

# Code Review

## 2018 Changes to International Codes

### IRC - MECHANICAL - MECHANICAL TAC

**W A R N I N G**

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**W A R N I N G**



**FLORIDA  
BUILDING  
COMMISSION**  
*"Stronger Codes Through Science and Consensus"*

Florida  
**dbpr**  
Department of Business and Professional Regulation



Building Codes and Standards

# Residential Code (IRC)–(Mechanical)

## Mechanical Technical Advisory Committee (TAC)

**M2018 International Residential Code – Mechanical**

**Mechanical TAC**

IRC-Mechanical Code Change No.	IRC-Mechanical Section	Change Summary b/t 2015 IRC-M and 2018 IRC-M	Change Summary b/t 2017 FRC-M and 2018 IRC -M	Staff comments										
RM1-15	M1305.1.4.2	<p>Entirely revises M1305.1.4.2 to M1305.1.4.2 “Pit Locations.” The language in the IMC and IFGC is much more complete and concise. This modification completes this section and has all the information necessary for a code compliant installation and makes it consistent with the other codes. The modification was further modified by the Committee. The modification changes an archaic 6 inch dimension to the more commonly required 3 inch dimension.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. This <b>proposal is strictly editorial in nature</b> and will not cause an increase in cost.</p>	Same as change between 2015 IRC and 2018 IRC											
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RB2-16	R202, M1305.1, M1407.4, M1503.4, M1601.1.2, M1601.4.1, M1803.3.5, M1803.4.3, M2204.2, M2301.2.1,	<p>Deletes definitions “ACCESSIBLE”, “ACCESSIBLE”. Adds definitions “READILY”, “ACCESS (TO)”, “READY ACCESS (TO)”. Modifies Definitions “CLEANOUT”, “FIXTURE FITTING”. Modifies text of Table R301.5 “MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS”.</p> <p>Modifies text of Section R302.7 “Under-stair protection”, R308.4.3 “Glazing in windows”, R308.4.6 “Glazing adjacent to stairs and ramps”, R308.6.2 “Materials.” R308.6.5 “Screens not</p>	Same as change between 2015 IRC-B and 2018 IRC-B											

*Rule 61G20-2.002 2. Technical amendments needed to accommodate the specific needs of this state include but are not limited to amendments to the Florida Building Code that provide for the following:*

*a. Establish minimum life safety construction requirements to protect buildings and their occupants from fire, wind, flood, and storm surge using the latest technical research and engineering standards for buildings and materials products. b. Provide for flood protection provisions that are consistent with the latest flood protection requirements of the National Flood Insurance Program. c. Maintain eligibility for federal funding and discounts from the National Flood Insurance Program, the Federal Emergency Management Agency, and the United States Department of Housing and Urban Development. d. Provide for energy efficiency standards for buildings that meet or exceed the national energy standards as mandated by Title III of the Energy Conservation and Protection Act. e. Maintain coordination with the Florida Fire Prevention Code. f. Provide for the latest industry standards and design*

	R1001.2.1, R1003.9.2, R202, R202 (New), R301.5, R302.7, R308.4.3, R308.4.6, R308.6.2, R308.6.5, R310.5, R311.3, R807.1	required”, R310.5 “Dwelling additions”, R311.3 “Floors and landings at exterior doors”, R807.1 “Attic access”, R1001.2.1 “Ash dump cleanout”, R1003.9.2 “Spark arrestors”, M1305.1 “Appliance access for inspection service, repair and replacement”, M1407.4 “Access”, M1503.4 “Makeup air required”, M1601.1.2 “Underground duct systems”, M1601.4.1 “Joints, seams and connections”, M1803.3.5 “Access,” M1803.4.3 “Connection to masonry fireplace flue,” M2204.2 “Shutoff valves”, M2301.2.1 “Access”.  The intent of this proposal is for clarification of terminology. This proposal will clarify where the provisions are for access for repair, not accessibility for persons with disabilities. This clarifies the code by separating something that is accessible from something that is accessed.  <b>Cost Impact:</b> Will not increase the cost of construction. <b>This is a clarification of terminology</b> that will have no change on code requirements.		
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RM3-15	M1401.3	Revises M1401.3 “Equipment and appliance sizing.” Deletes exceptions for M1401.3. The exceptions in the 2015 codes were initially introduced because it was not certain that Manual S would complete full revision prior to the 2015 code's publication. However, ACCA Manual S completed the ANSI consensus revision process in 2014 and is referenced in the 2015 code.  <b>Cost Impact:</b> Will not increase the cost of construction.  See energy consumption results from NIST Study, specifically single fault: equipment sizing. Energy use can increase by up to 24% if oversizing is the only installation fault. The effects are	Same as change between 2015 IRC and 2018 IRC	
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**Rule 61G20-2.002 2. Technical amendments needed to accommodate the specific needs of this state include but are not limited to amendments to the Florida Building Code that provide for the following:**

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		greater with additional installation faults (duct leakage, indoor coil airflow, refrigerant under/overcharging, etc.).		
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RM5-15	M1411.6.1	<p>Adds new section M1411.6.1 “Refrigerant line insulation protection.” This code change clarifies that the Refrigerant vapor (suction) line insulation complying with M1411.6 needs to be protected when it is exposed outdoors. The code change was further modified by the Committee. The modification provides guidance on the protection required and refers back to current code text to avoid redundant text. The committee agreed with the proponent's published reason statement.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. This code change will not increase cost of construction in jurisdictions that have adopted the 2102 or the 2015 IECC. Most jurisdictions by 2018 should have adopted one of the IECC codes. This would only be a cost increase to jurisdictions that have not adopted the 2102 or the 2015 IECC. The majority of pipe insulation manufactures already state in their technical papers or instructions that when using their insulation outdoors it must be protected from weather.</p>	Same as change between 2015 IRC and 2018 IRC	
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<p><b>RM11-15</b></p>	<p>M1502.3.1</p>	<p>Adds new section M1502.3.1 “Exhaust termination outlet and passageway size.” The allowable (calculated) length of the dryer exhaust duct is based on an open (non-restrictive) exhaust terminal. Some exhaust terminals increase resistance due to their inherent design characteristics (path and final opening size). This results in the dryer exhaust duct having to be reduced in length. However, there is no allowance for a reduction in length for a highly resistant vent cap. Short of requiring testing standards for every vent termination, the code must require a minimum open area of 12.5 sq. inches which equates to a 4" round duct. The code is very sensitive and detailed as it relates to 90 degree elbows and their respective friction loss but does not prohibit or penalize for termination hoods that grossly create back pressure, reducing the efficiency of the dryer.</p> <p><b>Cost Impact: Will increase the cost of construction.</b> The cost of the vent terminal may be higher.</p>	<p>Same as change between 2015 IRC and 2018 IRC</p>				
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<p><b>RM12-15</b></p>	<p>M1502.4.2</p>	<p>Modifies Section M1502.4.2 “Duct installation.” The length of the duct and termination are based on friction loss for round duct, not oval duct. The length of the dryer exhaust duct would have to be reduced if the 4 inch duct was oval in shape. This proposal adds text to address this. The code change was further modified by the Committee. The modification deletes the specification in inches to allow all manufacturer's products to be installed in 2 x 6 walls and clearly states the requirement to have ample room for round ducts. Duct deformation impedes air flow.</p> <p><b>Cost Impact: Will increase the cost of construction</b> There is an added cost for furring strips on a 2 x 4 wall.</p>	<p>Same as change between 2015 IRC and 2018 IRC</p>				

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RM14-15	M1503, M1503.1, M1503.1 (New), M1503.2, M1503.2 (New), M1503.2.1 (New), M1505, M1505.1	<p>Adds new text and sections to Section M1503 “Domestic Cooking Exhaust Equipment.” Modifies text to M1503. Removes Section M1505, M1505.1 “General.” Changes the name of Section M1503 from Range Hoods to Domestic Cooking Exhaust Equipment, which more accurately reflects the duct, makeup air, and exhaust air requirements in the section. Adds a charging paragraph for the Section to M1503.1. Describes the listing standards used to investigate the various types of exhaust equipment in Section M1503.2. Relocates Section M1505.1 for open top broilers to section M1503.2.1. The modification was further modified by the Committee. The modification provides consistency within the proposal regarding terminology. The Public comments added language that would require compliance with UL 507.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. <b>It is primarily editorial in nature.</b></p>	Same as change between 2015 IRC and 2018 IRC			
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RM15-15	M1503.4, M1503.4.1, M1503.4.2 (New)	Modifies Section M1503.4 “Makeup air required.” Also removes Exception. Adds new Section M1503.4.2 “Makeup air dampers.” Per reasoning Back drafting of combustion appliances typically presents the greatest danger associated with depressurizing a space. The proposal introduces a new section to address MUA dampers specifically, moving the text	This change is not similar to that of the FRC. The FRC expands the scope of this section to provide for list of	<a href="#">Overlapping provision to be considered during step 2 of the code change process</a>		

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		<p>from M1503.4 to M1503.4.2 and introducing one new requirement for gravity or barometric dampers.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. This proposal is expected to <b>reduce construction costs</b> by reducing the number of scenarios requiring makeup air for kitchen exhaust.</p>	exceptions as required by statutes.										
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RM16-15	M1503.4	<p>Makes a change to Section M1503.4 “Makeup air required.” The proposed change allows the code to capture down draft systems as well and not just apply to hoods.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. This will allow <b>consistency</b> with all exhaust systems.</p>	Same as change between 2015 IRC and 2018 IRC										
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RM19-15	M1504.1, M1901.1, M1901.2	<p>Deletes section M1504.1 “Installation of a microwave oven over a cooking appliance.” Modifies Section M1901.1 “Clearances,” and Section M1901.2 “Cooking appliances.” This proposal clarifies installation criteria for microwave ovens with integral exhaust fans that are installed above cooking surfaces.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction.</p> <p><b>Editorial changes only.</b></p>	Same as change between 2015 IRC and 2018 IRC										

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RM21-15	M1506.3	Modifies Section M1506.3 “Exhaust openings.” This section has been <b>misinterpreted</b> because of its poor language and structure. It reads much better in a list format and the necessary <b>clarifiers</b> "not less than" were added where the code appeared to be requiring an exact distance of 3 or 10 feet.  <b>Cost Impact: Will not increase the cost of construction.</b> This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.	Same as change between 2015 IRC and 2018 IRC			
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RM22-15	M1507.2	Modifies Section M1507.2 “Recirculation of air.” This section fails to include kitchen exhaust. The code should not allow kitchen exhaust to discharge to another dwelling unit or to an attic, crawl space, etc. any more than it should allow the same for toilet and bathroom exhaust. This proposal rectifies this.  <b>Cost Impact: Will increase the cost of construction</b> This proposal will increase the cost of construction in those cases where the kitchen exhaust would have been recirculated	Same as change between 2015 IRC and 2018 IRC			

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		or discharged to a location other than outdoors.					
RCCIWG – Comment	TAC Action	Commission Action		TAC	Commission		
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):		<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>	
RM23-15	M1507.3	Add new section M1507.3 “Ventilating equipment” to provide for code minimum requirement for listing and labeling of ventilating equipment per ANSI/AMCA 210 - ANSI/ASHRAE 51.  <b>Cost Impact: Will increase the cost of construction</b> Over 12,000 ventilating equipment products are labeled and listed in the HVI directory. These fans are tested for airflow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51. For these products, there will be no incremental cost associated with this change. For equipment that is not currently tested, listed, and labeled, the incremental costs are highly dependent upon volume of the specific products sold.	Same as change between 2015 IRC and 2018 IRC				
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):		<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>	
RM26-15	M1507.3.3, Chapter 44	Modifies Section M1507.3.3 “Mechanical ventilation rate.” Adds new standard as “ASHRAE 62.2 - 2010 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.” To provide more precise specification of air that utilized to ventilate a home. Adding a formula for this purpose.  <b>Cost Impact:</b> Will not increase the cost of construction. No cost increase. <b>Possible cost reductions</b> by using more	Same as change between 2015 IRC and 2018 IRC				

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		accurate ventilation requirements		
<b>RCCIWG – Comment</b>	<b>TAC Action</b>	<b>Commission Action</b>		
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	TAC <input type="checkbox"/> Commission <input type="checkbox"/>
			<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>
<b>RM31-15</b>	M1601.1.1	Adds item to Section M1601.1.1 (8) “Above-ground duct systems.” This language is absent in the IRC and is critical that access be provided for these devices in order to properly balance a system  <b>Cost Impact: Will increase the cost of construction</b> It is possible that an increase in cost might occur if access doors need to be purchased. Otherwise not.	Same as change between 2015 IRC and 2018 IRC	
<b>RCCIWG – Comment</b>	<b>TAC Action</b>	<b>Commission Action</b>		
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	TAC <input type="checkbox"/> Commission <input type="checkbox"/>
			<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>
<b>RM34-15</b>	M1601.1.2	Modifies Section M1601.1.2 “Underground duct systems.” To address concerns on underground ducts that are more likely to cause serious issues due to their location. The code change was further modified by the Committee. The modification substitutes the preferred testing method from Chapter 11.  <b>Cost Impact: Will increase the cost of construction</b> Although I have checked the box for additional cost, underground duct systems, when installed by quality contractors and installed correctly should already be performing this test. The proposal for air test may add a minimal cost to initial installation but has potential to save money in the long run through greater energy savings, indoor	Same as change between 2015 IRC and 2018 IRC	

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		air quality and future repairs.					
RCCIWG – Comment		TAC Action		Commission Action			
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):		<input type="checkbox"/> No Action Needed <input type="checkbox"/> Overlapping provisions	
						TAC	
						Commission	
RM36-15	M1601.4.1	<p>Modifies exception of Section M1601.4.1 “Joints, seams and connections.” Per reasoning this proposal <b>will reduce construction cost</b> and still reduce energy loss that would occur due to duct leakage outside conditioned space.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. Cost decrease of up to \$314 for an average house according to research conducted by Home Innovation Research Labs.</p>		Same as change between 2015 IRC and 2018 IRC			
RCCIWG – Comment		TAC Action		Commission Action			
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):		<input type="checkbox"/> No Action Needed <input type="checkbox"/> Overlapping provisions	
						TAC	
						Commission	
RM37-15	M1602.2	<p>Adds Item to Section M1602.2 (7) “Return air openings.” It is not desirable to pull return air from swimming pool areas due to the affects it would have on the system from humidity and chemical odors associated with such spaces. This proposal is to address this. Modified by public comment to provide correction to exclude dedicated systems from the requirements of untreated recirculation to other spaces.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. Generally speaking this proposal is will not cause an increase is cost. If dehumidification is chosen then there could be an increase in cost.</p>		Same as change between 2015 IRC and 2018 IRC			

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RCCIWG – Comment		TAC Action	Commission Action		TAC	Commission
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RM39-15	M2006.1, M2006.3, Chapter 44	<p>Modifies the text of Section M2006.1 “General.” Adds new standards “AHRI 1160 (I-P) -09 Performance rating of Heat Pump Pool Heaters,” “ANSI Z21.56a/CSA 4.7 -2013 Gas Fired Pool Heaters,” “CSA C22.2 No. 236-11 Cooling Equipment,” “CSA C22.2 No. 218.1-M89(R2011) Spas, Hot Tubs and Associated Equipment,” “UL 1563-2009 Standard for Electric Spas, Hot Tubs and Associated Equipment-with revisions through July 2012” This proposal is needed to ensure consistency with what standards are required for the various pool heaters in Section 316.2 and Table 316.2 of the International Swimming Pool &amp; Spa Code. This code was further modified by the Committee. The modifications update the standards to be current with industry.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction.</p> <p>This proposal will prevent an increase in cost because without it, a jurisdiction may require a temperature relief valve in products that are not currently listed to have one.</p>	Same as change between 2015 IRC and 2018 IRC			
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>

