as defined in the International Building Code~~, all costs of all repairs and improvements necessary to bring the exterior and interior of a structure, excluding exterior property, into compliance with the minimum standards of this code shall be included when determining substantial improvement and substantial damage, including all costs related to correcting ~~cited~~ existing and identified violations. The market value of the structure on the date the code official issues and initial notice of violation or order shall be the market value used to make the substantial improvement or substantial damage determination.

[A] 110.1 General. The *code official* shall order the *owner* or owner's authorized agent of any *premises* upon which is located any structure, which in the *code official's* or owner's authorized agent judgment after review is (1) so deteriorated or dilapidated or has become so out of repair as to be dangerous, unsafe, insanitary or otherwise unfit for human habitation or occupancy, and such that it is unreasonable to repair the structure, to demolish and remove such structure; or (2) if such structure is capable of being made safe by repairs, to repair and make safe and sanitary, or to board up and hold for future repair or to demolish and remove at the *owner's* option; or (3) where there has been a cessation of normal

construction of any structure for a period of more than two years, the *code official* shall order the *owner* or owner's authorized agent to demolish and remove such structure, or board up until future repair~~; or (4) where structures, if located in flood hazard areas established in the *International Building Code*, are determined to have incurred *substantial damage*, the *code official* shall order the owner to demolish and remove such structure, or board up until future repair~~. Boarding the building up for future repair shall not extend beyond one year, unless *approved* by the building official.

Commenter's Reason: Reason: The broad scope of and intent of the IPMC can create difficulties for code officials attempting to apply the code to dilapidated structures in flood hazard areas when those structures are determined to not comply with IPMC provisions intended to ensure public health, safety and welfare. The original code change proposal sought to address these difficulties in multiple ways . The Committee was concerned that the original proposal created a conflict with definitions found in the IBC and IEBC. This Comment removes the definitions, thus relying on the definitions in the IBC and IEBC, while retaining the exclusionary value language that is critical to ensuring that the cost of repairs associated with violations identified under the IPMC are included in determining substantial improvement and substantial damage. Further, the exclusionary language is combined with language creating a valuation date that provides clarity for both the Code Official and the property owner. This comment also modifies the original proposal's use of the word cited, replacing it with "existing and identified", which is more consistent with the language found within the code and within the IBC. This comment restores Section 110.1 to its original language. Without the adoption of this comment, due to the nature of the IPMC and its inherently broad scope, the substantial damage and substantial improvement provisions in the IBC can be effectively undermined whenever a notice of violation or order is issued for affected structures in flood hazard areas.

PM1-15

PM4-15

304.1.1, 305.1.1, 306.1.1

Proposed Change as Submitted

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Subcommittee, National Council of Structural Engineers Associations (dbonowitz@att.net)

2015 International Property Maintenance Code

Revise as follows:

304.1.1 Unsafe conditions. ~~The following~~ Unsafe conditions ~~shall be determined as unsafe and~~ shall be repaired or replaced ~~to comply~~ in compliance with the *~~International Building Code~~* ~~or the~~ *International Existing Building Code* ~~as required for existing buildings:~~

1. ~~The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength;~~
2. ~~The *anchorage* of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects;~~
3. ~~Structures or components thereof that have reached their limit state;~~
4. ~~Siding and masonry joints including joints between the building envelope and the perimeter of windows, doors and skylights are not maintained, weather resistant or water tight;~~
5. ~~Structural members that have evidence of *deterioration* or that are not capable of safely supporting all nominal loads and load effects;~~
6. ~~Foundation systems that are not firmly supported by footings, are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects;~~
7. ~~Exterior walls that are not *anchored* to supporting and supported elements or are not plumb and free of holes, cracks or breaks and loose or rotting materials, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects;~~
8. ~~Roofing or roofing components that have defects that admit rain, roof surfaces with inadequate drainage, or any portion of the roof framing that is not in good repair with signs of *deterioration*, fatigue or without proper anchorage and incapable of supporting all nominal loads and resisting all load effects;~~
9. ~~Flooring and flooring components with defects that affect serviceability or flooring components that show signs of *deterioration* or fatigue, are not properly *anchored* or are incapable of supporting all nominal loads and resisting all load effects;~~
10. ~~Veneer, cornices, belt courses, corbels, trim, wall facings and similar decorative features not properly anchored or that are anchored with connections not capable of supporting all nominal~~

~~loads and resisting all load effects;~~

11. ~~Overhang extensions or projections including, but not limited to, trash chutes, canopies, marquees, signs, awnings, fire escapes, standpipes and exhaust ducts not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects;~~
12. ~~Exterior stairs, decks, porches, balconies and all similar appurtenances attached thereto, including *guards* and handrails, are not structurally sound, not properly *anchored* or that are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects; or~~
13. ~~Chimneys, cooling towers, smokestacks and similar appurtenances not structurally sound or not properly *anchored*, or that are anchored with connections not capable of supporting all nominal loads and resisting all load effects.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official*.