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RM40-15	Table M2101.1, M2103.3	<p>Modifications to Table M2101.1 “Hydronic Piping and Fitting Materials.” Modifies Section M2103.3 “Piping joints.” Proposal to modify M2103.3 so that Press-connect joints are included. And also that they are made in accordance with the manufacturer’s installation instructions. The code change was further modified by the Committee. The modification corrects the table title. Also, it was modified by public comment to delete the reference to ASME B16.51 which contains no requirements for the installation of press-connect fittings and defers to fitting manufacturer for installation instructions</p> <p><b>Cost Impact:</b> Will not increase the cost of construction.</p> <p><b>Addition of option, not requirement</b></p>	Same as change between 2015 IRC and 2018 IRC	
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<b>RCCIWG – Comment</b> Impactful (Explain) <input type="checkbox"/>	<b>TAC Action</b> Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> <b>NO:</b> <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain): 	<b>Commission Action</b> Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> <b>NO:</b> <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain): 	<input type="checkbox"/> No Action Needed <input type="checkbox"/> Overlapping provisions	<b>TAC</b> <input type="checkbox"/> <input type="checkbox"/>	<b>Commission</b> <input type="checkbox"/> <input type="checkbox"/>	
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RM41-15	Table M2101.1, Table M2105.4	<p>Modifies text of Table M2101.1 “HYDRONIC PIPING MATERIALS”, Table M2105.4 “HYDRONIC PIPING MATERIALS”. ASTM F877 has been revised a few years ago to remove redundant pipe/tubing dimensional and performance specifications which are otherwise specified in ASTM F876. F877 remains a PEX fitting and PEX system materials and performance standard exclusive for use with ASTM F876 piping/tubing</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. This proposal simply <b>deletes a standard</b> that is no longer pipe or tubing related from the code. The piping material is now covered by a different standard, and as such, the option is not deleting or adding a material. Thus the code with this proposal added will not cause the cost of construction to increase.</p>	Same as change between 2015 IRC and 2018 IRC	
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RCCIWG – Comment		TAC Action	Commission Action		TAC	Commission
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RM42-15	Table M2101	Modifies Table M2101 “Hydronic Piping Materials.” The proposal removes brass because brass is a copper alloy and the standards and requirements are covered in the copper & copper-alloy lines.  <b>Cost Impact:</b> Will not increase the cost of construction.  This proposal will not increase the cost of construction <b>as it is editorial in nature.</b>		Same as change between 2015 IRC and 2018 IRC		
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RM43-15	Table M2101.1, Table M2105.4, Table M2105.5, M2105.13, M2105.13.3 (New), M2105.13.4 (New), Chapter 44	Modifies Table M2101.1 “Hydronic Piping Materials,” Table M2105.4 “GROUND-SOURCE LOOP PIPE,” “TABLE M2105.5 GROUND-SOURCE LOOP PIPE FITTINGS. Adds new Sections M2105.13.3 “Heat fusion joints,” and M2105.13.4 “Electrofusion joints.” Adds new standard “CSA B137.18 - 2013 - Polyethylene of raised temperature (PE-RT) tubing systems for pressure applications.”  Adds new CSA B137.18 standards to Tables M2101.1, M2105.4, and M2105.5. Add reference to ASTM D3261 which is a consensus standard for PE fusion to Table M2101.1 and Table M2105.5 Add references to ASTM F1055, ASTM F2098, ASTM F2735, and ASTM D2683 to Table M2105.5. ASTM F2098 and ASTM F2735 are already referenced in the IMC for		Same as change between 2015 IRC and 2018 IRC		

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		<p>PE-RT fittings. ASTM F1055 and ASTM D2683 are being added for fused PE joints. Add new sections M2105.13.3 and M2105.13.4 to permit fusion of PE-RT joints. The addition of these PE-RT standards will provide alternatives to the standards already in the Code.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. <b>These changes provide alternatives to PERT pipe and fittings standards only.</b> No changes in cost to the current Code provisions.</p>		
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RCCIWG – Comment	TAC Action	Commission Action	TAC	Commission
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: <b>YES (Select Criteria)</b> <input type="checkbox"/> <b>NO:</b> <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain): <input type="text"/>	Accommodate Florida Specific Need: <b>YES (Select Criteria)</b> <input type="checkbox"/> <b>NO:</b> <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain): <input type="text"/>	<input type="checkbox"/> No Action Needed <input type="checkbox"/> Overlapping provisions	<input type="checkbox"/> <input type="checkbox"/>

RM44-15	Table M2101.9	<p>Table M2101.9 “Hanger Spacing Intervals.” The 2015 code cycle for the IRC included updates to the support spacing for both PEX and PE-RT tubing for sizes larger than 1”. This proposal addresses this issue, using table format from Table P2605.1</p> <p><b>Cost Impact:</b> Will not increase the cost of construction.</p> <p>This proposal modifies the spacing for piping material support into the code and thus the code with this proposal added will not cause the cost of construction to increase, <b>and could decrease the cost as less support is required for larger pipe.</b></p>	Same as change between 2015 IRC and 2018 IRC	
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RCCIWG – Comment		TAC Action	Commission Action		TAC	Commission
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RM45-15	M2101.10	<p>Adds exception to Section M2101.10 “Tests.” PPFA has a new air testing policy, which allows for some limited air testing of PEX piping systems, if a number of conditions are met. This code was further modified by the Committee. The modification limits the exception to PEX because it is appropriate such material.</p> <p><b>Cost Impact:</b> Will not increase the cost of construction.</p> <p>This proposal simply <b>adds another option</b> for air testing some specific piping materials into the code and as such, the option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.</p>	Same as change between 2015 IRC and 2018 IRC			
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RM47-15	M2101.10	<p>Modifies text of Section M2101.10 “Test.” To limit the maximum time of pressure testing to 20 minutes (when the minimum time is already only 15 minutes) is not consistent with industry practice nor is it consistent with the IMC 1208.1</p> <p><b>Cost Impact:</b> Will not increase the cost of construction. Eliminating the maximum time of testing requirement has absolutely no bearing on the cost of construction.</p>	Same as change between 2015 IRC and 2018 IRC			

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*a. Establish minimum life safety construction requirements to protect buildings and their occupants from fire, wind, flood, and storm surge using the latest technical research and engineering standards for buildings and materials products. b. Provide for flood protection provisions that are consistent with the latest flood protection requirements of the National Flood Insurance Program. c. Maintain eligibility for federal funding and discounts from the National Flood Insurance Program, the Federal Emergency Management Agency, and the United States Department of Housing and Urban Development. d. Provide for energy efficiency standards for buildings that meet or exceed the national energy standards as mandated by Title III of the Energy Conservation and Protection Act. e. Maintain coordination with the Florida Fire Prevention Code. f. Provide for the latest industry standards and design*

RCCIWG – Comment		TAC Action	Commission Action		TAC	Commission
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RM48-15	M2103.2, M2103.2.1, M2103.2.2	Modifies Section M2103.2 “Thermal barrier required.” Deletes sections M2103.2.1 and M2103.2.2. Insulation R-values should be located in Chapter 11. Proposal to address this. The code change was further modified by the Committee. The modification keeps the text within the IRC for user convenience.  <b>Cost Impact:</b> Will not increase the cost of construction. This proposal will not increase the cost of construction as it is the first step in re-locating an existing insulation requirement from the IRC mechanical section to the IECC/Chapter 11 IRC. There is no increase in the R-value of the insulation or the installation labor.	Same as change between 2015 IRC and 2018 IRC			
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RM51-15	Table M2105.4, Table M2105.5	Modifies text of TABLE “M2105.4 GROUND-SOURCE LOOP PIPE”, TABLE M2105.5 “GROUND-SOURCE LOOP PIPE FITTINGS.” Adds new Standard “NSF 358-2-2012 Polypropylene Pipe & fittings for water-based ground-source “geothermal” heat pump systems.” NSF 358-2 Polypropylene Pipe & fittings for water-based ground-source “geothermal” heat pump systems is the American National standard and should be included in these tables.	Same as change between 2015 IRC and 2018 IRC			

*Rule 61G20-2.002 2. Technical amendments needed to accommodate the specific needs of this state include but are not limited to amendments to the Florida Building Code that provide for the following:*

*a. Establish minimum life safety construction requirements to protect buildings and their occupants from fire, wind, flood, and storm surge using the latest technical research and engineering standards for buildings and materials products. b. Provide for flood protection provisions that are consistent with the latest flood protection requirements of the National Flood Insurance Program. c. Maintain eligibility for federal funding and discounts from the National Flood Insurance Program, the Federal Emergency Management Agency, and the United States Department of Housing and Urban Development. d. Provide for energy efficiency standards for buildings that meet or exceed the national energy standards as mandated by Title III of the Energy Conservation and Protection Act. e. Maintain coordination with the Florida Fire Prevention Code. f. Provide for the latest industry standards and design*

		<b>Cost Impact:</b> Will not increase the cost of construction. Providing an <b>additional option</b> will not increase the cost of construction		
<b>RCCIWG – Comment</b>	<b>TAC Action</b>	<b>Commission Action</b>	<b>TAC</b>	<b>Commission</b>
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>
			<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>
RM52-15	M2005.1, M2301.2.1, M2301.2.11.1, M2301.2.2.2, M2301.2.4, M2301.2.6, M2301.2.6.1 (New), M2301.2.6.2 (New), M2301.2.8, M2301.3, M2301.3.1, M2301.3.2.	Modifies the text of M2005.1 “General”, M2301.2.1 “Access,” M2301.2.4 “Vacuum relief,” M2301.2.6 “Protection from freezing,” M2301.2.8 “Expansion tanks.” M2301.2.11.1 “Solar loop isolation,” M2301.3.1 “Collectors and panels,” M2301.3.2 “Thermal storage units.” Adds new Sections to M2301.2.6.1 “Drain-back systems,” and Section M2301.2.6.2 Freeze protection valves.  Proposed provisions provide additional clarity and direction for installers and code officials. Reference to the SRCC 300 standard was added to the IRC in Chapter 23. Access provisions were revised. New language has been added to the freeze protection section. The provisions relating to collector and hot water storage tank labeling were simplified.  <b>Cost Impact:</b> Will not increase the cost of construction. The proposed changes are not anticipated to impact the cost of installation. No new equipment or features are required, and no new requirements are placed on manufacturers impacting certification or manufacturing costs. <b>Proposed provisions provide additional clarity and direction</b> for installers and code officials at inspection.	Same as change between 2015 IRC and 2018 IRC with minor correlation regarding the HVHZ	

*Rule 61G20-2.002 2. Technical amendments needed to accommodate the specific needs of this state include but are not limited to amendments to the Florida Building Code that provide for the following:*

*a. Establish minimum life safety construction requirements to protect buildings and their occupants from fire, wind, flood, and storm surge using the latest technical research and engineering standards for buildings and materials products. b. Provide for flood protection provisions that are consistent with the latest flood protection requirements of the National Flood Insurance Program. c. Maintain eligibility for federal funding and discounts from the National Flood Insurance Program, the Federal Emergency Management Agency, and the United States Department of Housing and Urban Development. d. Provide for energy efficiency standards for buildings that meet or exceed the national energy standards as mandated by Title III of the Energy Conservation and Protection Act. e. Maintain coordination with the Florida Fire Prevention Code. f. Provide for the latest industry standards and design*

RCCIWG – Comment		TAC Action	Commission Action		TAC	Commission
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RB13-16	R202	Adds new definition “LOCKING-TYPE TAMPER-RESISTANT CAP”. This code change was approved to help reduce unauthorized access to refrigerants, and to help AC system efficiency from theft or from the accidental mixing of refrigerant gases. These devices will allow the refrigerated gases to be locked in the system and will help prevent theft and inhalant abuses.  <b>Cost Impact: Will increase the cost of construction. THIS CODE CHANGE PROPOSAL MAY HAVE A MINIMAL COST IMPACT DURING CONSTRUCTION.</b>	Same as change between 2015 IRC-B and 2018 IRC-B			
Impactful (Explain) <input type="checkbox"/>		Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RB21-16	R301.2	Modifies text of TABLE R301.2 (1) “CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA”. The change adds manual j criteria to the table, so that the jurisdictions are getting manual js that are designed to the correct variables. The requirement for a manual j or an engineered equivalent has been in the code for several cycles, but we do not assist the jurisdiction nor the applicant in determining their criteria. A jurisdiction is given the option of using table 1a or 1b from ACCA Manual J or for the jurisdiction to determine their own criteria due to their unique circumstances.  <b>Cost Impact:</b> Will not increase the cost of construction. This proposal will not increase the cost. <b>This is to provide</b>	Same as change between 2015 IRC-B and 2018 IRC-B			

Rule 61G20-2.002 2. Technical amendments needed to accommodate the specific needs of this state include but are not limited to amendments to the Florida Building Code that provide for the following:

a. Establish minimum life safety construction requirements to protect buildings and their occupants from fire, wind, flood, and storm surge using the latest technical research and engineering standards for buildings and materials products. b. Provide for flood protection provisions that are consistent with the latest flood protection requirements of the National Flood Insurance Program. c. Maintain eligibility for federal funding and discounts from the National Flood Insurance Program, the Federal Emergency Management Agency, and the United States Department of Housing and Urban Development. d. Provide for energy efficiency standards for buildings that meet or exceed the national energy standards as mandated by Title III of the Energy Conservation and Protection Act. e. Maintain coordination with the Florida Fire Prevention Code. f. Provide for the latest industry standards and design

		<b>information on design parameters for the home.</b> The information can be obtained from ACCA Manual J's table 1a or 1b, or some jurisdictions have parameters established.		
<b>RCCIWG – Comment</b>	<b>TAC Action</b>	<b>Commission Action</b>	<b>TAC</b>	<b>Commission</b>
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>
			<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>
M15-15, Part II	M1305.1.1(IRC)	Deletes section M1305.1.1 “Furnaces and air handlers.” <b>Deleted as the section has become antiquated.</b>  <b>Cost Impact:</b> Will not increase the cost of construction This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.	Same as change between 2015 IRC and 2018 IRC	
<b>RCCIWG – Comment</b>	<b>TAC Action</b>	<b>Commission Action</b>	<b>TAC</b>	<b>Commission</b>
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain):	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>
			<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>
G17-16 Part II	R202 (New)	Revises section 202 definitions “Solar energy system,” “Solar thermal collector,” and “Solar thermal system” to bring a consensus ICC standard into the IRC.  <b>Cost Impact:</b> Will not increase the cost of construction. No cost increase as this <b>correlates</b> the requirements relocated to Section 3111.	Same as change between 2015 IBC and 2018 IBC	

Rule 61G20-2.002 2. Technical amendments needed to accommodate the specific needs of this state include but are not limited to amendments to the Florida Building Code that provide for the following:

a. Establish minimum life safety construction requirements to protect buildings and their occupants from fire, wind, flood, and storm surge using the latest technical research and engineering standards for buildings and materials products. b. Provide for flood protection provisions that are consistent with the latest flood protection requirements of the National Flood Insurance Program. c. Maintain eligibility for federal funding and discounts from the National Flood Insurance Program, the Federal Emergency Management Agency, and the United States Department of Housing and Urban Development. d. Provide for energy efficiency standards for buildings that meet or exceed the national energy standards as mandated by Title III of the Energy Conservation and Protection Act. e. Maintain coordination with the Florida Fire Prevention Code. f. Provide for the latest industry standards and design

RCCIWG – Comment	TAC Action	Commission Action		TAC	Commission
Impactful (Explain) <input type="checkbox"/>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain): <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Accommodate Florida Specific Need: YES (Select Criteria) <input type="checkbox"/> NO: <input type="checkbox"/> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> Others (Explain): <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	<input type="checkbox"/> No Action Needed	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>

**Rule 61G20-2.002 2. Technical amendments needed to accommodate the specific needs of this state include but are not limited to amendments to the Florida Building Code that provide for the following:**

**a. Establish minimum life safety construction requirements to protect buildings and their occupants from fire, wind, flood, and storm surge using the latest technical research and engineering standards for buildings and materials products. b. Provide for flood protection provisions that are consistent with the latest flood protection requirements of the National Flood Insurance Program. c. Maintain eligibility for federal funding and discounts from the National Flood Insurance Program, the Federal Emergency Management Agency, and the United States Department of Housing and Urban Development. d. Provide for energy efficiency standards for buildings that meet or exceed the national energy standards as mandated by Title III of the Energy Conservation and Protection Act. e. Maintain coordination with the Florida Fire Prevention Code. f. Provide for the latest industry standards and design**

## Code Change No: **RM1-15**

### Original Proposal

#### Section: M1305.1.4.2

**Proponent:** Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcman@jeffco.us)

#### Delete and substitute as follows:

**M1305.1.4.2 Excavations. Pit locations** ~~Excavations for appliance installations shall extend to a depth of 6 inches (152 mm) below the appliance and 12 inches (305 mm) on all sides, except that the control side shall have a clearance of 30 inches (762 mm).~~

Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than 6 inches (152 mm) above the pit floor. The sides of the pit or excavation shall be held back not less than 12 inches (305 mm) from the appliance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry. Such concrete or masonry shall extend not less than 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend horizontally not less than 30 inches (762 mm). The appliance shall be protected from flooding in an *approved* manner.

**Reason:** The language in the IMC and IFGC is much more complete and concise. This modification completes this section and has all the information necessary for a code compliant installation and makes it consistent with the other codes

**Cost Impact:** Will not increase the cost of construction  
This proposal is strictly editorial in nature and will not cause an increase in cost.

### Report of Committee Action Hearings

#### Committee Action:

**Approved as Modified**

#### Modify as follows:

**M1305.1.4.2 Pit locations.** Appliances installed in pits or excavations shall not come in direct contact with the surrounding soil and shall be installed not less than ~~6-3~~ inches (152 mm) above the pit floor. The sides of the pit or excavation shall be held back not less than 12 inches (305 mm) from the appliance. Where the depth exceeds 12 inches (305 mm) below adjoining grade, the walls of the pit or excavation shall be lined with concrete or masonry. Such concrete or masonry shall extend not less than 4 inches (102 mm) above adjoining grade and shall have sufficient lateral load-bearing capacity to resist collapse. Excavation on the control side of the appliance shall extend horizontally not less than 30 inches (762 mm). The appliance shall be protected from flooding in an approved manner.

**Committee Reason:** Approval was based on the proponent's published reason statements. The modification changes an archaic 6 inch dimension to the more commonly required 3 inch dimension.

#### Assembly Action:

**None**

### Final Action Results

RM1-15

AM

## Code Change No: **RM3-15**

### Original Proposal

#### Section: M1401.3

**Proponent:** Luis Escobar, representing Air Conditioning Contractors of America (luis.escobar@acca.org)

#### Revise as follows:

**M1401.3 Equipment and appliance sizing.** Heating and cooling *equipment and appliances* shall be sized in accordance with ACCA Manual S or other approved sizing methodologies based on building loads calculated in accordance with ACCA Manual J or other *approved* heating and cooling calculation methodologies.

~~**Exception:** Heating and cooling equipment and appliance sizing shall not be limited to the capacities determined in accordance with Manual S where either of the following conditions applies:~~

- ~~1. The specified equipment or appliance utilizes multistage technology or variable refrigerant flow technology and the loads calculated in accordance with the approved heating and cooling calculation methodology are within the range of the manufacturer's published capacities for that equipment or appliance.~~
- ~~2. The specified equipment or appliance manufacturer's published capacities cannot satisfy both the total and sensible heat gains calculated in accordance with the approved heating and cooling calculation methodology and the next larger standard size unit is specified.~~

**Reason:** The exceptions in the 2015 codes were initially introduced because it was not certain that Manual S would complete full revision prior to the 2015 code's publication. However, ACCA Manual S completed the ANSI consensus revision process in 2014 and is referenced in the 2015 code. This creates a severe contradiction between the IRC and the national consensus standard it references.

The Manual S revision committee that developed the sizing procedures and oversize limits included the manufacturers of multi-stage and variable refrigerant flow (VRF) equipment. Those limits were revised through the public review process and now allow a greater range of equipment to be installed for multi-stage and VRF applications. The published Manual S fully covers the proper procedures for multi-stage and VRF technology agreed upon by designers, manufacturers, and energy advocates.

A study published in September 2014 by the National Institute of Standards and Technology, entitled "Sensitivity Analysis of Installation Faults on Heat Pump Performance", found that the energy penalty for over-sizing HVAC equipment could lead to as much as 20% greater energy use in warm climates. Manual S-2014 however allows a new method of oversizing multi-stage and VRF equipment in cold climates to get the necessary heating performance, while still maintaining appropriate sizing limits for warm climates. BUT the current exceptions apply across the board and will lead to unjustifiable oversizing that cost energy and money.

**Bibliography:** [Sensitivity Analysis of Installation Faults on Heat Pump Performance][NIST Technical Note 1848][Domanski, Henderson, Payne][2014][www.acca.org/standards/quality][Understanding ACCA Manual S][ACCA Special Presentation][Luis Escobar][2014][available upon request luis.escobar@acca.org][Residential Equipment Selection][ANSI/ACCA 3 Manual S - 2014][ACCA][2014][www.acca.org/standards/codes]

**Cost Impact:** Will not increase the cost of construction

See energy consumption results from NIST Study, specifically single fault: equipment sizing. Energy use can increase by up to 24% if oversizing is the only installation fault. The effects are greater with additional installation faults (duct leakage, indoor coil airflow, refrigerant under/over charging, etc.).

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**



**Final Action Results**

**RM3-15**

**AS**

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## Code Change No: **RM5-15**

### Original Proposal

#### Section: M1411.6.1 (New)

**Proponent:** Howard Ahern, representing Airex Mfg. (howard@plumberex.com)

#### Add new text as follows:

**M1411.6.1 Refrigerant line insulation protection** Refrigerant Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind. Adhesive tape shall not be considered as a means of protection.

**Reason:** This code change clarifies that the Refrigerant vapor (suction) line insulation complying with M1411.6 needs to be protected when it is exposed outdoors. There has been confusion from Builders, inspectors and contractors that manufactures marking U.V. on the pipe insulation was all that was needed to protect outdoor Refrigerant vapor (suction) line insulation. The majority of Pipe Insulation Manufacturers for Refrigerant vapor (suction) line insulation already have stated in their technical papers or installation instructions that when using their insulation outdoors it must be protected from UV, weather and other damage such as rodents and birds and that they offer only a limited UV resistance. No elastomeric foam is truly UV resistant.

The damage can also be caused by not only U.V, moisture, wind and damage from equipment maintenance but also oxidation. All these factors will permanently damage the insulations external surface permeability and seriously impact the insulation thermal conductivity which will impact the heating or cooling systems efficiency and resulting in higher electrical cost as the compressor must work harder to compensate for the temperature difference which can lead to a shorter life span of the equipment.

Adhesives break down due to bacteria and moisture, removal of Adhesives tape would destroy the external surface permeability of the insulation required in M1411.6

**Cost Impact:** Will not increase the cost of construction

This code change will not increase cost of construction in jurisdictions that have adopted the 2102 or the 2015 IECC. Most jurisdictions by 2018 should have adopted one of the IECC codes. This would only be a cost increase to jurisdictions that have not adopted the 2102 or the 2015 IECC. The majority of pipe insulation manufactures already state in their technical papers or instructions that when using their insulation outdoors it must be protected from weather.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Modified**

**Modify proposal as follows:**

**M1411.6.1 Refrigerant line insulation protection.** Refrigerant piping insulation shall be protected in accordance with Section N1103.4.1. exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind. ~~Adhesive tape shall not be considered as a means of protection.~~

**Committee Reason:** Approval was based on the proponent's published reason statements. The modification provides guidance on the protection required and refers back to current code text to avoid redundant text. The committee agreed with the proponent's published reason statement.

**Assembly Action:**

**None**

### Final Action Results

**RM5-15**

**AM**

# Code Change No: RM11-15

## Original Proposal

**Section: M1502.3.1 (New)**

**Proponent:** Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

**Add new text as follows:**

**M1502.3.1 Exhaust termination outlet and passageway size.** The passageway of dryer exhaust duct terminals shall be undiminished in size and shall provide an open area of not less than 12.5 square inches (8,065 sq mm).

**Reason:** The allowable (calculated) length of the dryer exhaust duct is based on an open (non-restrictive) exhaust terminal. Some exhaust terminals increase resistance due to their inherent design characteristics (path and final opening size). This results in the dryer exhaust duct having to be reduced in length. However, there is no allowance for a reduction in length for a highly resistant vent cap. Short of requiring testing standards for every vent termination, the code must require a minimum open area of 12.5 sq. inches which equates to a 4" round duct. The code is very sensitive and detailed as it relates to 90 degree elbows and their respective friction loss but does not prohibit or penalize for termination hoods that grossly create back pressure, reducing the efficiency of the dryer.

The dimension used for the opening in the interior area of the 4 inches duct is rounded to an even number (12.5"). By maintaining the same opening area throughout the vent terminal, the friction resistance in vent caps can be greatly reduced.

**Video Links:**

[www.youtube.com/watch?v=5KnRp3eXNbk](http://www.youtube.com/watch?v=5KnRp3eXNbk)  
<http://youtu.be/ZL2zV1-Gjdl?t=50s>

Using the blower unit from an electric dryer and a Magnehelic Gauge we ran some random pressure testing on popular roof vent caps. Back pressures provided in some were equal to what three or more elbows would provide.

.21 inches of water column pressure  
2 times as much as a typical elbow

.30 inches of water column pressure  
3 times as much as a typical elbow

Popular 4 inch wide galvanized roof vent  
= .35 inches of water column pressure  
3.5 times as much pressure as a typical elbow

3.5 x

Provided by In-O-Vate Technologies 12/19/2014

**Cost Impact:** Will increase the cost of construction  
The cost of the vent terminal may be higher.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements. The proposal provides criteria for homemade terminals.

**Assembly Action:**

**None**

**Final Action Results**

**RM11-15**

**AS**

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**Code Change No: RM12-15****Original Proposal****Section: M1502.4.2**

**Proponent:** Julius Ballanco, JB Engineering and Code Consulting, P.C., representing In-O-Vate Technologies (JBENGINEER@aol.com)

**Revise as follows:**

**M1502.4.2 Duct installation.** Exhaust ducts shall be supported at intervals not to exceed 12 feet (3658 mm) and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints shall be sealed in accordance with Section M1601.4.1 and shall be mechanically fastened. Ducts shall not be joined with screws or similar fasteners that protrude more than  $\frac{1}{8}$  inch (3.2 mm) into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall have a least dimension allow the installation of not less than 4.25 inches (108 mm). Round ducts shall not be deformed. the duct without deformation.

**Reason:** The dryer exhaust duct must remain round in shape to reduce friction loss in the duct system. The length of the duct and termination are based on friction loss for round duct, not oval duct. The length of the dryer exhaust duct would have to be reduced if the 4 inch duct was oval in shape. In addition to the reduction in efficiency, the oval pipe creates a difficult connection for the consumer to make to the dryer exhaust transition hose.

A 1 inch furring strip (1x2) can be added to a 2 x 4 stud providing the 4.25 inches of space. In most cases, this "mechanical" wall is busy with other trades (plumbing drainage and vent stacks, gas piping, electric service, laundry services and water piping). A 4.25 inch space will benefit all of the trades working within that space. The minimum space required to keep the dryer exhaust duct round is 4.125 inches. This dimension could also be referenced here, however, most contractors







Examples of "mechanical walls" showing the abundance of utilities in this wall, demonstrating the need to provide more than 3.5"

**Cost Impact:** Will increase the cost of construction  
 There is an added cost for furring strips on a 2 x 4 wall.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Modified**

**Modify proposal as follows:**

**M1502.4.2 Duct installation.** Exhaust ducts shall be supported at intervals not to exceed 12 feet (3658 mm) and shall be secured in place. The insert end of the duct shall extend into the adjoining duct or fitting in the direction of airflow. Exhaust duct joints shall be sealed in accordance with Section M1601.4.1 and shall be mechanically fastened. Ducts shall not be joined with screws or similar fasteners that protrude more than 1 /8 inch (3.2 mm) into the inside of the duct. Where dryer exhaust ducts are enclosed in wall or ceiling cavities, such cavities shall have a least dimension allow the installation of not less than 4.25 inches (108 mm). Round ducts shall not be deformed. ~~the duct without deformation.~~

**Committee Reason:** Approval was based on the proponent's published reason statements. The modification deletes the specification in inches to allow all manufacturer's products to be installed in 2 x 6 walls and clearly states the requirement to have ample room for round ducts. Duct deformation impedes air flow.

**Assembly Action:**

**None**

**Final Action Results**

**RM12-15**

**AM**

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## Code Change No: **RM14-15**

### Original Proposal

**Section: M1503, M1503.1, M1503.1 (New), M1503.2, M1503.2 (New), M1503.2.1 (New), M1505, M1505.1**

**Proponent:** Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

**Revise as follows:**

### SECTION M1503 RANGE HOODS DOMESTIC COOKING EXHAUST EQUIPMENT

**Add new text as follows:**

**M1503.1 General.** Domestic cooking exhaust equipment shall comply with the requirements of this section.

**M1503.2 Domestic cooking exhaust.** Where domestic cooking exhaust equipment is provided it shall comply with one of the following:

1. Overhead range hoods and downdraft exhaust equipment not integral with the cooking appliance shall be listed and labeled in accordance with UL 507.
2. Domestic cooking appliances with integral downdraft exhaust equipment shall be listed and labeled in accordance with UL 858 or ANSI Z21.1.
3. Microwave ovens with integral exhaust for installation over the cooking surface shall be listed and labeled in accordance with UL 923.

**M1503.2.1 Open top broiler exhaust.** Domestic open-top broiler units shall be provided with a metal exhaust hood, having a thickness of not less than 0.0157-inch (0.3950 mm) (No. 28 gage). Such hood shall be installed with a clearance of not less than 1/4 inch (6.4 mm) between the hood and the underside of combustible material and cabinets. A clearance of not less than 24 inches (610 mm) shall be maintained between the cooking surface and combustible material and cabinets. The hood width shall be not less than the width of the broiler unit and shall extend over the entire unit.

**Exception:** Broiler units that incorporate an integral exhaust system, and that are listed and labeled for use without an exhaust hood, shall not be required to have an exhaust hood.

**Revise as follows:**

**M1503.4**~~M1503.3~~ **General Exhaust discharge.** Range hoods Domestic cooking exhaust equipment shall discharge to the outdoors through a duct. The duct serving the hood shall have a smooth interior surface, shall be air tight, shall be equipped with a back-draft damper and shall be independent of all other exhaust systems. Ducts serving range hoods domestic cooking exhaust equipment shall not terminate in an attic or crawl space or areas inside the building.

**Exception:** Where installed in accordance with the manufacturer's instructions, and where mechanical or natural *ventilation* is otherwise provided, *listed* and *labeled* ductless range hoods shall not be required to discharge to the outdoors.

**M1503.2M1503.4 Duct material.** Ducts serving ~~range hoods~~ domestic cooking exhaust equipment shall be constructed of galvanized steel, stainless steel or copper.

**Exception:** Ducts for domestic kitchen cooking *appliances* equipped with down-draft exhaust systems shall be permitted to be constructed of schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:

1. The duct is installed under a concrete slab poured on grade.
2. The underfloor trench in which the duct is installed is completely backfilled with sand or gravel.
3. The PVC duct extends not more than 1 inch (25 mm) above the indoor concrete floor surface.
4. The PVC duct extends not more than 1 inch (25 mm) above grade *outside of the building*.
5. The PVC ducts are solvent cemented.

**Delete without substitution:**

### ~~SECTION M1505- OVERHEAD EXHAUST HOODS~~

~~**M1505.1 General.** Domestic open-top broiler units shall have a metal exhaust hood, having a minimum thickness of 0.0157 inch (0.3950 mm) (No. 28 gage) with  $\pm 1/16$  inch (6.4 mm) clearance between the hood and the underside of combustible material or cabinets. A clearance of not less than 24 inches (610 mm) shall be maintained between the cooking surface and the combustible material or cabinet. The hood shall be not less than the width of the broiler unit, extend over the entire unit, discharge to the outdoors and be equipped with a backdraft damper or other means to control infiltration/exfiltration when not in operation. Broiler units incorporating an integral exhaust system, and *listed* and *labeled* for use without an exhaust hood, need not have an exhaust hood.~~

**Reason:** This proposal accomplishes the following:

1. Changes the name of Section M1503 from Range Hoods to Domestic Cooking Exhaust Equipment, which more accurately reflects the duct, makeup air, and exhaust air requirements in the section.
2. Adds a charging paragraph for the Section to M1503.1.
3. Describes the listing standards used to investigate the various types of exhaust equipment in Section M1503.2.
4. Relocates Section M1505.1 for open top broilers to section M1503.2.1.
5. Makes editorial revisions for clarity.

**Cost Impact:** Will not increase the cost of construction  
It is primarily editorial in nature.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Modified**

**Modify as follows:**

**M1503.3 Exhaust discharge.** Domestic cooking exhaust equipment shall discharge to the outdoors through a duct. The duct shall have a smooth interior surface, shall be air tight, shall be equipped with a back-draft damper and shall be independent of all other exhaust systems. Ducts serving ~~range hoods~~ domestic cooking exhaust equipment shall not terminate in an attic or crawl space or areas inside the building.

**Exception:** Where installed in accordance with the manufacturer's instructions, and where mechanical or natural ventilation is otherwise provided, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

**Committee Reason:** Approval is based on the proponent's published reason statements. The proposal is a logical reorganization of text. The modification provides consistency within the proposal regarding terminology.

**Assembly Action:**

**None**

## Public Comments

### Public Comment 1:

Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.