305.1.1 Unsafe conditions. ~~The following~~ Unsafe conditions ~~shall be determined as unsafe and~~ shall be repaired or replaced ~~to comply~~ in compliance with ~~the *International Building Code* or~~ the *International Existing Building Code* ~~as required for existing buildings:~~

1. ~~The nominal strength of any structural member is exceeded by nominal loads, the load effects or the required strength;~~
2. ~~The anchorage of the floor or roof to walls or columns, and of walls and columns to foundations is not capable of resisting all nominal loads or load effects;~~
3. ~~Structures or components thereof that have reached their limit state;~~
4. ~~Structural members are incapable of supporting nominal loads and load effects;~~
5. ~~Stairs, landings, balconies and all similar walking surfaces, including *guards* and handrails, are not structurally sound, not properly *anchored* or are *anchored* with connections not capable of supporting all nominal loads and resisting all load effects;~~
6. ~~Foundation systems that are not firmly supported by footings are not plumb and free from open cracks and breaks, are not properly *anchored* or are not capable of supporting all nominal loads and resisting all load effects.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted when *approved* by the *code official.*

306.1.1 Unsafe conditions. ~~Where any of the following conditions cause the component or system to be beyond its limit state, the component or system shall be determined as unsafe~~

Unsafe components and systems shall be repaired or replaced ~~to comply~~ in compliance with ~~the *International Building Code* or~~ the *International Existing*

Building Code .as required for existing buildings:

1. Soils that have been subjected to any of the following conditions:
    1.1. Collapse of footing or foundation system;
    1.2. Damage to footing, foundation, concrete or other structural element due to soil expansion;
    1.3. Adverse effects to the design strength of footing, foundation, concrete or other structural element due to a chemical reaction from the soil;
    1.4. Inadequate soil as determined by a geotechnical investigation;
    1.5. Where the allowable bearing capacity of the soil is in doubt; or
    1.6. Adverse effects to the footing, foundation, concrete or other structural element due to the ground water table.
2. Concrete that has been subjected to any of the following conditions:
    2.1. *Deterioration*;
    2.2. *Ultimate deformation*;
    2.3. Fractures;
    2.4. Fissures;
    2.5. Spalling;
    2.6. Exposed reinforcement; or
    2.7. *Detached*, dislodged or failing connections.
3. Aluminum that has been subjected to any of the following conditions:
    3.1. *Deterioration*;
    3.2. Corrosion;
    3.3. Elastic deformation;
    3.4. *Ultimate deformation*;
    3.5. Stress or strain cracks;
    3.6. Joint fatigue; or
    3.7. *Detached*, dislodged or failing connections.
4. Masonry that has been subjected to any of the following conditions:
    4.1. *Deterioration;*
    4.2. *Ultimate deformation;*
    4.3. Fractures in masonry or mortar joints;
    4.4. Fissures in masonry or mortar joints;
    4.5. Spalling;
    4.6. Exposed reinforcement; or
    4.7. *Detached,* dislodged or failing connections.
5. Steel that has been subjected to any of the following conditions:
    5.1. *Deterioration;*
    5.2. Elastic deformation;
    5.3. *Ultimate deformation;*
    5.4. Metal fatigue; or
    5.5. *Detached,* dislodged or failing connections.
6. Wood that has been subjected to any of the following conditions:
    6.1. *Ultimate deformation;*
    6.2. *Deterioration;*
    6.3. Damage from insects, rodents and other vermin;
    6.4. Fire damage beyond charring;

~~6.5. Significant splits and checks;~~
~~6.6. Horizontal shear cracks;~~
~~6.7. Vertical shear cracks;~~
~~6.8. Inadequate support;~~
~~6.9. *Detached,* dislodged or failing connections; or~~
~~6.10. Excessive cutting and notching.~~

Exceptions:

1. Where substantiated otherwise by an *approved* method.
2. Demolition of unsafe conditions shall be permitted where *approved* by the *code official.*

Reason: This proposal corrects errors and removes duplication in the IPMC of provisions already covered more appropriately in the IBC and IEBC.
Unsafe conditions are rare and represent extreme situations. As such, they are outside the general scope (see Section 101.2) and intent (101.3) of the IPMC. Rather, they are more properly addressed by the IBC and IEBC, which already define unsafe conditions to include "inadequate maintenance" and provide remedial administrative procedures (IBC Section 116, IEBC Section 115). In fact, the IPMC relies on the IEBC definitions of unsafe and dangerous, as it does not provide its own definitions in Chapter 2.

Thus, unsafe conditions need only be mentioned in the IPMC to note that they are unacceptable and must be eliminated, which is what this proposal would say. Otherwise, the current listings of specific unsafe conditions are duplicative, often unenforceable, outside the scope of a maintenance code, and in many cases just wrong.

Consider the many references in these three sections to structural elements and their resistance to "nominal loads" and "all load effects." Nominal loads include full Wind and Earthquake loads. Applying these provisions as currently writen would cause every building more than about 20 years old to be labeled dangerous and unsafe even in the absence of deterioration or damage. Further, by referencing structural loads and capacities, simple implementation of the IPMC would require regular assessment by a structural engineer, which is certainly beyond the code's intent.

Consider the many references to structural "soundness." This term is undefined and unenforceable. Provisions requiring structurally sound conditions were removed from the IBC and IEBC for this reason over the last several code cycles.

Consider the several references to a component's "limit state." These references are inappropriate because, as defined in the IBC, there are multiple possible limit states. Merely exceeding a serviceability limit state (especially as contemplated by Section 306.1.1) almost never makes a building or component unsafe.

Consider the many references to deterioration. Deterioration is indeed a sign that maintenance is needed, but it is not a reason to label a building or component unsafe. Similarly, corrosion, elastic deformation, spalling, and cracks (especially as listed in Section 306.1.1) are often normal and are not of themselves reason to label a building or component unsafe. (The IEBC definition of unsafe includes "inadequate maintenance," meaning "not enough to maintain health, safety, and welfare," not merely non-compliant or imperfect maintenance.)

Despite the deletion of these long lists, the proposal results in no loss of substance. As noted, unsafe conditions are already defined and addressed in the IEBC. More specifically, each of the items proposed for deletion is already covered elsewhere in the IPMC. Considering the list in Section 304.1.1:

-- Items 1, 2, 3, 5, 6, and 7 address structural elements and thus are already covered by the IEBC and IBC definition of dangerous.

-- Item 4 is addressed in Section 304.6.

-- Item 8 is addressed in Section 304.7.