#### Modify as follows:

**M1503.2 Domestic cooking exhaust.** Where domestic cooking exhaust equipment is provided it shall comply with one of the following:

1. ~~Overhead~~The fan for overhead range hoods and downdraft exhaust equipment not integral with the cooking appliance shall be listed and labeled in accordance with UL 507.
2. Overhead range hoods and downdraft exhaust equipment with intergral fans shall compy with UL 507.
3. Domestic cooking appliances with integral downdraft exhaust equipment shall be listed and labeled in accordance with UL 858 or ANSI Z21.1.
4. Microwave ovens with integral exhaust for installation over the cooking surface shall be listed and labeled in accordance with UL 923.
- 5.

**Commenter's Reason:** This change as originally proposed exceeds the scope of UL 507. UL 507 is a standard for fans and blowers, not range hoods. Included in the scope of the standard are overhead range hoods and downdraft exhaust equipment that have integral hoods. UL 507 does not regulate stand-alone range hoods that do not have an integral fan.

These prefabricated range hoods have served the industry successfully for many years. There is no justification for removing a viable range hood. If the code change is approved as proposed, one could only install a range hood that has an integral fan. That would be overly restrictive.

The modification corrects the mistake with the original submittal. UL 507 regulates all fans used for overhead range hoods and downdraft exhaust equipment. It also addresses range hoods and downdraft exhaust equipment with integral fans.

UL 507 does not regulate range hoods, whether prefabricated or field made. Hence, it is inappropriate to reference the standard for this application.

If this modification is not accepted, the change must be denied since the reference to UL 507 exceeds the scope of the standard. This is a violation of ICC policy.

## Final Action Results

RM14-15

AMPC1

## Code Change No: **RM15-15**

### Original Proposal

#### Section: M1503.4, M1503.4.1, M1503.4.2 (New)

**Proponent:** Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport Ventures (mmoore@newportventures.net)

#### Revise as follows:

**M1503.4 Makeup air required.** ~~Exhaust hood systems~~ Where one or more gas-, liquid-, or solid-fuel-burning appliance that is neither direct-vent nor uses a mechanical draft venting system is located within a dwelling unit's air barrier, each exhaust system capable of exhausting in excess of 400 cubic feet per minute (0.19 m<sup>3</sup>/s) shall be mechanically or ~~naturally passively~~ provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper complying with Section M1503.4.2. ~~Each damper shall~~

**Exception:** ~~Makeup air is not required for exhaust systems installed for the exclusive purpose of space cooling and intended to be a gravity damper operated only when windows or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced air inlets are open.~~

**M1503.4.1 Location.** Kitchen exhaust makeup air shall be discharged into the same room in which the exhaust system is located or into rooms or *duct systems* that communicate through one or more permanent openings with the room in which such exhaust system is located. Such permanent openings shall have a net cross-sectional area not less than the required area of the makeup air supply openings.

#### Add new text as follows:

**M1503.4.2 Makeup air dampers** Where makeup air is required by Section M1503.4, makeup air dampers shall comply with this section. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced. Gravity or barometric dampers shall not be used in passive makeup air systems except where the dampers are rated to provide the design makeup airflow at a pressure differential of 0.01 in. w.c. (3 Pa) or less.

**Reason:** Backdrafting of combustion appliances typically presents the greatest danger associated with depressurizing a space. Field tests have confirmed that naturally vented combustion appliances (i.e., those that are not mechanically vented or direct-vent) are the most susceptible to depressurization, and measures should be taken to provide makeup air (MUA) for large exhaust appliances when such appliances are located within the dwelling unit's air barrier. ASHRAE 62.2, the consensus standard for Ventilation and Acceptable Indoor Air Quality in residential dwelling units, does not require MUA when combustion appliances are mechanically vented or are direct-vent. The ASHRAE 62.2 committee recently reviewed the 62.2 section requiring MUA, and the general consensus (no vote taken) was a reaffirmation that the MUA requirement should not apply to mechanically vented or direct-vent combustion appliances, due to lack of data to substantiate their susceptibility to backdrafting.

This proposal would relax the MUA requirement in the IRC by aligning it more closely with ASHRAE 62.2. Similar changes have been made to this section in Florida's and Virginia's adoptions of the IRC.

The proposal introduces a new section to address MUA dampers specifically, moving the text from M1503.4 to M1503.4.2 and introducing one new requirement for gravity or barometric dampers. It makes no sense to design a system to provide MUA if the damper does not open before the combustion appliance starts spilling. So, the new requirement is intended to ensure that when MUA is required, any gravity or barometric damper used to provide MUA shall engage at the pressure differential above which naturally drafted combustion appliances can be expected to backdraft (3 Pa, based on an acceptable 5%-20% failure rate across all

outdoor conditions)'. This proposed requirement only applies to gravity or barometric dampers in "passive" MUA systems, which are those that provide MUA without the assistance of a fan. Gravity or barometric dampers in "active" MUA systems are excluded from this requirement because we assume that the fan will create a sufficient pressure differential to open the damper.

A companion proposal has been submitted to the IMC.

**Bibliography:**

1. Bohac, D., et al. (2002). Ventilation and Depressurization Information for Houses Undergoing Remodeling. Accessed on Dec 5, 2014 at: <http://www.mncee.org/getattachment/eedb1afc-f50e-4833-b450-d52233f58ce0/>.

**Cost Impact:** Will not increase the cost of construction

This proposal is expected to reduce construction costs by reducing the number of scenarios requiring makeup air for kitchen exhaust.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM15-15**

**AS**

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**RM15-15**

**M1503.4 Makeup air required.** Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m<sup>3</sup>/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.

Exception:

In a single-family dwelling, make-up air is not required for range hood exhaust systems capable of exhausting:

(a) Four hundred cubic feet per minute or less; or

(b) More than 400 cubic feet per minute but no more than 800 cubic feet per minute if there are no gravity vent appliances within the conditioned living space of the structure.

**Code Change No: RM16-15**

**Original Proposal**

**Section: M1503.4**

**Proponent:** Janine Snyder, City of Thornton, Colorado, representing Colorado Association of Plumbing & Mechanical Officials (CAPMO) (Janine.Snyder@cityofthornton.net)

**Revise as follows:**

**M1503.4 Makeup air required.** Exhaust-hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m<sup>3</sup>/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.

**Reason:** The proposed change allows the code to capture down draft systems as well and not just apply to hoods.

**Cost Impact:** Will not increase the cost of construction  
This will allow consistency with all exhaust systems.

**Report of Committee Action Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM16-15**

**AS**

## Code Change No: **RM19-15**

### Original Proposal

**Section: M1504.1, M1901.1, M1901.2**

**Proponent:** Jonathan Roberts, UL LLC, representing UL LLC (jonathan.roberts@ul.com)

**Delete without substitution:**

~~**M1504.1 Installation of a microwave oven over a cooking appliance.** The installation of a *listed* and *labeled* cooking appliance or microwave oven over a *listed* and *labeled* cooking appliance shall conform to the terms of the upper *appliance's listing and label* and the manufacturer's installation instructions. The microwave oven shall conform to UL 923.~~

**Revise as follows:**

**M1901.1 Clearances.** Freestanding or built-in ranges shall have a vertical clearance above the cooking top of not less than 30 inches (762 mm) to unprotected combustible material. Reduced clearances are permitted in accordance with the *listing and labeling* of the range hoods or ~~*appliances*~~. ~~The installation of a *listed* and *labeled* cooking appliance or microwave oven over a *listed* and *labeled* cooking appliance shall be in accordance with Section M1504.1 integral exhaust.~~ The clearances for a domestic open-top broiler unit shall be in accordance with Section M1505.1.

**M1901.2 Cooking appliances.** Cooking *appliances* shall be *listed* and *labeled* for household use and shall be installed in accordance with the manufacturer's instructions. The installation shall not interfere with *combustion air* or access for operation and servicing. Electric cooking appliances shall comply with UL 1026 or UL 858. Solid-fuel-fired fireplace stoves shall comply with UL 737. Microwave ovens shall comply with UL 923.

**Reason:** This proposal clarifies installation criteria for microwave ovens with integral exhaust fans that are installed above cooking surfaces. It does this as follows:

1. Deletes Section M1504.1. Those requirements primarily deal with clearances, which is covered by Section M1901.1
2. Section M1901.1 was revised to clarify that reduced clearances to combustible material can be done in accordance with the listing and labeling of the microwave oven with integral exhaust.
3. The reference to microwave ovens complying with UL 923 was moved from deleted Section M1504.1 to Section M1901.2.

**Cost Impact:** Will not increase the cost of construction  
Editorial changes only.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

### Final Action Results

**RM19-15**

**AS**



**Code Change No: RM21-15**

**Original Proposal**

**Section: M1506.3**

**Proponent:** Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

**Delete without substitution:**

~~**M1506.3 Exhaust openings.** Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable and nonoperable openings into the building and 10 feet (3048 mm) from mechanical air intakes except where the opening is located 3 feet (914 mm) above the air intake. Openings shall comply with Sections R303.5.2 and R303.6.~~

Air exhaust openings shall terminate as follows:

1. Not less than 3 feet (914 mm) from property lines.
2. Not less than 3 feet (914 mm) from gravity air intake openings, operable windows and doors..
3. Not less than 10 feet (3048 mm) from mechanical air intakes openings except where the exhaust opening is located not less than 3 feet (914 mm) above the air intake opening. Openings shall comply with Sections R303.5.2 and R303.6.

**Reason:** This section has been misinterpreted because of its poor language and structure. It reads much better in a list format and the necessary clarifiers "not less than" were added where the code appeared to be requiring an exact distance of 3 or 10 feet. The terms "operable and nonoperable openings" are ambiguous because they could be referring to windows that don't open (inoperable) or grilles and louvers that have no means of closure. The intent, of course, is simply to regulate the distance to air intake openings, doors and operable windows. A fixed glass panel can be viewed as an opening, but there is no reason to limit the distance to an exhaust opening from a fixed glass panel. The last requirement relative to mechanical air intakes confused the words "opening" and "intakes," both of which are openings. The revised text cleans up this section with no change in intent.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

**Cost Impact:** Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

**Report of Committee Action Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM21-15**

**AS**

**Code Change No: RM22-15**

**Original Proposal**

**Section: M1507.2**

**Proponent:** Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

**Revise as follows:**

**M1507.2 Recirculation of air.** Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or circulated to another *dwelling unit* and shall be exhausted directly to the outdoors. Exhaust air from bathrooms ~~and~~ toilet rooms and kitchens shall not discharge into an *attic*, crawl space or other areas inside the building. This section shall not prohibit the installation of ductless range hoods in accordance with the exception to Section M1503.1.

**Reason:** This section fails to include kitchen exhaust. The code should not allow kitchen exhaust to discharge to another dwelling unit or to an attic, crawl space, etc. any more than it should allow the same for toilet and bathroom exhaust. The new added last sentence makes sure that ductless range hoods are not prohibited because such simulated exhaust devices are allowed by Section M1503.1 as long as other ventilation is provided for the kitchen.

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

**Cost Impact:** Will increase the cost of construction  
This proposal will increase the cost of construction in those cases where the kitchen exhaust would have been recirculated or discharged to a location other than outdoors.

**Report of Committee Action Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM22-15**

**AS**

## Code Change No: **RM23-15**

### Original Proposal

#### Section: **M1507.3 (New)**

**Proponent:** Mike Moore, Newport Ventures, representing Broan-NuTone, representing Newport (mmoore@newportventures.net)

#### Add new text as follows:

**M1507.3 Ventilating equipment.** Exhaust equipment serving single dwelling units shall be listed and labeled as providing the minimum required air flow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51.

**Reason:** Industry experience and research have shown that "for advertised airflows that are not certified, the actual installed airflow can be a small fraction of the advertised value".<sup>1</sup> Without a code minimum requirement for listing and labeling flows in accordance with an ANSI standard, there is nothing in place to stop a manufacturer from reporting an airflow under whatever conditions they please (e.g., the condition with no duct work attached). Requiring listing and labeling of ventilating equipment per ANSI/AMCA 210 - ANSI/ASHRAE 51 is the first step in ensuring that fans perform to expectations. In 2015, the IRC adopted a requirement for fans to be tested per ANSI/AMCA 210 - ANSI/ASHRAE 51 when using prescriptive duct sizing Table M1506.2 (see footnote "a"). This proposal would simply elevate that requirement from a footnote to a place where it can actually be seen within the code. Listing and labeling of products tested to this standard is maintained by the Home Ventilating Institute, which has been in operation for decades. Verification of listing and labeling to this standard can be accomplished by visually inspecting the equipment for an HVI sticker or by looking up the equipment in the on-line database.<sup>2</sup> Certification by HVI in accordance with ANSI/AMCA 210 - ANSI/ASHRAE 51 is already required by ASHRAE 62.2, ENERGY STAR for Homes, and the State of California, among other groups. Roughly 12,000 ventilating equipment products are listed, labeled, and can be referenced in the HVI directory.

#### Bibliography:

1. Singer, B. C., Delp, W. W., Apte, M., & Price, P. N. (2011). Performance of Installed Cooking Exhaust Devices. LBNL-5265E. Berkeley, CA: Lawrence Berkeley National Laboratory.
2. Home Ventilating Institute. HVI-Certified Products Directory. <http://hvi.org/proddirectory/index.cfm> . Accessed December 10, 2014.

#### Cost Impact: Will increase the cost of construction

Over 12,000 ventilating equipment products are labeled and listed in the HVI directory. These fans are tested for airflow in accordance with ANSI/AMCA 210-ANSI/ASHRAE 51. For these products, there will be no incremental cost associated with this change. For equipment that is not currently tested, listed, and labeled, the incremental costs are highly dependent upon volume of the specific products sold.

**Analysis:** A review of the standard proposed for inclusion in the code, ANSI/AMCA 210- ANSI/ASHRAE 51 , 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.

### Report of Committee Action Hearings

#### Committee Action:

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements. Fans don't always perform as purported.

#### Assembly Action:

**None**

### Final Action Results

**RM23-15**

**AS**

## Code Change No: **RM26-15**

### Original Proposal

#### Section: M1507.3.3, Chapter 44

**Proponent:** Robert Schwarz, EnergyLogic, Inc., representing EnergyLogic, Inc. (robby@nrglogic.com)

#### Revise as follows:

**M1507.3.3 Mechanical ventilation rate.** The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate ~~of not less than that as~~ determined in accordance with Table M1507.3.3(1) or in accordance with Equation 15-1.

#### **Equation 15-1**

Ventilation rate =(0.01 CFM x total square foot area of house) + [(number of bedrooms +1) x 7.5 CFM]

**Exception:** The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

#### Reference standards type:

#### Add new standard(s) as follows:

ASHRAE 62.2 - 2010 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

**Reason:** Many Builders and Designers would like to be more precise in the specification of the air that is utilized to ventilate a home. The table is good to ensure that ventilation is occurring in a home and for a quick guide for the quantity of air that is needed for whole house mechanical ventilation, but the formula is more precise especially for homes that are on the small side in the floor area chart.

**M1507.3.3 Mechanical ventilation rate.** The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that determined in accordance with Table M1507.3.3(1).

**Exception:** The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

**TABLE M1507.3.3(1)**  
**CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS**

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 - 1	2 - 3	4 - 5	6 - 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 - 3,000	45	60	75	90	105
3,001 - 4,500	60	75	90	105	120
4,501 - 6,000	75	90	105	120	135
6,001 - 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 cubic foot per minute = 0.0004719 m<sup>3</sup>/s.

**TABLE M1507.3.3(2)**  
**INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS<sup>a, b</sup>**

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor <sup>a</sup>	4	3	2	1.5	1.3	1.0

- a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.  
b. Extrapolation beyond the table is prohibited.

**M1507.3.3 Mechanical ventilation rate.** The whole house mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that as determined in accordance with Table M1507.3.3(1) or the ASHRAE 62.2 formula (0.01 CFM x total sqft of house) + ((number of bedrooms + 1) x 7.5CFM) .

Rational Statement:

Many Builders and Designers would like to be more precise in the specification of the air that is utilized to ventilate a home. The table is good to ensure that ventilation is occurring in a home and for a quick guide for the quantity of air that is needed for whole house mechanical ventilation, but the formula is more precise especially for homes that are on the small side in the floor area chart.

# TABLE M1507.3.3(1)

## CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

- Ventilation can't be greater than what is calculated by formula

$$\text{Fan flow (CFM)} = 0.01 \text{ CFM} \times \text{your floor area} + 7.5 \times (\text{your number of bedrooms} + 1)$$

- For a 1,510 square foot 4-bedroom home,
  - (0.01 X 1510) + (7.5 times 5)
  - (15.1) + (37.5)
  - Formula Result: 52.6 CFM
  - Chart Result: 75 CFM



**Cost Impact:** Will not increase the cost of construction  
No cost increase. Possible cost reductions by using more accurate ventilation requirements

**Analysis:** A review of the standard proposed for inclusion in the code, ASHRAE 62.2, 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.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

### Final Action Results

**RM26-15**

**AS**

## Code Change No: **RM31-15**

### Original Proposal

#### Section: M1601.1.1

**Proponent:** Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcman@jeffco.us)

#### Revise as follows:

**M1601.1.1 Above-ground duct systems.** Above-ground *duct systems* shall conform to the following:

1. *Equipment* connected to *duct systems* shall be designed to limit discharge air temperature to not greater than 250°F (121°C).
2. Factory-made ducts shall be listed and labeled in accordance with UL 181 and installed in accordance with the manufacturer's instructions.
3. Fibrous glass duct construction shall conform to the SMACNA *Fibrous Glass Duct Construction Standards* or NAIMA *Fibrous Glass Duct Construction Standards*.
4. Field-fabricated and shop-fabricated metal and flexible duct constructions shall conform to the SMACNA HVAC *Duct Construction Standards—Metal and Flexible* except as allowed by Table M1601.1.1. Galvanized steel shall conform to ASTM A 653.
5. The use of gypsum products to construct return air ducts or plenums is permitted, provided that the air temperature does not exceed 125°F (52°C) and exposed surfaces are not subject to condensation.
6. *Duct systems* shall be constructed of materials having a flame spread index of not greater than 200.
7. Stud wall cavities and the spaces between solid floor joists to be used as air plenums shall comply with the following conditions:
  - 7.1 These cavities or spaces shall not be used as a plenum for supply air.
  - 7.2 These cavities or spaces shall not be part of a required fire-resistance-rated assembly.
  - 7.3 Stud wall cavities shall not convey air from more than one floor level.
  - 7.4 Stud wall cavities and joist-space plenums shall be isolated from adjacent concealed spaces by tight-fitting fireblocking in accordance with Section R602.8.
  - 7.5 Stud wall cavities in the outside walls of building envelope assemblies shall not be utilized as air plenums.
8. Volume dampers, equipment and other means of supply, return and exhaust air adjustment used in system balancing shall be provided with access.

**Reason:** This language is absent in the IRC and is critical that access be provided for these devices in order to properly balance a system.

**Cost Impact:** Will increase the cost of construction  
It is possible that an increase in cost might occur if access doors need to be purchased. Otherwise not.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM31-15**

**AS**

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## Code Change No: **RM34-15**

### Original Proposal

#### Section: M1601.1.2

**Proponent:** Jay Peters, Codes and Standards International, representing AQC Industries (peters.jay@me.com)

#### Revise as follows:

**M1601.1.2 Underground duct systems.** Underground *duct systems* shall be constructed of *approved* concrete, clay, metal or plastic. The maximum ~~duct design~~ temperature for ~~systems utilizing plastic ducts duct and fittings shall not be greater than~~ 150°F (66°C). Metal ducts shall be protected from corrosion in an *approved* manner or shall be completely encased in concrete not less than 2 inches (51 mm) thick. Nonmetallic ducts shall be installed in accordance with the manufacturer's instructions. Plastic pipe and fitting materials shall conform to cell classification 12454-B of ASTM D 1248 or ASTM D 1784 and external loading properties of ASTM D 2412. Ducts shall slope to an accessible point for drainage. ~~Where encased in concrete, ducts Ducts shall be sealed, secured and secured tested with air at a pressure of not less than 2 inches of W.C. for not less than 5 minutes in the presence of the code official prior to any encasing the ducts in concrete being poured or direct burial.~~ Metallic ducts having an *approved* protective coating and nonmetallic ducts shall be installed in accordance with the manufacturer's instructions.

**Reason:** This air temperature language does not change the substantive technical content of the provision but uses the exact same language as the IMC to bring uniformity to the codes.

All duct leakage, whether in the envelope, in the attic, or underground is undesirable but underground ducts are more likely to cause serious issues due to their location. Underground ducts systems have a propensity to leak which causes air exfiltration (loss) and also duct infiltration (gain) of contaminants into the duct system and residence. The leakage, in-and-out, not only causes poor indoor air quality, duct system degradation, sick building occupants, mold, mildew and even radon contamination, but also wastes energy. Some estimate that after the combined infiltration from walls/ceilings/floors, the duct system is the next largest cause of air leakage in the residence. Underground return air ducts are of particular concern due to the negative pressure within the duct system, causing intake of impurities. All ducts are to be sealed before burial, whether in concrete or directly buried in the ground but the code does not require any verification or test to prove the system is airtight, or more importantly, watertight. Metallic ducts encased in concrete, as well as those approved for direct burial should be tested to find leaks before burial, not afterwards, or never at all.

**Cost Impact:** Will increase the cost of construction

Although I have checked the box for additional cost, underground duct systems, when installed by quality contractors and installed correctly should already be performing this test. The proposal for air test may add a minimal cost to initial installation but has potential to save money in the long run through greater energy savings, indoor air quality and future repairs.

### Report of Committee Action Hearings

#### Committee Action:

**Approved as Modified**

#### Modify proposal as follows:

**M1601.1.2 Underground duct systems.** Underground duct systems shall be constructed of approved concrete, clay, metal or plastic. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C). Metal ducts shall be protected from corrosion in an approved manner or shall be completely encased in concrete not less than 2 inches (51 mm) thick. Nonmetallic ducts shall be installed in accordance with the manufacturer's instructions. Plastic pipe and fitting materials shall conform to cell classification 12454-B of ASTM D 1248 or ASTM D 1784 and external loading properties of ASTM D 2412. Ducts shall slope to an accessible point for drainage. Ducts shall be sealed, secured and tested ~~with air at a pressure of not less than 2 inches of W.C. for not less than 5 minutes in the presence of the code official~~ prior to encasing the ducts in concrete or direct burial. ~~Duct tightness shall be verified as required by Section 1103.3.~~ Metallic ducts having an approved protective coating and nonmetallic ducts shall be installed in accordance with the manufacturer's instructions.

**Committee Reason:** Approval was based on the proponent's published reason statements. The modification substitutes the preferred testing method from Chapter 11.

**Assembly Action:**

**None**

**Final Action Results**

**RM34-15**

**AM**

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## Code Change No: **RM36-15**

### Original Proposal

#### Section: M1601.4.1

**Proponent:** Donald Surrena, National Association of Home Builders, representing National Association of Home Builders (dsurrena@nahb.org)

#### Revise as follows:

**M1601.4.1 Joints, seams and connections.** Longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC *Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. Joints, longitudinal and transverse seams, and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be *listed* and *labeled* in accordance with UL 181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape.

Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 BM" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metallic ducts shall have a contact lap of not less than 1 inch (25 mm) and shall be mechanically fastened by means of not less than three sheet-metal screws or rivets equally spaced around the joint.

Closure systems used to seal all ductwork shall be installed in accordance with the manufacturers' instructions.

#### Exceptions:

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types that are located outside of conditioned spaces.

**Reason:** This proposal will reduce construction cost and still reduce energy loss that would occur due to duct leakage outside conditioned space. Low pressure longitudinal seam duct leakage is very limited and the small amount of leakage within conditioned space is still useful energy.

**Cost Impact:** Will not increase the cost of construction  
Cost decrease of up to \$314 for an average house according to research conducted by Home Innovation Research Labs.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM36-15**

**AS**

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## Code Change No: **RM37-15**

### Original Proposal

#### Section: M1602.2

**Proponent:** Guy McMann, Jefferson County Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcmann@jeffco.us)

#### Revise as follows:

**M1602.2 Return air openings.** Return air openings for heating, ventilation and air conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
3. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturers' installation instructions, Manual D or the design of the registered design professional.
4. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room, furnace room or unconditioned attic.

#### Exceptions:

1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen only, and are located not less than 10 feet (3048 mm) from the cooking appliances.
2. Dedicated forced-air systems serving only the garage shall not be prohibited from obtaining return air from the garage.
5. Taking return air from an unconditioned crawl space shall not be accomplished through a direct connection to the return side of a forced-air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
6. Return air from one dwelling unit shall not be discharged into another dwelling unit.
7. For other than dedicated HVAC systems, return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where the air in such spaces is dehumidified.

**Reason:** It is not desirable to pull return air from swimming pool areas due to the affects it would have on the system from humidity and chemical odors associated with such spaces. A dedicated system would be required or a combination of supply and exhaust. This scenario is consistent with the same dwelling built under the IMC.

**Cost Impact:** Will not increase the cost of construction

Generally speaking this proposal is will not cause an increase is cost. If dehumidification is chosen then there could be an increase in cost.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statement.

**Assembly Action:**

**Disapprove**

**Public Comments**

*Public Comment 1:*

**Guy McMann, Jefferson County Co., representing Colorado Association of Plumbing and Mechanical Officials (CAPMO) (gmcman@jeffco.us) requests Approve as Modified by this Public Comment.**

**Modify as follows:**

**M1602.2 Return air openings.** Return air openings for heating, ventilation and air conditioning systems shall comply with all of the following:

1. Openings shall not be located less than 10 feet (3048 mm) measured in any direction from an open combustion chamber or draft hood of another appliance located in the same room or space.
2. The amount of return air taken from any room or space shall be not greater than the flow rate of supply air delivered to such room or space.
3. Return and transfer openings shall be sized in accordance with the appliance or equipment manufacturers' installation instructions, Manual D or the design of the registered design professional.
4. Return air shall not be taken from a closet, bathroom, toilet room, kitchen, garage, mechanical room, boiler room, furnace room or unconditioned attic.

**Exceptions:**

1. Taking return air from a kitchen is not prohibited where such return air openings serve the kitchen only, and are located not less than 10 feet (3048 mm) from the cooking appliances.
2. Dedicated forced-air systems serving only the garage shall not be prohibited from obtaining return air from the garage.
5. Taking return air from an unconditioned crawl space shall not be accomplished through a direct connection to the return side of a forced-air furnace. Transfer openings in the crawl space enclosure shall not be prohibited.
6. Return air from one dwelling unit shall not be discharged into another dwelling unit.
7. Return air shall not be taken from indoor swimming pool enclosures and associated deck areas except where such space is dehumidied.

**Commenter's Reason:** The committees concern that the original language seemed to exclude dedicated systems was valid. This correction clearly excludes dedicated systems from the requirements of untreated recirculation to other spaces.

**Final Action Results**

**RM37-15**

**AMPC1**

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## Code Change No: **RM39-15**

### Original Proposal

#### Section: M2006.1, M2006.3, Chapter 44

**Proponent:** Jennifer Hatfield, J. Hatfield & Associates, PL, representing Association of Pool & Spa Professionals (jhatfield@apsp.org)

#### Revise as follows:

**M2006.1 General.** Pool and spa heaters shall be installed in accordance with the manufacturer's installation instructions. Oil-fired pool heaters shall comply with UL 726. Electric pool and spa heaters shall comply with UL 1261, UL 1563 or CSA C22.2 No. 218.1. Gas-fired pool heaters shall comply with ANSI Z21.56/CSA 4.7. Pool and spa heat pump water heaters shall comply with UL 1995, AHRI 1160, or CSA C22.2 No. 236.

#### Delete without substitution:

~~**M2006.3 Temperature limiting devices.** Pool heaters shall have temperature relief valves.~~

#### Reference standards type:

#### Add new standard(s) as follows:

AHRI 1160 (I-P) -09 Performance rating of Heat Pump Pool Heaters  
ANSI Z21.56a/CSA 4.7 -2013 Gas Fired Pool Heaters  
CSA C22.2 No. 236-11 Cooling Equipment  
CSA C22.2 No. 218.1-M89(R2011) Spas, Hot Tubs and Associated Equipment  
UL 1563-2009 Standard for Electric Spas, Hot Tubs and Associated Equipment-with revisions through July 2012

**Reason:** This proposal is needed to ensure consistency with what standards are required for the various pool heaters in Section 316.2 and Table 316.2 of the International Swimming Pool & Spa Code.

Further, section M2006.3 needs to be removed because it is out of date and not compatible with the current heaters on the market. For example, UL Standard 1995 does not require a temperature relief valve for two reasons: (1) If a condition exists whereby the thermostat fails to turn off the heat pump, the outlet water temperature is effectively controlled by the compressor high pressure control and/or internal pressure control. Long before the outlet water reaches an unacceptably high temperature, the refrigeration system high pressure control and/or the compressor internal pressure control will trip and shut off the compressor. (2) A pool, spa or hot tub is an open system, unlike a water heater tank that can allow pressure to build. Excess pressure developed as a result of excessive temperatures in the heat pump are relieved through the pool, spa or hot tub.

**Bibliography:** International Swimming Pool & Spa Code, Section 316.2 and Table 316.2

**Cost Impact:** Will not increase the cost of construction

This proposal will prevent an increase in cost because without it, a jurisdiction may require a temperature relief valve in products that are not currently listed to have one.

**Analysis:** A review of the standard proposed for inclusion in the code, AHRI 1160, ANSI Z21.56/CSA 4.7, CSA C22.2 No 218.1, CSA C22.2 No. 236 and UL 1563, 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.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Modified**

**Modify proposal as follows:**

**M2006.1 General.** Pool and spa heaters shall be installed in accordance with the manufacturer's installation instructions. Oil-fired pool heaters shall comply with UL 726. Electric pool and spa heaters shall comply with UL 1261, ~~UL 1563 or CSA C22.2 No. 218.1.~~ Gas-fired pool heaters shall comply with ~~ANSI Z21.56/CSA 4.7.~~ Pool and spa heat pump water heaters shall comply with UL 1995, AHRI 1160, or CSA C22.2 No. 236.

**Exception:** Portable residential spas and portable residential exercise spas shall comply with UL 1563 or CSA C22.2 No. 218.1.

**Committee Reason:** Approval was based on the proponent's published reason statements. The modifications update the standards to be current with industry.

**Assembly Action:**

**None**

**Final Action Results**

**RM39-15**

**AM**

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## Code Change No: **RM40-15**

### Original Proposal

**Section:** Table M2101.1, M2103.3

**Proponent:** Curtis Dady, Viega, LLC, representing Viega, LLC (curtis.dady@viega.us)

**Revise as follows:**

**TABLE M2101.1  
HYDRONIC PIPING AND FITTING MATERIALS**

MATERIAL	USE CODE <sup>a</sup>	STANDARD <sup>b</sup>	JOINTS	NOTES
Copper tubing (type K, L or M)	1, 2	ASTM B 75, B 88, B 251, B 306, <u>ASME B16.51</u>	Brazed, soldered, <u>press-connected</u> and flared mechanical fittings	Joins embedded in concrete

*(Portions of table not shown remain unchanged)*

For SI: °C = [(°F)-32]/1.8.

a. Use code:

1. Above ground.
2. Embedded in radiant systems.
3. Temperatures below 180°F only.
4. Low temperature (below 130°F) applications only.
5. Temperatures below 160°F only.

b. Standards as listed in Chapter 44.

**M2103.3 Piping joints.** Copper and copper alloy systems shall be soldered, brazed, or press-connected. Soldering shall be in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. Brazing fluxes shall be in accordance with AWS A5.31. Press-connect shall be in accordance with ASME B16.51. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.
2. Copper tubing shall be joined by brazing complying with Section P3003.6.1.
3. Polybutylene pipe and tubing joints shall be installed with socket-type heat-fused polybutylene fittings.
4. CPVC tubing shall be joined using solvent cement joints.
5. Polypropylene pipe and tubing joints shall be installed with socket-type heat-fused polypropylene fittings.
6. Cross-linked polyethylene (PEX) tubing shall be joined using cold expansion, insert or compression fittings.
7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.

**Reason:** ASME B16.51 "Copper and Copper Alloy Press-Connect Pressure Fittings" is included in IMC table 1202.5 HYDRONIC PIPE FITTINGS and these joints are included in sections 1203.8 and 1203.8.3.

**Cost Impact:** Will not increase the cost of construction  
Addition of option, not requirement.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Modified**

**Modify as follows:**

**TABLE M2101.1  
HYDRONIC PIPING AND FITTING MATERIALS  
(No change to Table)**

**Committee Reason:** Approval is based on the proponent's published reason statements. The modification corrects the the table title.