-- Item 9 does not even belong in Section 304 but is addressed in Section 305.4

-- Item 10 is addressed in Section 304.8.

-- Item 11 is addressed in Section 304.9.

-- Item 12 is addressed in Section 304.10.

-- Item 13 is addressed in Section 304.11.

Considering the list in Section 305.1.1: Items 1 through 6 address structural elements and thus are already covered by the IBC and IEBC definition of dangerous. Item 5 is additionally addressed by Section 305.4.

Considering the list in Section 306.1.1: Items 1 through 6 address components in terms of their structural materials and properties and thus are already covered by the IBC and IEBC definition of dangerous.

Finally, in addition to removing the inappropriate lists, the proposal requires compliance only with the IEBC, not the IBC, because the IPMC by definition relates to existing buildings, and the IBC no longer has existing building provisions for repair or removal of unsafe conditions.

If approved, a coordinated proposal will be made in Group B to address further duplication and overlap in IPMC Section 108.

Cost Impact: Will not increase the cost of construction
The proposal merely removes duplicate provisions already found in other applicable codes.

PM4-15 : 304.1.1-BONOWITZ5207

Public Hearing Results

Committee Action: Disapproved

Committee Reason: Similar to PM3, the committee felt that the proposal would remove a useful tool for enforcement to remedy unsafe conditions. The IEBC is not triggered until the items on the list are discovered. The committee feels the list needs to be revised to eliminate any conflicts with the IEBC, but the list need to remain. Also, this proposal will limit repairs to the IEBC and would not permit repairs by the IBC.

Assembly Action : None

Individual Consideration Agenda

Public Comment 1:

Proponent : David Bonowitz, David Bonowitz, S.E., representing Existing Buildings Committee, National Council of Structural Engineers Associations. (dbonowitz@att.net) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Property Maintenance Code

SECTION 202 DEFINITIONS

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 service loads.

SECTION 202 DEFINITIONS

UNSAFE. Buildings, structures or equipment that are unsanitary, or that are deficient due to inadequate means of egress facilities, inadequate light and ventilation, or that constitute a fire hazard, or in which the structure or individual structural members meet the definition of "Dangerous," or that are otherwise dangerous to human life or the public welfare, or that involve illegal or improper occupancy or inadequate maintenance shall be deemed unsafe. A vacant structure that is not secured against entry shall be deemed unsafe.

Commenter's Reason:
Each and every sentence in the committee's reason for disapproval is demonstrably false, incorrect, or illogical:

1. "[PM 4] would remove a useful tool for enforcement to remedy unsafe conditions." No, it wouldn't. The current tool is a provision that says unsafe conditions must be repaired using the IEBC. PM 4 would say exactly the same thing, but would properly rely on the IEBC for its consistent definition of "unsafe." Having three unenforceable, incorrect, and duplicative laundry lists of non-conforming (NOT unsafe) conditions does not give the IPMC any more of a tool than the IEBC already provides. On the contrary, its many errors and misjudgments could tie the hands of building officials, reducing their discretion.

2. "The IEBC is not triggered until the terms on the list are discovered." This is a true statement, but it has nothing to do with PM 4, which does not affect this logic at all. First, you discover apparently unsafe conditions, then you repair them. PM 4 merely refers the user, properly, to the definition of "unsafe" in the IEBC -- consistent with IPMC section 201.3.

3. "The committee feels the list needs to be revised to eiminate conflicts with the IEBC, but the list need [sic] to remain." Eliminating conflicts is exactly what PM 4 would do; it is the list itself that represents the conflict. The way to eliminate conflicts is to follow the general practice of all the I-codes, including IPMC 201.3, and use consistent terms and definitions throughout. Retaining three separate lists like those addressed by PM 4 violates this principle and makes the IPMC laughably unenforceable.

HAVING SAID THAT, if IPMC users really feel that a list of unsafe conditions is needed, it happens that just such a list is already available: It is the existing definition of Unsafe, straight from the IEBC. Referencing this list of unsafe conditions in the IPMC achieves the committee's goal. By ICC standard practice, and as stipulated already in IPMC section 201.3, it is not strictly necessary to repeat definitions from one code to another. However, if the committee wants the convenience of having a list of unsafe conditions printed right in the IPMC, it can get there by simply approving this public comment and adding the two definitions as shown. (Only the definition of Unsafe is really needed here. The definition of Dangerous is included only because the definition of Unsafe refers to it, so for similar convenience it should be included in the IPMC as well.)

Members will notice that the definition of Unsafe already includes "inadequate maintenance." Thus, the current definitions give the code official all the discretion he or she needs, without having to list, in three separate places, all sorts of conditions that are not about maintenance, are not necessarily unsafe at all, and that ultimately tie the code official's hands and reduce the IPMC's credibility. (Please see the original PM 4 reason statement for details.)

4. "This proposal will limit repairs to the IEBC and would not permit repairs by the IBC." This statement refers to the fact that PM 4 deletes the reference to the IBC because the IBC no longer covers repair. Contrary to the committee's reason, IBC Section 101.4.7 and Chapter 34 refer themselves to the IEBC for repair. If the IPMC is to be taken seriously, it must keep its provisions and coordination with other codes current.

Additionally, misleading testimony in opposition was given at the hearings. An opponent read from the definition of Dangerous to show that it was not as broad as the listed items PM 4 proposes to delete. This was misleading because PM 4 refers to the IEBC definition of Unsafe, which is far broader than the definition of Dangerous and encompasses the scope of the IPMC's lists -- only without their errors and inconsistencies. But because the misleading testimony was given in re-rebuttal, it could not be corrected by the proponent.