**Assembly Action:**

**Disapprove**

**Public Comments**

*Public Comment 1:*

**Julius Ballanco, JB Engineering and Code Consulting, P.C., representing Self (JBENGINEER@aol.com) requests Approve as Modified by this Public Comment.**

**Modify as follows:**

**M2103.3 Piping joints.** Copper and copper alloy systems shall be soldered, brazed, or press-connected. Soldering shall be in accordance with ASTM B 828. Fluxes for soldering shall be in accordance with ASTM B 813. Brazing fluxes shall be in accordance with AWS A5.31. Press-connect joints shall be made in accordance with ~~ASME B16.51~~ the manufacturer's installation instructions. Piping joints that are embedded shall be installed in accordance with the following requirements:

1. Steel pipe joints shall be welded.
2. Copper tubing shall be joined by brazing complying with Section P3003.6.1.
3. Polybutylene pipe and tubing joints shall be installed with socket-type heat-fused polybutylene fittings.
4. CPVC tubing shall be joined using solvent cement joints.
5. Polypropylene pipe and tubing joints shall be installed with socket-type heat-fused polypropylene fittings.
6. Cross-linked polyethylene (PEX) tubing shall be joined using cold expansion, insert or compression fittings.
7. Raised temperature polyethylene (PE-RT) tubing shall be joined using insert or compression fittings.

**Commenter's Reason:** ASME B16.51 contains no requirements for the installation of press-connect fittings. This section regulates installation, not fitting standards. The fitting manufacturer is required to provide the installation instructions for press connect fittings. It is inappropriate to reference the standard when no installation requirements are found in the standard.

**Final Action Results**

**RM40-15**

**AMPC1**

## Code Change No: **RM41-15**

### Original Proposal

**Section:** Table M2101.1, Table M2105.4

**Proponent:** Michael Cudahy (mikec@cmservices.com)

**Revise as follows:**

**TABLE M2101.1  
HYDRONIC PIPING MATERIALS**

MATERIAL	USE CODE <sup>a</sup>	STANDARD <sup>b</sup>	JOINTS	NOTES
Cross-linked polyethylene (PEX)	1, 2, 3	ASTM F 876, <del>F 877</del>	(See PEX fittings)	Install in accordance with manufacturer's instructions

*(Portions of table and notes not shown remain unchanged)*

**TABLE M2105.4  
GROUND-SOURCE LOOP PIPE**

MATERIAL	STANDARD
Cross-linked polyethylene (PEX)	ASTM F 876; <del>ASTM F 877</del> CSA B137.5

*(Portions of table not shown remain unchanged)*

**Reason:** ASTM F877 has been revised a few years ago to remove redundant pipe/tubing dimensional and performance specifications which are otherwise specified in ASTM F876. F877 remains a PEX fitting and PEX system materials and performance standard exclusive for use with ASTM F876 piping/tubing.

**Cost Impact:** Will not increase the cost of construction

This proposal simply deletes a standard that is no longer pipe or tubing related from the code. The piping material is now covered by a different standard, and as such, the option is not deleting or adding a material. Thus the code with this proposal added will not cause the cost of construction to increase.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

### Final Action Results

**RM41-15**

**AS**

## Code Change No: **RM42-15**

### Original Proposal

**Section: Table M2101.1**

**Proponent:** Pennie L Feehan, representing Copper Development Association (penniefeehan@me.com)

**Revise as follows:**

**TABLE M2101.1  
HYDRONIC PIPING MATERIALS**

MATERIAL	USE CODE <sup>a</sup>	STANDARD <sup>b</sup>	JOINTS	NOTES
Brass pipe	4	ASTM B 43	Brazed, welded, threaded, mechanical and flanged fittings	
Brass tubing	4	ASTM B 135	Brazed, soldered and mechanical fittings	
Copper <u>and copper-alloy</u> pipe	1	ASTM B42, B43, B302	Brazed, soldered and mechanical fittings threaded, welded and flanged	
Copper and copper-alloy tubing (type K, L or M)	1, 2	ASTM B75, B88, B135, B251, B306	Brazed, soldered and flared mechanical fittings	Joins embedded in concrete <u>shall be brazed</u>

*(Portions of table not shown remain unchanged)*

For SI: °C = [(°F)-32]/1.8.

a. Use code:

1. Above ground.
2. Embedded in radiant systems.
3. Temperatures below 180°F only.
4. Low temperature (below 130°F) applications only.
5. Temperatures below 160°F only.

b. Standards as listed in Chapter 44.

**Reason:** The proposal removes brass because brass is a copper alloy and the standards and requirements are covered in the copper & copper-alloy lines. The requirement under note was incomplete comment and did not make sense.

**Cost Impact:** Will not increase the cost of construction

This proposal will not increase the cost of construction as it is editorial in nature.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM42-15**

**AS**

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**Code Change No: RM43-15**

**Original Proposal**

**Section: Table M2101.1, Table M2105.4, Table M2105.5, M2105.13, M2105.13.3 (New), M2105.13.4 (New), Chapter 44**

**Proponent:** Larry Gill, representing IPEX USA LLC (larry.gill@ipexna.com)

**Revise as follows:**

**TABLE M2101.1  
HYDRONIC PIPING MATERIALS**

MATERIAL	USE CODE <sup>a</sup>	STANDARD <sup>b</sup>	JOINTS	NOTES
Raised temperature polyethylene (PE-RT)	1, 2, 3	ASTM F 2623 ASTM F 2769 <u>CSA B137.18</u>	Copper crimp/insert fitting stainless steel clamp, insert fittings	
Raised Temperature Polyethylene (PE-RT) fittings	1, 2,3	ASTM F 1807 ASTM F 2159 ASTM F 2735 ASTM F 2769 ASTM F 2098 <u>ASTM D3261</u> <u>CSA B137.18</u>	Copper crimp/insert fitting stainless steel clamp, insert fittings	

*(Portions of table not shown remain unchanged)*

**TABLE M2105.4  
GROUND-SOURCE LOOP PIPE**

MATERIAL	STANDARD
Raised temperature polyethylene (PE-RT)	ASTM F 2623; ASTM F 2769; <u>CSA B137.18</u>

*(Portions of table not shown remain unchanged)*

**TABLE M2105.5  
GROUND-SOURCE LOOP PIPE FITTINGS**

PIPE MATERIAL	STANDARD
Raised temperature polyethylene (PE-RT)	ASTM D 3261; ASTM F 1807; ASTM F 2159; <u>ASTM F 2769</u> ; <u>CSA B137.1</u> ; <u>ASTM F1055</u> , <u>ASTM F2098</u> , <u>ASTM F2735</u> , <u>ASTM D2683</u> , <u>ASTM D3261</u> , <u>CSA B137.18</u>

*(Portions of table not shown remain unchanged)*

**M2105.13 Raised temperature polyethylene (PE-RT) plastic tubing.** Joints between raised temperature polyethylene tubing and fittings shall comply with Sections M2105.13.1, M2105.13.2, M2105.13.3, and M2105.13.4. Mechanical joints shall comply with Section M2105.8.1.

**Add new text as follows:**

**M2105.13.3 Heat fusion joints.** Heat fusion joints shall be of the socket-fusion, saddle-fusion or butt-fusion type, and shall be joined in accordance with ASTM D2657. Joint surfaces shall be clean and free of moisture. Joint surfaces shall be heated to melt temperatures and joined. The joint shall remain undisturbed until cool. Fittings shall be manufactured in accordance with ASTM D2683 or ASTM D3261.

**M2105.13.4 Electrofusion joints** Joints shall be of the electrofusion type. Joint surfaces shall be clean and free of moisture and scoured to expose virgin resin. Joint surfaces shall be heated to melt temperatures to a time specified by the manufacturer and joined. The joint shall remain undisturbed until cool. Fittings shall be manufactured in accordance with ASTM F1055.

**Reference standards type:**

**Add new standard(s) as follows:**

CSA B137.18 - 2013 - Polyethylene of raised temperature (PE-RT) tubing systems for pressure applications.

**Reason:** Add new CSA B137.18 - Polyethylene of raised temperature resistance (PE-RT) tubing systems for pressure applications to Tables M2101.1, M2105.4, and M2105.5 (scope includes hydronic heating and ground source loop pipe and fittings).

Add reference to ASTM D3261 which is a consensus standard for PE fusion to Table M2101.1 and Table M2105.5

Add references to ASTM F1055, ASTM F2098, ASTM F2735, and ASTM D2683 to Table M2105.5. ASTM F2098 and ASTM F2735 are already referenced in the IMC for PE-RT fittings. ASTM F1055 and ASTM D2683 are being added for fused PE joints.

Add new sections M2105.13.3 and M2105.13.4 to permit fusion of PE-RT joints.

The addition of these PE-RT standards will provide alternatives to the standards already in the Code.

**Cost Impact:** Will not increase the cost of construction

No cost impact. These changes provide alternatives to PERT pipe and fittings standards only. No changes in cost to the current Code provisions.

**Analysis:** A review of the standard proposed for inclusion in the code, CSA B137.18, 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.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM43-15**

**AS**

**Code Change No: RM44-15**

**Original Proposal**

**Section: Table M2101.9**

**Proponent:** Michael Cudahy (mikec@cmservices.com)

**Revise as follows:**

**TABLE M2101.9  
HANGER SPACING INTERVALS**

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (feet)	MAXIMUM VERTICAL SPACING (feet)
PEX tubing $\leq$ 1 inch	2.67	4
PEX tubing $\geq$ 1 1/4 inches	<u>4</u>	<u>10a</u>

*(Portions of table not shown remain unchanged)*

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

- a. For sizes 2 inches and smaller, a guide shall be installed midway between required vertical supports. Such guides shall prevent pipe movement in a direction perpendicular to the axis of the pipe.

**Reason:** The 2015 code cycle for the IRC included updates to the support spacing for both PEX and PE-RT tubing for sizes larger than 1". The IRC-P Table P2605.1 is current and correct and should be used as the base template for all other tables within the ICC codes as identified in this amendment proposal. The horizontal support spacing for both PEX and PE-RT tubing (piping) up to and including 1" size is 32" (2-2/3Ft) and 48" (4Ft) for sizes 1- 1/4" and larger. These dimensions are consistent with all published PEX literature and manufacture's installation instructions.

**Cost Impact:** Will not increase the cost of construction  
This proposal modifies the spacing for piping material support into the code and thus the code with this proposal added will not cause the cost of construction to increase, and could decrease the cost as less support is required for larger pipe.

**Report of Committee Action Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM44-15**

**AS**



## Code Change No: **RM45-15**

### Original Proposal

#### Section: M2101.10

**Proponent:** Michael Cudahy, representing Plastic Pipe and Fittings Association (mikec@cmservices.com)

#### Revise as follows:

**M2101.10 Tests.** Hydronic piping systems shall be tested hydrostatically at a pressure of one and one-half times the maximum system design pressure, but not less than 100 pounds per square inch (689 kPa). The duration of each test shall be not less than 15 minutes and not more than 20 minutes.

**Exception:** For PEX piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the PEX pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

**Reason:** PPFA has a new air testing policy, which allows for some limited air testing of plastic piping systems, if a number of conditions are met.

**Bibliography:** PLASTIC PIPE AND FITTINGS ASSOCIATION POLICY ON TESTING PLASTIC PIPE AND FITTINGS INSTALLATIONS WITH COMPRESSED GAS, PPFA, 2014, <http://www.ppfahome.org/ub4.aspx>  
Compressed air or any other compressed gases should not be used for pressure testing plastic plumbing systems.

#### EXCEPTIONS:

- 1.) With trap seal pull testing, where a completed DWV system is vacuum tested with all of its traps filled with water, and the trap seals are tested with a vacuum typically between one and two inches of water column.
- 2.) For plastic piping systems specifically designed for use with compressed air or gasses;
  - Manufacturers' instructions must be strictly followed for installation, visual inspection, testing and use of the systems,
  - (and)
  - Compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).
- 3.) When compressed air or other gas pressure testing is specifically authorized by the applicable written instructions of the manufacturers of all plastic pipe and plastic pipe fittings products installed at the time the system is being tested and compressed air or other gas testing is not prohibited by the authority having jurisdiction (AHJ).

The manufacturer should be contacted if there is any doubt as to how a specific system should be tested.

**Cost Impact:** Will not increase the cost of construction

This proposal simply adds another option for air testing some specific piping materials into the code and as such, the option is not requiring that this method be chosen. Thus the code with this proposal added will not cause the cost of construction to increase.

### Report of Committee Action Hearings

#### Committee Action:

**Approved as Modified**

#### Modify proposal as follows:

**M2101.10 Tests.** Hydronic piping systems shall be tested hydrostatically at a pressure of one and one-half times the maximum system design pressure, but not less than 100 pounds per square inch (689 kPa). The duration of each test shall be not less than 15 minutes and not more than 20 minutes.

**Exception:** For plastic-PEX piping systems, testing with a compressed gas shall be an alternative to hydrostatic testing where compressed air or other gas pressure testing is specifically authorized by all of the manufacturer's instructions for the plastic PEX pipe and fittings products installed at the time the system is being tested, and compressed air or other gas testing is not otherwise prohibited by applicable codes, laws, or regulations outside of this code.

**Committee Reason:** Approval was based on the proponent's published reason statements. The modification limits the exception to PEX because it is appropriate such material.

**Assembly Action:**

**None**

<b>Final Action Results</b>
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**RM45-15**

**AM**

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**Code Change No: RM47-15**

**Original Proposal**

**Section: M2101.10**

**Proponent:** Gary Morgan, Viega LLC, representing Viega LLC (gary.morgan@viega.us)

**Revise as follows:**

**M2101.10 Tests.** Hydronic piping systems shall be tested hydrostatically at a pressure of one and one-half times the maximum system design pressure, but not less than 100 pounds per square inch (689 kPa). The duration of each test shall be not less than 15 minutes ~~and not more than 20 minutes.~~

**Reason:** To limit the maximum time of pressure testing to 20 minutes (when the minimum time is already only 15 minutes) is not consistent with industry practice nor is it consistent with the IMC 1208.1 for testing of hydronic systems where no such maximum time even exists.

**Cost Impact:** Will not increase the cost of construction  
Eliminating the maximum time of testing requirement has absolutely no bearing on the cost of construction.

**Report of Committee Action Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM47-15**

**AS**

## Code Change No: **RM48-15**

### Original Proposal

**Section: M2103.2, M2103.2.1, M2103.2.2**

**Proponent:** Brent Ursenbach, Salt Lake County, representing Utah Chapter ICC (bursenbach@slco.org)

**Revise as follows:**

**M2103.2 Thermal barrier required.** Radiant floor heating systems shall have a thermal barrier in accordance with Sections M2103.2.1 through M2103.2.4. Insulation R-values for slab-on-grade and suspended floor installations shall be in accordance with Chapter 11.

**Exception:** Insulation shall not be required in engineered systems where it can be demonstrated that the insulation will decrease the efficiency or have a negative effect on the installation.

**Delete without substitution:**

~~**M2103.2.1 Slab on grade installation.** Radiant piping used in slab on grade applications shall have insulating materials having a minimum R-value of 5 installed beneath the piping.~~

~~**M2103.2.2 Suspended floor installation.** In suspended floor applications, insulation shall be installed in the joist bay cavity serving the heating space above and shall consist of materials having a minimum R-value of 11.~~

**Reason:** Insulation R-values should be located in the IECC/Chapter 11, not Chapter 21- Hydronic Piping. Design professionals, code officials, contractors, developers, virtually all involved in the building process look to the IECC/Chapter 11 for specific thermal performance values. Locating these two sub-sections in the IMC has created considerable confusion. A similar proposal will be submitted in Group B, to add these sub-sections into the IECC where they belong.

**Cost Impact:** Will not increase the cost of construction

This proposal will not increase the cost of construction as it is the first step in re-locating an existing insulation requirement from the IRC mechanical section to the IECC/Chapter 11 IRC. There is no increase in the R-value of the insulation or the installation labor.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Modified**

**Modify proposal as follows:**

**M2103.2 Thermal barrier required.** Radiant floor heating systems shall have a thermal barrier in accordance with Sections M2103.2.1 through M2103.2.4. Insulation R-values for slab-on-grade and suspended floor installations shall be in accordance with the International Energy Conservation Code Chapter 11.

**Exception:** Insulation shall not be required in engineered systems where it can be demonstrated that the insulation will decrease the efficiency or have a negative effect on the installation.

**Committee Reason:** Approval was based on the proponent's published reason statements. The modification keeps the text within the IRC for user convenience.