We refer members to the original PM 4 reason statement for a detailed accounting of where the current IPMC text is incorrect, and why deleting these lists will result in no loss of substance to the IPMC and no loss of code "tools" for the building official. The text proposed by PM 4 for deletion is commentary at best, error-filled at worst. Leaving it in the IPMC, contrary to the existing defined terms already cited by IPMC 201.3, makes the IPMC meaningless, if not harmful, to effective building regulation.

The IPMC committee's reasoning is 100% wrong. If the IPMC won't maintain this code, they're making the work of ICC members that much harder. If they won't do the job, you can do it for them by overturning the committee and approving PM 4 EITHER As Submitted or As Modified by this public comment.

PM4-15

PM5-15

505.4, 505.5 (New), 505.6 (New), 505.7 (New), 505.8 (New)

Proposed Change as Submitted

Proponent : Ronald George, Plumb-Tech Design & Consulting, www.Plumb-TechLLC.com, www.ScaldPrevention.org, representing Self; Plumb-Tech Design & Consulting Services LLC; www.ScaldPrevention.org (Ron@Plumb-TechLLC.com)

2015 International Property Maintenance Code

Revise as follows:

505.4 Water heating facilities. Water heating facilities shall be properly installed, maintained and capable of providing an adequate amount of hot or tempered water to be drawn at every required sink, lavatory, bathtub, shower and laundry facility ~~at a minimum temperature of 110°F (43°C).~~ . A gas-burning water heater shall not be located in any *bathroom*, *toilet room*, *bedroom* or other occupied room normally kept closed, unless adequate combustion air is provided. An *approved* combination temperature and pressure-relief valve and relief valve discharge pipe shall be properly installed and maintained on water heaters.

Add new text as follows:

505.5 Maximum Hot Water Temperatures

1. The maximum hot water temperature flowing from any kitchen sink faucet shall be 130 degrees Fahrenheit.
2. The maximum hot water temperature flowing from a lavatory faucet, shower head, bathtub filler faucet bathtub/shower combination, or whirlpool bathtub filler faucet shall be 120 degrees Fahrenheit (48.8 degreess Celcius).
3. The maximum temperature flowing from a bidet faucet shall be 110 degrees Fahrenheit (43 degrees Celcius)
4. The burner control thermostat on the water heater shall not be used to control the hot water distributiuon temperature for conformance to the above hot water temperature limit requirements.

505.6 Minimum Hot or Tempered Water Temperatures

1. The water temperature flowing from a lavatory shall be capable of reaching a minimum of at least 85 degrees Fahrenheit.
2. The water temperature flowing from a kitchen sink shall be capable off reaching a minimum of at least 120 degrees F.
3. The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a minimum of at least 110 degrees F.
4. The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a

minimum of at least 110 degrees F.

505.7 Water Heater Replacement - Capacity When a water heater is replaced, it shall be replaced with a water heater of the same delivery capacity in gallons per hour. When Calculating gallons per hour the temperature rise shall be based on the same temperature rise as the prior heater. If no temperature rise is known, the temperature rise shall be based on a 100 degree rise.

Exception: Where the water heater manufacturer's sizing calculations or other published water heater sizing calculations show the first hour delivery capacity of the selected water heater is adequate for the installation.

505.8 Water Heater Replacement or system temperature changes When a water heater is added, replaced, serviced or adjusted or if a temperature actuated mixing vale serving the hot water distribution system is adjusted, the distribution system temperatures checked to verify the temperaturres do not exceed the limits prescribed in section 505.5 to minimize the risk of scalding.

The existing domestic hot water system shall be checked to verify if the existing shower valve and/or combination tub/shower valve has a code compliant pressure or temperature compensating type, anti-scald shower valve with a maximum temperature limit-stop adjuistment conforming to ASSE 1016/ASME A112.1016/CSA B125.16, Performance requirements for automatic compensating valves for individual showers and tub/shower combinations. After the water heater has been installed and the thermostat has been adjusted to the recommended temperature and allowed to heat up until the burner shuts off, or after a thermostatic mixing valve is adjusted to a new temperature, check and adjust the maximum temperature limit-stop on every shower and tub/shower combination valve to limit the hot water temperature to a maximum of 120 Fahrenheit for scald protection. Also,adjust the outlet temperature of each point-of-use, in-line temperature limiting valve serving bathtubs, whirlpool bathtubs, or lavatories in accordance with the manufacturer's installation instructions to limit the hot water temperature to a maximum of 120 Fahrenheit for scald protection.

The thermostat on the water heater shall not be used to control the hot water distribution temperature for scald protection.

If a non-code compliant shower or tub/shower valve is present, one of more of the following methods shall be provided in the domestic hot water system to minimize the risk of scalding:

1. Replace non-code compliant shower or tub/shower valves with a code compliant shower valve conforming to ASSE 1016/ASME A112.1016/CSA B125.16, Performance requirements for automatic compensating valves for individual showers and tub/shower combinations shall be installed with the temperature limit stop adjusted in accordance with the manufacturers installation instructions to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding. or
2. Provide a Master Temperature Actuated Mixing Valve conforming to ASSE 1017 Temperature Actuated Mixing Valve for Hot Water

Distribution Systems at the water heater to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding.or

3. Provide a water temperature limiting valve at or near each fixture outlet used for bathing or showering in accordance with the requirements of ASSE 1070 Water Temperature Limiting Devices located near the non-code compliant bathtub/shower or bathtub fixtures to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding. or
4. Provide a Temperature Actuated, Flow Reduction (TAFR) valve conforming to ASSE 1062 Temperature Actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings at the shower head and at the tub fillerspout where a combination tub/shower fixture is installed and for any other fixtures used for bathing or showering to limit the hot water temperature to a maximum of 120 degrees Fahrenheit to minimize the risk of scalding

Add new standard(s) as follows:

ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011 Automatic Compensating Valves for Individual Shower & Tub/Shower Combinations

ASSE 1017-2010 Temperature Actuated Mixing Valves for Hot Water Distribution Systems

ASSE 1062-2006 Temperature Actuated, Flow Reduction (TAFR) Valves for Individual Supply Fittings

ASSE 1070-2004 Water Temperature Limiting Devices

Reason: There is currently no provisions in the code to require unsafe existing plumbing installations to where scalding is a hazard. Hundreds of people are scalded each year where non-code compliant (Two-handle) shower valves are installed. This code change is iintended to address this and other hot water scald hazards in existing installations.