**Assembly Action:**

**None**

### Final Action Results

RM48-15

AM

**Code Change No: RM51-15**

**Original Proposal**

**Section:** Table M2105.4, Table M2105.5

**Proponent:** Jeremy Brown, representing NSF International

**Revise as follows:**

**TABLE M2105.4  
GROUND-SOURCE LOOP PIPE**

MATERIAL	STANDARD
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11; NSF 358-2

*(Portions of table not shown remain unchanged)*

**TABLE M2105.5  
GROUND-SOURCE LOOP PIPE FITTINGS**

PIPE MATERIAL	STANDARD
Polypropylene (PP-R)	ASTM F 2389; CSA B137.11; NSF 358-2

*(Portions of table not shown remain unchanged)*

**Reference standards type:**

**Add new standard(s) as follows:**

NSF 358-2-2012 Polypropylene Pipe & fittings for water-based ground-source "geothermal" heat pump systems

**Reason:** NSF 358-2 Polypropylene Pipe & fittings for water-based ground-source "geothermal" heat pump systems is the American National standard and should be included in these tables. This standard has requirements for material suitability, performance, chemical resistance long term strength and quality assurance requirements related to geothermal products. A copy of this standard will be provided to the committee and may be obtained by anyone else by emailing brown@nsf.org.

**Cost Impact:** Will not increase the cost of construction  
Providing an additional option will not increase the cost of construction.

**Analysis:** A review of the standard proposed for inclusion in the code, NSF 358-2, 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.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM51-15**

**AS**

## Code Change No: **RM52-15**

### Original Proposal

**Section: M2005.1, M2301.2.1, M2301.2.11.1, M2301.2.2.2, M2301.2.4, M2301.2.6, M2301.2.6.1 (New), M2301.2.6.2 (New), M2301.2.8, M2301.3, M2301.3.1, M2301.3.2.**

**Proponent:** Rex Gillespie (rex.gillespie@caleffi.com)

**Revise as follows:**

**M2005.1 General.** Water heaters shall be installed in accordance with Chapter 28, the manufacturer's instructions and the requirements of this code. Water heaters installed in an attic shall comply with the requirements of Section M1305.1.3. Gas-fired water heaters shall comply with the requirements in Chapter 24. Domestic electric water heaters shall comply with UL 174. Oiled-fired water heaters shall comply with UL 732. ~~Thermal solar~~ Solar thermal water heaters heating systems shall comply with Chapter 23 and ~~UL 174~~ SRCC 300. Solid fuel-fired water heaters shall comply with UL 2523.

**M2301.2.1 Access.** ~~Solar energy collectors, controls, dampers, fans, blowers and pumps~~ Access shall be accessible provided to solar energy equipment for inspection, maintenance, repair. Solar systems and replacement appurtenances shall not obstruct or interfere with the operation of any doors, windows or other building components requiring operation or access. Roof-mounted solar thermal equipment shall not obstruct or interfere with the operation of roof-mounted equipment, appliances, chimneys, plumbing vents, roof hatches, smoke vents, skylights and other roof penetrations and openings.

**M2301.2.2.2 Collector sensors.** Collector sensor installation, sensor location and the protection of exposed sensor wires from ~~ultraviolet light degradation~~ shall be in accordance with SRCC 300.

**M2301.2.4 Vacuum relief.** System components that might be subjected to ~~pressure drops below atmospheric pressure~~ a vacuum during operation or shutdown shall be designed to withstand such vacuum or shall be protected by a vacuum relief valve with vacuum relief valves.

**M2301.2.6 Protection from freezing.** System components shall be protected from damage resulting from freezing of heat-transfer liquids at the winter design temperature provided in Table R301.2(1). Freeze protection shall be provided ~~by heating, insulation, thermal mass and heat transfer fluids in~~ accordance with SRCC 300. Drain-back systems shall be installed in compliance with Section M2301.2.6.1 and systems utilizing freeze points lower than the winter design temperature, heat tape or other approved methods, or combinations thereof protection valves shall comply with Section M2301.2.6.2.

**Exception:** Where the 97.5-percent winter design temperature is greater than ~~32~~ or equal to 48°F (9°C).

**M2301.2.8 Expansion tanks.** Expansion tanks in solar energy systems shall be installed in accordance with Section M2003 in solar collector loops that contain pressurized heat transfer fluid. Where expansion tanks are used, the system shall be designed in accordance with SRCC 300 to provide an expansion tank that is sized to withstand the maximum operating pressure of the system.

**Exception:** Expansion tanks shall not be required in the collector loop of drain-back systems.

**M2301.2.11.1 Solar loop isolation.** Valves shall be installed to allow the solar ~~collectors loop~~ to be isolated from the remainder of the system

**M2301.3 Labeling.** *Labeling* shall comply with Sections M2301.3.1 and M2301.3.2.

**M2301.3.1 Collectors and panels.** Solar thermal collectors and panels shall be listed and labeled in accordance with SRCC 100 or SRCC 600. ~~Collectors and panels~~ Factory-built collectors shall be listed and labeled to show bear a label showing the manufacturer's name, model number, and serial number, collector weight, collector maximum allowable temperatures and pressures, and the type of heat transfer fluids that are compatible with the collector or panel. The label shall clarify that these specifications apply only to the collector or panel.

**M2301.3.2 Thermal storage units.** ~~Pressurized thermal water storage units tanks shall be listed and labeled to show bear a label showing the manufacturer's name and address, model number, serial number, storage unit maximum and minimum allowable operating temperatures and pressures, storage unit maximum and the type of heat transfer fluids that are compatible with the storage unit minimum allowable operating pressures.~~ The label shall clarify that these specifications apply only to the thermal water storage unit tanks.

**Add new text as follows:**

**M2301.2.6.1 Drain-back systems** Drain-back systems shall be designed and installed to allow for manual gravity draining of fluids from areas subject to freezing to locations not subject to freezing, and air filling of the components and piping. Such piping and components shall maintain a horizontal slope in the direction of flow of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope). Piping and components subject to manual gravity draining shall permit subsequent air filling upon drainage and air venting upon refilling.

**M2301.2.6.2 Freeze protection valves.** Freeze protection valves shall discharge in a manner that does not create a hazard or structural damage.

**Reason:** A reference to the SRCC 300 standard was added to the IRC in Chapter 23 during the 2015 cycle. This change in Chapter 20 changes to language to correspond to SRCC 300. Requirements for hot water storage tanks, which UL 174 intended to address are covered in SRCC 300, therefore, UL 174 is no longer necessary.

Access provisions were revised to clarify that roof-mounted solar collectors and equipment should not interfere with the operation of key safety components and features from other systems. While this can reasonably assumed, providing this provisions will provide code officials more clear language to reference when inspecting installations.

New language has been added to the freeze protection section to address specific issues with two of the most common freeze protection approaches: drainback systems and freeze protection valves. Drainback systems allow the liquid to drain from the external collector to conditioned space when flow is not occurring. As a result proper slope is critical to ensure operation.

Inspection of the installation and workmanship is necessary to ensure that the slope is consistent and the freeze protection is fully functional. Freeze protection valves discharge a small amount of water in freezing conditions and therefore should be addressed in a way similar to T&P valves to ensure that the discharge does not damage the roof or create a hazard (e.g. freezing on a pedestrian walkway). Identical language has also been proposed for Chapter 14 of the IMC. The winter design temperature was revised to utilize the 97.5% winter design temperature, which can be found in Appendix D of the IPC. The threshold value was adjusted to accommodate this change. This will provide greater clarity and allow the Appendix D tables to be used.

The provisions relating to collector and hot water storage tank labeling were simplified since this information and more can be found in manuals and specifications. The language for storage units (tanks) was also revised to clarify that they are only to apply to hot water storage tanks.

**Bibliography:** SRCC 300, Minimum Standards for Solar Water Heating Systems, Jan. 2, 2013.

**Cost Impact:** Will not increase the cost of construction

The proposed changes are not anticipated to impact the cost of installation. No new equipment or features are required, and no new requirements are placed on manufacturers impacting certification or manufacturing costs. Proposed provisions provide additional clarity and direction for installers and code officials at inspection.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Approval was based on the proponent's published reason statements.

**Assembly Action:**

**None**

**Final Action Results**

**RM52-15**

**AS**

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**Code Change No: RB2-16**

**Original Proposal**

**Section:** R202, M1305.1, M1407.4, M1503.4, M1601.1.2, M1601.4.1, M1803.3.5, M1803.4.3, M2204.2, M2301.2.1, R1001.2.1, R1003.9.2, R202, R202 (New), R301.5, R302.7, R308.4.3, R308.4.6, R308.6.2, R308.6.5, R310.5, R311.3, R807.1

**Proponent:** David Collins (dcollins@preview-group.com); Dan Buuck (dbuuck@nahb.org); Steven Orlovski (sorlovski@boma.org)

**Delete and substitute as follows:**

~~**ACCESSIBLE.** Signifies access that requires the removal of an access panel or similar removable obstruction.~~

**ACCESS (TO)** That which enables a device, appliance or equipment to be reached by *ready access* or by a means that first requires the removal or movement of a panel, door or similar obstruction.

~~**ACCESSIBLE, READILY.** Signifies access without the necessity for removing a panel or similar obstruction.~~

**READY ACESS (TO)** That which enables a device, appliance or equipment to be directly reached, without requiring the removal or movement of any panel, door or similar obstruction.

**Revise as follows:**

~~**CLEANOUT.** An accessible opening in the drainage system used for the removal of possible obstruction and located to allow for access.~~

**FIXTURE FITTING.**

**Supply fitting.** A fitting that controls the volume or directional flow or both of water and that is either attached to or ~~accessible~~ is accessed from a fixture or is used with an open or atmospheric discharge.

**Waste fitting.** A combination of components that conveys the sanitary waste from the outlet of a fixture to the connection of the sanitary drainage system.

**TABLE R301.5  
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (in pounds per square foot)**

USE	LIVE LOAD
Uninhabitable attics without storage <sup>b</sup>	10
Uninhabitable attics with limited storage <sup>b,g</sup>	20
Habitable attics and attics served with fixed stairs	30
Balconies (exterior) and decks <sup>e</sup>	40
Fire escapes	40
Guards and handrails <sup>d</sup>	200 <sup>h</sup>
Guard in-fill components <sup>f</sup>	50 <sup>h</sup>
Passenger vehicle garages <sup>a</sup>	50 <sup>a</sup>
Rooms other than sleeping rooms	40
Sleeping rooms	30
Stairs	40 <sup>c</sup>

For SI: 1 pound per square foot = 0.0479 kPa, 1 square inch = 645 mm<sup>2</sup>, 1 pound = 4.45 N.

- a. Elevated garage floors shall be capable of supporting a 2,000-pound load applied over a 20-square-inch area.
- b. Uninhabitable *attics* without storage are those where the clear height between joists and rafters is not more than 42 inches, or where there are not two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. This live load need not be assumed to act concurrently with any other live load requirements.
- c. Individual stair treads shall be designed for the uniformly distributed live load or a 300-pound concentrated load acting over an area of 4 square inches, whichever produces the greater stresses.
- d. A single concentrated load applied in any direction at any point along the top.
- e. See Section R507.1 for decks attached to *exterior walls*.
- f. *Guard* in-fill components (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to 1 square foot. This load need not be assumed to act concurrently with any other live load requirement.
- g. Uninhabitable *attics* with limited storage are those where the clear height between joists and rafters is not greater than 42 inches, or where there are two or more adjacent trusses with web configurations capable of accommodating an assumed rectangle 42 inches in height by 24 inches in width, or greater, within the plane of the trusses. The live load need only be applied to those portions of the joists or truss bottom chords where all of the following conditions are met:
  1. The *attic* area is accessible accessed from an opening not less than 20 inches in width by 30 inches in length that is located where the clear height in the *attic* is not less than 30 inches.
  2. The slopes of the joists or truss bottom chords are not greater than 2 inches vertical to 12 units horizontal.
  3. Required insulation depth is less than the joist or truss bottom chord member depth.The remaining portions of the joists or truss bottom chords shall be designed for a uniformly distributed concurrent live load of not less than 10 pounds per square foot.
- h. Glazing used in handrail assemblies and *guards* shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the in-fill components. These loads shall be determined independent of one another, and loads are assumed not to occur with any other live load.

**R302.7 Under-stair protection.** Enclosed ~~accessible~~ space under stairs that is accessed by a door or access panel, shall have walls, under-stair surface and any soffits protected on the enclosed side with <sup>1</sup>/<sub>2</sub>-inch (12.7 mm) gypsum board.

**R308.4.3 Glazing in windows.** Glazing in an individual fixed or operable panel that meets all of the following conditions shall be considered to be a hazardous location:

1. The exposed area of an individual pane is larger than 9 square feet (0.836 m<sup>2</sup>),
2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor,
3. The top edge of the glazing is more than 36 inches (914 mm) above the floor; and
4. One or more walking surfaces are within 36 inches (914 mm), measured horizontally and in a straight line, of the glazing.

**Exceptions:**

1. Decorative glazing.
2. Where glazing is adjacent to a walking surface and a horizontal rail is installed on the accessible side(s) of the glazing 34 to 38 inches (864 to 965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and have a cross-sectional height of not less than 1<sup>1</sup>/<sub>2</sub> inches (38 mm).
3. Outboard panes in insulating glass units and other multiple glazed panels where the bottom edge of the glass is 25 feet (7620 mm) or more above *grade*, a roof, walking surfaces or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior.

**R308.4.6 Glazing adjacent to stairs and ramps.** Glazing where the bottom exposed edge of the glazing is less than 36 inches (914 mm) above the plane of the adjacent walking surface of stairways, landings between flights of stairs and ramps shall be considered to be a hazardous location.

**Exceptions:**

1. Where glazing is adjacent to a walking surface and a horizontal rail is installed on the accessible side(s) of the glazing at 34 to 38 inches (864 to 965 mm) above the walking

surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and have a cross-sectional height of not less than 1 1/2 inches (38 mm).

2. Glazing 36 inches (914 mm) or more measured horizontally from the walking surface.

**R308.6.2 Materials.** The following types of glazing shall be permitted to be used:

1. Laminated glass with not less than a 0.015-inch (0.38 mm) polyvinyl butyral interlayer for glass panes 16 square feet (1.5 m<sup>2</sup>) or less in area located such that the highest point of the glass is not more than 12 feet (3658 mm) above a walking surface ~~or other accessible area~~; for higher or larger sizes, the interlayer thickness shall be not less than 0.030 inch (0.76 mm).
2. Fully tempered glass.
3. Heat-strengthened glass.
4. Wired glass.
5. *Approved rigid plastics.*

**R308.6.5 Screens not required.** Screens shall not be required where fully tempered glass is used as single glazing or the inboard pane in multiple glazing and either of the following conditions are met:

1. Glass area 16 square feet (1.49 m<sup>2</sup>) or less. Highest point of glass not more than 12 feet (3658 mm) above a walking surface ~~or other accessible area~~, nominal glass thickness not more than 3/16 inch (4.8 mm), and (for multiple glazing only) the other pane or panes fully tempered, laminated or wired glass.
2. Glass area greater than 16 square feet (1.49 m<sup>2</sup>). Glass sloped 30 degrees (0.52 rad) or less from vertical, and highest point of glass not more than 10 feet (3048 mm) above a walking surface ~~or other accessible area~~.

**R310.5 Dwelling additions.** Where *dwelling additions* occur that contain sleeping rooms, an emergency escape and rescue opening shall be provided in each new sleeping room. Where *dwelling additions* occur that have *basements*, an emergency escape and rescue opening shall be provided in the new *basement*.

**Exceptions:**

1. An emergency escape and rescue opening is not required in a new *basement* that contains a sleeping room with an emergency escape and rescue opening.
2. An emergency escape and rescue opening is not required in a new *basement* where there is an emergency escape and rescue opening in an existing *basement* that is accessible accessed from the new *basement*.

**R311.3 Floors and landings at exterior doors.** There shall be a landing or floor on each side of each exterior door. The width of each landing shall be not less than the door served. Every landing shall have a dimension of not less than 36 inches (914 mm) measured in the direction of travel. The slope at exterior landings shall not exceed 1/4 unit vertical in 12 units horizontal (2 percent).

**Exception:** Exterior balconies less than 60 square feet (5.6 m<sup>2</sup>) and only accessible accessed from a door are permitted to have a landing less than 36 inches (914 mm) measured in the direction of travel.

**R807.1 Attic access.** Buildings with combustible ceiling or roof construction shall have an *attic* access opening to *attic* areas that have a vertical height of 30 inches (762 mm) or greater over an area of not less than 30 square feet (2.8 m<sup>2</sup>). The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members.