What are safe hot water temperatures?

By Ron George
President, Ron George Design & Consulting Services

Plumbing Engineer Magazine Aug 2009

I am often asked, "What is a safe hot water temperature for domestic hot water?" If you read the model codes, it states the maximum hot water temperature for a shower or bathtub is 120 degrees Fahrenheit. If you read the warning labels on the side of most water heaters the maximum hot water temperature is 120 degrees Fahrenheit on some labels and 125 degrees Fahrenheit on other labels. The 125 degree limit probably allows for some temperature loss before the hot water gets to the fixtures. Most water heater literature and warning labels mention the availability of thermostatic mixing valves or automatic temperature compensating valves and they recommend their use. If you look at many of the industry standards for shower mixing valves, they state the valves must have limit stops that are adjustable to limit the maximum hot water temperature to 120 degrees Fahrenheit. The testing in the standards gives test criteria for testing the shower valves to these limits.

I have served on the working groups for several plumbing industry standards committees for temperature actuated mixing valves and shower valves and it is generally agreed that 120 degrees is the maximum, safe hot water temperature. I also have served on hot water system design standards committees where the participants had agreed that maximum domestic hot water temperature from

plumbing fixtures used for bathing and washing purposes should be 120 degrees Fahrenheit. There were a few exceptions for bidets, sitz baths and whirlpool tubs that had temperatures lower than 120 degrees Fahrenheit for the recommended maximum temperatures to prevent scalding. It also should be noted that some other uses like commercial dishwashers and laundries may need temperatures higher than 120 degrees Fahrenheit. There were two temperatures discussed for each fixture during the design standard meetings. One was the "use temperature" and the other was "the maximum temperature" to prevent scalding.

It's generally agreed that 120 degrees Fahrenheit is the maximum safe hot water temperature that should be delivered from a fixture. Therefore hot water above 120 degrees Fahrenheit can be considered hazardous. Model codes address this in various plumbing code sections…

…The codes generally agree if there is a hazardous condition or a condition that is unsafe or a nuisance to life, health and property it should be corrected but in the existing building code and property maintenance code there is little guidance. It is also generally agreed that water above 120 degrees Fahrenheit at fixtures for bathing and washing with a few exceptions for lower temperatures can be considered dangerous and proper precautions should be taken to prevent the hot water from being a scalding hazard by using the proper safety devices.

When I hear about people setting their water heater to 120 degrees Fahrenheit to prevent scalding, I know they have good intentions, but most people do not know you cannot accurately control the hot water temperature leaving a water heater with the thermostat dial.

Maximum Hot Water Temperature to Prevent Scalding

I have served on many industry committees dealing with hot water system code requirements, hot water system design standards and product standards related to domestic hot water systems devices for temperature control and scald prevention. There has been consensus in all of these committees that the maximum safe hot water delivery temperature for a shower or bathtub is 120 degrees Fahrenheit to prevent scalding with a few exceptions for lower temperatures for bidets and emergency eye wash fixtures. (See the attached Figure 1 - Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children)
There were discussions in a plumbing code ad-hoc committee on temperature limits for the hot water system where everyone agreed the maximum safe temperature was 120 F. The ASPE Hot water committee dealing with a proposed standard for temperature limits in hot water systems also agreed the maximum safe hot water temperature to prevent scalding is 120 Fahrenheit. Several ASSE working groups that I have served on dealing with hot water temperature controls have all have discussed the reaction time of bathers and they have taken into consideration that children, the elderly and people with disabilities usually take longer to get out of harm's way if the water suddenly gets hot and they agreed 120 Fahrenheit is the maximum safe hot water temperature that a valve should deliver. At 120 F it takes about 80 seconds to develop a second degree burn in a child and it takes about 8 minutes to develop a second degree burn in an adult. (See Figure 1) The 120 Degree F temperature limit gives bathers or users an adequate amount of time to get out of harm's way before an irreversible scald burn injury can occur. Each of these committees looked back to the data that was the result of burn studies done by Dr. Moritz and Dr. Henrique's at Harvard Medical College in the 1940s. The burn studies were done using baby pigs that had skin thicknesses similar to that of adult males. The studies exposed the pig's skin to various temperatures of hot water for various periods of time and the severity of the burns were studied and recorded. These were the studies used to develop the time and temperature exposure charts. There have been numerous white papers, seminars, and reports since then discussing the fact that burns can occur quicker than those recorded in the Moritz & Henrique's studies for adult males. The skin is thinner for children and the elderly and the amount of time to receive an irreversible 2nd degree burn injury is less because their skin is thinner. Many of the white papers use the Moritz and Dr. Henrique's original burn studies and they use a ratio of the skin thickness to come up with burn

times for thinner skin of children and the elderly. Children, the elderly and handicapped are also slower to react because it takes them more time to realize what is happening and try to react to get out of harm's way. Someone once told me an apartment complex was not intended for children or the elderly. I said everyone grows old and children often come visit so we need to consider prevention of scalds to children, the elderly and people with disabilities more so than burns to adults because burns can occur quicker for those groups.

The PIEV Theory for Reaction Time

There is a PIEV theory relates to reaction time. The PIEV theory is most commonly used to address braking distance in automobile accidents. It addresses the amount of time it takes a driver to sense a problem and decide to react, then the reaction time is added to the braking time for the total distance that a car travels before stopping. The PIEV theory can also apply to reaction times for a bather with respect to hot water scalds.

PIEV relates to the amount of time it takes a person to react to a hazard. PIEV means - Perception, Intellection, Emotion and Volition. It is usually referred to as the PIEV theory. Before we recognize and react to a hazard, four specific areas of activity need to be processed by the brain for the muscles to react. Those processes are:

1. **Perception** - We need to perceive or gain a Perception of a hazard. There can be delays in the perception with limitation in sight, sound, feeling, or any other of our senses.

2. **Intellection** - We go through a period called, Intellection or the act or process of using the intellect by thinking or reasoning. The bather must determine if the hazard is legitimate and deciding either move out of the way of the hazard or eliminate the hazard by adjusting the controls or in some cases where the bather may be sitting out of the reach of the controls the bather may choose to pull the shower curtain in front of them. If the adjustment of the controls is the choice one must decide which control to turn and try to remember which way to turn each control to adjust the temperature or turn the water off in order to eliminate the hazard. If a wrong choice is made during this process it could compound the situation by making the water even hotter. I travel a lot and I often find that shower controls can be very confusing with respect to how to adjust the controls. I still find two handle shower controls that do not meet code requirements. This is critically important when there is no temperature limit on the shower controls. For example if the shower has a two-handle shower valve and 160 degree hot water is supplied to the system, then turning of the cold water first could lead to instant scalding injuries. Turning down the hot water to 120 F or below creates a system where it could incubate Legionella Bacteria to very high levels.

3. **Emotion** - There is an Emotion or evaluation factor which is defined as a conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body with respect to deciding or assessing how we want to react. A person with reduced mental capacity or someone that is just very old will take longer to process this information and ultimately decide to react.

4. **Volition** - There is the physical Volition or deciding/choosing to act and acting. In the case of braking distance it is when the choice is made to move the foot from the gas pedal to the brake pedal and pressing on the brake pedal. This can be related to the time the bather chooses to adjust the control, and they move their hand to the shower control valve, plus the time to rotate or re-adjust the shower valve plus the time from the adjustment until the water temperature changes coming out of the shower head. Often it can take as much as 3-5 seconds to re-adjust the shower head and another few seconds until the water temperature changes coming out of the shower head. For ultra-low-flow (ULF) showers the delay from the time of the adjustment of the shower valve until the water temperature changes coming out of the shower head can be even longer. So burns can become more severe with ULF shower heads. This is one more area where water conservations measures can unintentionally make plumbing systems less safe.

As the temperature of the water increases this PIEV reaction time becomes more important. Using a bathtub/shower controller with a single handle would reduce the

mental processing time and reduce the possibility of making an error when turning off the water. As Figure 1 shows the higher the temperatures get, the quicker the burns can occur. within seconds or less and the degree and severity of the burn can be affected by this reaction time.

As you can see by the chart in Figure 1, if the water is at 140 F it will take about 0.8 seconds for a child to receive a 2nd degree irreversible burn injury and it will take about 5.6 seconds for an adult male to receive an irreversible burn injury at 140 degrees F. Everyone else will fall somewhere in between. An adult will often find it very difficult to react to a sudden change in temperature within five (5) seconds. If the shower head is an Ultra-Low-Flow (ULF) shower head the delay can be several seconds longer before the water temperature is reduced because the mixed water temperature must evacuate or flush out the hot water in the pipe riser from the shower valve to the shower head. There is basically very little or no time to react at higher temperatures. For a typical adult that is alert and aware the PIEV theory shows it can take well over five (5) seconds to react to a sudden burst of hot water in a shower. For an elderly person or a small child that is confused it could take several minutes or more before they are able to react and adjust the controls or get out of harm's way. There has been a lot of information that suggests reducing the domestic hot water temperature to 120 F or less as it flows from the fixtures will minimize scalding and allow most people to react or get out of harm's way before a scald injury occurs.

Reducing the water temperature flowing from the fixture can be done in several ways by:

1. Reducing the hot water temperature at the fixture by adjusting the maximum temperature limit-stop on the shower valve. (The best way)
2. Using local mixing valves conforming to ASSE 1070 to reduce the hot water temperature flowing from a faucet.
3. Reducing the temperature at the source (Water Heater) with the use of a master mixing valve or temperature actuated mixing valve conforming to ASSE 1017.
4. For existing non code compliant shower or tub/shower installations, Two handle tub/shower valves without a maximum temperature limit adjustment) an ASSE 1062 valve could be used. An ASSE 1062 valve is a Temperature Actuated Flow Reduction (TAFR) valve. It looks like a chrome pipe coupling and it screws on between the shower head and the shower arm. Other models screw into a tub spout or onto a sink faucet in place of the aerator. If the water flowing from fixture exceeds about 117-120 degrees Fahrenheit the TAFR valve will shut the flow of water down to just a trickle so that scalding hot water does not spray onto the bather. It can be reset by adjusting the fixture control valve to a cold water setting and when the cold water reaches the valve it will reset and begin flowing again. This can be a bit of a nuisance in buildings where the hot water temperature is erratic, but it is an inexpensive way to provide protection against scald injuries in older buildings without code compliant shower valves.

Water Heater Thermostats Do Not Control the Water Heater Outlet Temperatures

If you adjust the water heater thermostat for the burner or heating element on a water heater down to 120 degrees, it will not prevent scalding. Water heater thermostats cannot be relied upon to control the hot water temperature leaving a water heater. Water heater manufacturers recommend that installers set thermostats at 120 - 125 F, and most of them ship the water heaters at an even lower temperature setting. It is not possible to set a water heater thermostat at a given temperature and get a relatively constant temperature of hot water from a water heater. The thermostat can not accurately control the water heater outlet temperature with a water heater thermostat.

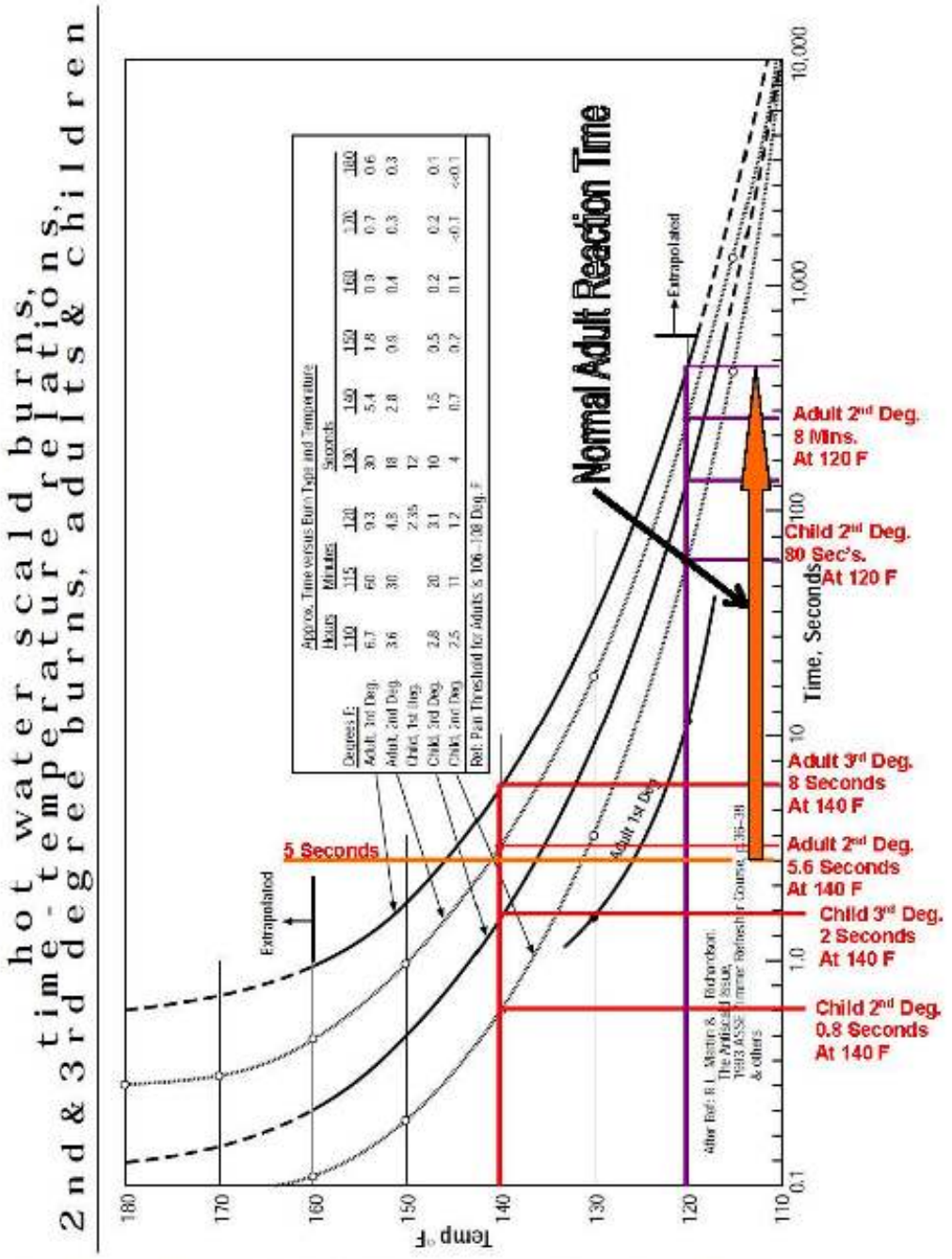
My experience has been that not many people know that water heater thermostats cannot control the outlet temperature of a water heater. This warrants an explanation of how a water heater thermostat works so everyone understands the dial on the water heater does not have the accuracy to control the outlet temperature of storage type heater.

Water heater thermostats do not provide precise temperature controls for hot water systems. For example: the thermostat dial calibration test of ANSI Z21.10.1-1998, which is the applicable standard for gas-fired water heaters, allows the temperature to vary 10 degrees above or below the thermostat setting. I have talked to water heater manufacturers that have indicated that the controls can vary as much as 15 to 18 degrees Fahrenheit above or below the set point of the thermostat. From my experience, I have recorded the temperature leaving the top portion of a water heater over a long period of time during intermittent uses and saw temperature swings over 40 degrees Fahrenheit leaving the water heater. The shower valve standards do not have this kind of temperature fluctuation included their testing for all types of shower valves. The significant temperature swings are because the thermostat is inserted into the lower portion of a water heater tank and turns the fuel supply to the heater on and off. Most new water heater thermostat dials have no way to know what the temperature in the tank is. There is rarely a fixed temperature indicated on the dial, however some manufacturers publish temperatures associated with various marks on the thermostat dial or in their literature even though the dial cannot not control the outlet temperature of the water heater, it only controls when the energy to the heater is turned "on" and "off" by sensing the cold water coming into the bottom of the heater.

Generally, if the water heater thermostat dial is set at 120 degrees Fahrenheit, the burner would come on when the temperature at the thermostat reaches about 105 degrees Fahrenheit. The burner stays on until the water around the thermostat which is near the bottom of the heater reaches about 135 degrees Fahrenheit. (The "burner off" temperature is about 30 degrees higher than when the burner came "on" and generally about 15 degrees above the theoretical set point of the thermostat).

Most people don't realize that the maximum temperature limit test of the ANSI Z21.10.1 Gas Water Heater Standard allows the outlet water temperature of the water heater to rise significantly above the thermostat setting. This provision in the standard accounts for the phenomenon known as "stacking" or "thermal layering". The hot water is less dense and rises to the top of the hot water tank. Just like hot air rises and lifts a hot air balloon, hot water rises to the top of the tank and the cooler water drops to the bottom of the tank. Stacking or thermal layering occurs when the hot water rises to the top of the heater due to recurring short duration heating cycles caused by a frequent number of small quantity hot water uses. Frequent short draws cause cold water to enter the bottom of the water heater where the thermostatic element senses the cold water from the turbulent flow stirring in the bottom of the heater. The cold water causes the water heater to cycle on. This phenomenon can occur in any type of storage water heater and generally is more significant in vertical heaters.

I have recorded temperatures as high as 150 to 166 degrees Fahrenheit at the top of water heaters that had the thermostats set between 120 to 125 degrees Fahrenheit. Temperatures over 151 degrees Fahrenheit are extremely high temperatures and can cause serious scald burns in only a two seconds of contact with the skin. (See Table 1 - Water Temperature Effects on Adult Skin) It should be noted that the time temperature relationships in Table 1 are based upon the thickness of the skin for adult males. Children and the elderly typically have a thinner layer of the skin or epidermis and the exposure times can be shorter or the same burns can occurs in a given time at slightly lower temperatures.
Source: http://www.plumbingengineer.com/aug_09



A Seminar and Technical Paper for the 25-28 Oct. 98 Annual ASPE Meeting at the Indianapolis Convention Center in Indianapolis, Indiana. Reprinted by Watts Regulator Company with permission of Dr. D. Bynum Jr.

Figure 1 – Hot Water Scald Burns – Time vs Temperature Relationship for Second and Third Degree Burns for Adults and Children.
(Notes By: Ron George, CPD, See: www.ScaldPrevention.org)

Bibliography: www.Plumb-TechLLC.com
www.ScaldPrevention.org

www.plumbingengineer.com

Cost Impact: Will increase the cost of construction
The cost impact is minimal. The health and safety impact is one of the most significant health and safety related code changes to existing buildings in years. This code change will save countless lives and prevent countless life altering, very painful scald injuries.

Analysis: A review of the standard proposed for inclusion in the code, ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-2011, ASSE 1017-2010, ASSE 1062-2006 and ASSE 1070-2004, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2015.

PM5-15 : 505.4-GEORGE5206

Public Hearing Results

Committee Action: Disapproved

Committee Reason: The committee felt this proposal would place retroactive requirements into the code. Also, Section 505.5, Item 2 specifies a maximum temperature of 120 degrees Fahrenheit which conflicts with the IPC and ASHRE 90.1 for a maximum temperature of 110 degrees Fahrenheit from lavatory faucets in public facility restrooms.

Assembly Action : None

Analysis. For staff analysis of the content of ASSE 1016/ASME A112.1016/CSA B125,1611, ASSE 1017-2010, ASSE 1062-2006 and ASSE 1070-04 with regard to the ICC criteria for referenced standards (Section 3.6 of CP #28), please visit: http://www.iccsafe.org/wp-content/uploads/2015-Proposed-Standards-Group-A-Final.pdf.

Individual Consideration Agenda

Public Comment 1:

Proponent : Ronald George, representing Self (Ron@Plumb-TechLLC.com) requests Approve as Modified by this Public Comment.

Modify as Follows:

2015 International Property Maintenance Code

505.5 Maximum Hot Water Temperatures

~~1.~~ ~~The maximum hot water temperature flowing from any kitchen sink faucet shall be 130 degrees Fahrenheit.~~

1. The maximum hot water temperature flowing from a lavatory faucet, Bidet, shower head, bathtub filler faucet, bathtub/shower combination, or whirlpool bathtub filler faucet shall be ~~120~~ 110 degrees Fahrenheit (~~48.8~~ 43 degreess Celcius).
2. ~~The maximum temperature flowing from a bidet faucet~~ Temperature limiting devices that are part of the fixture shall be ~~110 degrees Fahrenheit (43 degrees Celcius)~~ set to these limits except where temperature limiting devices do not exist, an approved temperature limiting valve conforming to ASSE 1070 shall be used to prevent excessive temperatures.
3. The burner control thermostat on the water heater shall not be used to control the hot water distributiuon temperature for conformance to the above hot water temperature limit requirements.

~~505.6 Minimum Hot or Tempered Water Temperatures~~

1. ~~The water temperature flowing from a lavatory shall be capable of reaching a minimum of at least 85 degrees Fahrenheit.~~
2. ~~The water temperature flowing from a kitchen sink shall be capable off reaching a minimum of at least 120 degrees F.~~
3. ~~The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a minimum of at least 110 degrees F.~~
4. ~~The water temperature flowing from a shower, tub/shower, bathtub or whirlpool bathtub shall be capable of reaching a minimum of at least 110 degrees F.~~

~~505.7 Water Heater Replacement – Capacity~~ ~~When a water heater is replaced, it shall be replaced with a water heater of the same delivery capacity in gallons per hour. When Calculating gallons per hour the temperature rise shall be based on the same temperature rise as the prior heater. If no temperature rise is known, the temperature rise shall be based on a 100 degree rise.~~

~~**Exception:** Where the water heater manufacturer's sizing calculations or other published water heater sizing calculations show the first hour delivery capacity of the selected water heater is adequate for the installation.~~

(Renumber section 505.8 to 505.6)

Commenter's Reason: There are many scald cases every year that are preventable. These modifications are intended to address these issues.

PM5-15