The rough-framed opening shall be not less than 22 inches by 30 inches (559 mm by 762 mm) and shall be located in a hallway or other ~~readily accessible~~ location with ready access. Where located in a wall, the opening shall be not less than 22 inches wide by 30 inches high (559 mm wide by 762 mm high). Where the access is located in a ceiling, minimum unobstructed headroom in the *attic* space shall be 30

inches (762 mm) at some point above the access measured vertically from the bottom of ceiling framing members. See Section M1305.1.3 for access requirements where mechanical *equipment* is located in *attics*.

**R1001.2.1 Ash dump cleanout.** Cleanout openings located within foundation walls below fireboxes, when provided, shall be equipped with ferrous metal or masonry doors and frames constructed to remain tightly closed except when in use. Cleanouts shall be ~~accessible~~located to allow access and ~~located~~ so that ash removal will not create a hazard to combustible materials.

**R1003.9.2 Spark arrestors.** Where a spark arrestor is installed on a masonry chimney, the spark arrestor shall meet all of the following requirements:

1. The net free area of the arrestor shall be not less than four times the net free area of the outlet of the chimney flue it serves.
2. The arrestor screen shall have heat and corrosion resistance equivalent to 19-gage galvanized steel or 24-gage stainless steel.
3. Openings shall not permit the passage of spheres having a diameter greater than  $1\frac{1}{2}$  inch (12.7 mm) nor block the passage of spheres having a diameter less than  $\frac{3}{8}$  inch (9.5 mm).
4. The spark arrestor shall be ~~accessible~~located with access for cleaning and the screen or chimney cap shall be removable to allow for cleaning of the chimney flue.

**M1305.1 Appliance access for inspection service, repair and replacement.** *Appliances* shall be ~~accessible~~located to allow for access for inspection, service, repair and replacement without removing permanent construction, other *appliances*, or any other piping or ducts not connected to the *appliance* being inspected, serviced, repaired or replaced. A level working space not less than 30 inches deep and 30 inches wide (762 mm by 762 mm) shall be provided in front of the control side to service an *appliance*.

**M1407.4 Access.** Duct heaters shall be ~~accessible~~located to allow access for servicing, and clearance shall be maintained to permit adjustment, servicing and replacement of controls and heating elements.

**M1503.4 Makeup air required.** Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m<sup>3</sup>/s) shall be mechanically or naturally provided with makeup air at a rate approximately equal to the exhaust air rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or an electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be ~~accessible~~located to allow access for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.

**M1601.1.2 Underground duct systems.** Underground *duct systems* shall be constructed of *approved* concrete, clay, metal or plastic. The maximum duct temperature for plastic ducts shall not be greater than 150°F (66°C). Metal ducts shall be protected from corrosion in an *approved* manner or shall be completely encased in concrete not less than 2 inches (51 mm) thick. Nonmetallic ducts shall be installed in accordance with the manufacturer's instructions. Plastic pipe and fitting materials shall conform to cell classification 12454-B of ASTM D 1248 or ASTM D 1784 and external loading properties of ASTM D 2412. Ducts shall slope to ~~an accessible~~a point for drainage that has access. Where encased in concrete, ducts shall be sealed and secured prior to any concrete being poured. Metallic ducts having an *approved* protective coating and nonmetallic ducts shall be installed in accordance with the manufacturer's instructions.

**M1601.4.1 Joints, seams and connections.** Longitudinal and transverse joints, seams and connections in metallic and nonmetallic ducts shall be constructed as specified in SMACNA HVAC *Duct Construction Standards—Metal and Flexible* and NAIMA *Fibrous Glass Duct Construction Standards*. Joints, longitudinal and transverse seams, and connections in ductwork shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems, liquid sealants or tapes. Tapes and mastics used to seal fibrous glass ductwork shall be *listed* and *labeled* in accordance with UL

181A and shall be marked "181A-P" for pressure-sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape.

Tapes and mastics used to seal metallic and flexible air ducts and flexible air connectors shall comply with UL 181B and shall be marked "181 B-FX" for pressure-sensitive tape or "181 BM" for mastic. Duct connections to flanges of air distribution system equipment shall be sealed and mechanically fastened. Mechanical fasteners for use with flexible nonmetallic air ducts shall comply with UL 181B and shall be marked 181B-C. Crimp joints for round metallic ducts shall have a contact lap of not less than 1 inch (25 mm) and shall be mechanically fastened by means of not less than three sheet-metal screws or rivets equally spaced around the joint.

Closure systems used to seal all ductwork shall be installed in accordance with the manufacturers' instructions.

#### **Exceptions:**

1. Spray polyurethane foam shall be permitted to be applied without additional joint seals.
2. Where a duct connection is made that is partially ~~inaccessible~~ without access, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
3. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams and locking-type joints and seams of other than the snap-lock and button-lock types.

**M1803.3.5 Access.** The entire length of a connector shall ~~be accessible~~ allow access for inspection, cleaning and replacement.

**M1803.4.3 Connection to masonry fireplace flue.** A connector shall extend from the *appliance* to the flue serving a masonry fireplace to convey the flue gases directly into the flue. The connector shall ~~be accessible~~ allow access or removable for inspection and cleaning of both the connector and the flue. *Listed* direct-connection devices shall be installed in accordance with their *listing*.

**M2204.2 Shutoff valves.** A ~~readily accessible~~ manual shutoff valve shall be installed to allow for ready access and be located between the oil supply tank and the burner. Where the shutoff valve is installed in the discharge line of an oil pump, a pressure-relief valve shall be incorporated to bypass or return surplus oil. Valves shall comply with UL 842.

**M2301.2.1 Access.** Solar energy collectors, controls, dampers, fans, blowers and pumps shall ~~be accessible~~ located to allow access for inspection, maintenance, repair and replacement.

**Reason:** The intent of this proposal is for clarification of terminology. This proposal will clarify where the provisions are for access for repair, not accessibility for persons with disabilities.

The term 'accessible' is defined in the IBC and relates to elements and facilities that serve or have special accommodations for persons with mobility impairments. This term is used that way in IRC Section R320 and R321.3. The IPC, IFGC and IMC use the defined term "Access (to)" or "Ready Access" for access to equipment. Using those terms are proposed here for the IRC where applicable.

The phrase "other accessible area" has been removed from Sections R308.4.6, R308.6.2 and R308.6.5. This is confusing and not uniformly enforceable.

There is a similar proposal for the IECC, including Chapter 11 of the IRC. A similar proposal was approved for the International Plumbing Code as part of Group A - P84-15.

**Cost Impact:** Will not increase the cost of construction

This is a clarification of terminology that will have no change on code requirements.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** This clarifies that code by separating something that is accessible from something that is accessed.

**Assembly Action:**

**None**

**Final Action Results**

**RB2-16**

**AS**

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## Code Change No: **RB13-16**

### Original Proposal

#### Section: R202 (New)

**Proponent:** Vickie Lovell, InterCode Incorporated, representing RectorSeal Corp.  
(vickie@intercodeinc.com)

The following code change proposal was correctly submitted by the proponent for the Group A Cycle, to be heard by the IRC-Mechanical Committee. The proposal was mistakenly assigned by ICC staff to the Group B Cycle and is therefore placed on the IRC-Building Committee hearing order for consideration.

#### Add new definition as follows:

**LOCKING-TYPE TAMPER-RESISTANT CAP.** A cap that is designed to be unlocked by a specially designed tool or key to prevent removal of the cap by means of hand-loosening or by commonly available tools.

**Reason:** Section 1101.10 in IMC and (M)1411.6 in the IRC are new sections in 2009, 2012, and the 2015 IMC and IRC that require access ports for refrigerants be contained in a secure location or, if located outside a locked, controlled area, be secured with a tamper-resistant locking cap.

This code change was approved to help reduce unauthorized access to refrigerants, and to help AC system efficiency from theft or from the accidental mixing of refrigerant gases.

Refrigerant gas theft has become increasingly problematic in recent years. Some of this is due to the rising costs of these gases; however, stealing refrigerant for the act of huffing is increasing at an alarming rate. "Sniffing" or "huffing" refrigerant gas is extremely dangerous, causing brain damage or even death. Inhalants are the fourth most abused substance. According to the Inhalant Statistics and Reports "59% of children are aware of friends huffing at age 12." In the U.S., the 2006 National Survey on Drug Use and Health found that 1.1 million youths aged 12 to 17 had used inhalants in the past year. "Sniffing" and "huffing" can begin at age 10 or younger. 22% of inhalant abusers who died of Sudden Sniffing Death Syndrome had no history of previous inhalant abuse—they were first-time users.

The I-Codes reference tamper-resistance many times generically, but do not provide any direction as to how secure such tamper-resistant features should be. The Codes identify such protective features as switches, caps, locks, receptacles, seals, covers, guards, fasteners, and secure connections that are intended to provide protection which contributes to everything from building component performance to life safety. However, the I-Codes do not contain specifications as to how secure such requirements are to be, or how they are to be implemented and enforced.

Some protective features identified by the codes could be considered tamper-resistant, but are designed to be removed with a set bit, Allen wrench, Schrader valve tool or screwdriver. The use of such protective features could be considered a deterrent in some cases, but not true prevention to a determined thief - because such protective devices are not truly LOCKED.

Because this is a life safety matter, the code should provide a more specific definition of locking type tamper resistant caps. This definition clarifies that the cap should be an actual lock to be effective, that is, can only be opened with a specially designed key by authorized personnel. The majority of the victims of huffing are teens and pre-teens, many of whom could easily tamper with a port cap using such readily available tools. This clarification of the definition of a specially designed "lock and "key" will reduce theft and help to safe guard youngsters from serious injury or death resulting from the inhalation of dangerous refrigerants.



**Cost Impact:** Will increase the cost of construction  
THIS CODE CHANGE PROPOSAL MAY HAVE A MINIMAL COST IMPACT DURING CONSTRUCTION.

**Report of Committee Action  
Hearings**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** These devices will allow the refrigerated gases to be locked in the system and will help prevent theft and inhalant abuses.

**Assembly Action:**

**None**

**Final Action Results**

**RB13-16**

**AS**

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**Code Change No: RB21-16**

**Original Proposal**

**Section: R301.2**

**Proponent:** Hope Medina, representing self (hmedina@coloradocode.net)

**Revise as follows:**

**TABLE R301.2 (1)  
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA**

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY <sup>f</sup>	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP <sup>e</sup>	ICE BARRIER UNDERLAYMENT REQUIRED <sup>h</sup>	FLOOD HAZARD <sup>g</sup>	AIR FREEZING INDEX <sup>i</sup>	MEAN ANNUAL TEMP <sup>j</sup>
	Speed <sup>d</sup> (mph)	Topographic effects <sup>k</sup>	Special wind region <sup>l</sup>	Wind-borne debris zone <sup>m</sup>		Weathering <sup>a</sup>	Frost line depth <sup>b</sup>	Termite <sup>c</sup>					

<b>MANUAL J DESIGN CRITERIA<sup>n</sup></b>							
<u>Elevation</u>	<u>Latitude</u>	<u>Winter Heating</u>	<u>Summer Cooling</u>	<u>Altitude Correction Factor</u>	<u>Indoor Design Temperature</u>	<u>Design Temperature Cooling</u>	<u>Heating Temperature Difference</u>
-	-	-	-	-	-	-	-
<u>Cooling Temperature Difference</u>	<u>Wind Velocity Heating</u>	<u>Wind Velocity Cooling</u>	<u>Coincident Wet Bulb</u>	<u>Daily Range</u>	<u>Winter Humidity</u>	<u>Summer Humidity</u>	-

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

- a. Weathering may require a higher strength concrete or *grade* of masonry than necessary to satisfy the structural requirements of this code. The weathering column shall be filled in with the weathering index, "negligible," "moderate" or "severe" for concrete as determined from Figure R301.2(3). The *grade* of masonry units shall be determined from ASTM C 34, C 55, C 62, C 73, C 90, C 129, C 145, C 216 or C 652.
- b. The frost line depth may require deeper footings than indicated in Figure R403.1(1). The *jurisdiction* shall fill in the frost line depth column with the minimum depth of footing below finish *grade*.
- c. The *jurisdiction* shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.
- d. The *jurisdiction* shall fill in this part of the table with the wind speed from the basic wind speed map [Figure R301.2(4)A]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.
- e. The outdoor design dry-bulb temperature shall be selected from the columns of 97 <sup>1</sup>/<sub>2</sub> -percent values for winter from Appendix D of the *International Plumbing Code*. Deviations from the Appendix D temperatures shall be permitted to reflect local climates or local weather experience as determined by the *building official*.
- f. The *jurisdiction* shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.
- g. The *jurisdiction* shall fill in this part of the table with (a) the date of the *jurisdiction's* entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the Flood Insurance Study and (c) the panel numbers and dates of the currently effective FIRMs and FBFMs or other flood hazard map adopted by the authority having *jurisdiction*, as amended.
- h. In accordance with Sections R905.1.2, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the *jurisdiction* shall fill in this part of the table with "YES." Otherwise, the *jurisdiction* shall fill in this part of the table with "NO."
- i. The *jurisdiction* shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99 percent) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."
- j. The *jurisdiction* shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."
- k. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the *jurisdiction* shall fill in this part of the table with "YES." Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.
- l. In accordance with Figure R301.2(4)A, where there is local historical data documenting unusual wind conditions, the *jurisdiction* shall fill in this part of the table with "YES" and identify any specific requirements. Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.
- m. In accordance with Section R301.2.1.2.1, the *jurisdiction* shall indicate the wind-borne debris wind zone(s). Otherwise, the *jurisdiction* shall indicate "NO" in this part of the table.
- n. The jurisdiction shall fill in these sections of the table to establish the design criteria using Table 1a or 1b from ACCA Manual J or established criteria determined by the jurisdiction having authority.

**Reason:** The requirement for a manual j or an engineered equivalent has been in the code for several cycles, but we do not assist the jurisdiction nor the applicant in determining their criteria. Often when a manual J is being put together for a project the responsible party will reach out to the jurisdiction who quite often have not determined what their design criteria is. What happens is different criteria will be used for different projects within the same jurisdiction. To assist the responsible party who is attempting to meet this requirement a jurisdiction should determine these variables. A jurisdiction is given the option of using table 1a or 1b from ACCA Manual J or for the jurisdiction to determine their own criteria due to their unique circumstances.

In Table 301.2(1) jurisdictions must establish other design criteria that is specific to that jurisdiction. It makes sense to add manual j criteria to the table, so that the jurisdictions are getting manual js that are designed to the correct variables. It's not uncommon for jurisdictions to not enforce the requirement for a manual j due to the complexity of reviewing and verifying the information. I believe by removing the inconsistent variable more manual js will be more consistently performed. This will allow for more jurisdictions to review manual j, and in turn will have more mechanical equipment installed that has been sized correctly.

**Cost Impact:** Will not increase the cost of construction

This proposal will not increase the cost. This is to provide information on design parameters for the home. The information can be obtained from ACCA Manual J's table 1a or 1b, or some jurisdictions have parameters established.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Manual J is mandatory in accordance with R403.7 and this promotes the "one book" concept.

**Assembly Action:**

**None**

### Final Action Results

**RB21-16**

**AS**

## Code Change No: **M15-15 Part II**

### Original Proposal

#### Section: M1305.1.1

**Proponent:** Janine Snyder, representing Plumbing, Mechanical, and Fuel Gas Code Action Committee (PMGCAC@iccsafe.org)

**THIS IS A 2 PART CODE CHANGE. PART I WAS HEARD BY THE IMC COMMITTEE. PART II WAS HEARD BY THE IRC-MECHANICAL COMMITTEE.**

**Delete without substitution:**

~~**M1305.1.1 Furnaces and air handlers.** Furnaces and air handlers within compartments or alcoves shall have a minimum working space clearance of 3 inches (76 mm) along the sides, back and top with a total width of the enclosing space being not less than 12 inches (305 mm) wider than the furnace or air handler. Furnaces having a firebox open to the atmosphere shall have not less than a 6-inch (152 mm) working space along the front combustion chamber side. Combustion air openings at the rear or side of the compartment shall comply with the requirements of Chapter 17.~~

~~**Exception:** This section shall not apply to replacement appliances installed in existing compartments and alcoves where the working space clearances are in accordance with the equipment or appliance manufacturer's installation instructions.~~

**Reason:** This section is antiquated and has apparently lost its purpose. There is no reason to single out central furnaces. Clearances for working spaces are already covered by the manufacturer's instructions and Sections M1307.1, M1401.1 and M1402.2. The requirement for a 3 inch clearance around the sides, back and top has no apparent justification. What work could personnel perform in a 3 inch space? What is the 12 inch extra width supposed to accomplish? Section M1305.1 covers this adequately. There is nothing in Chapter 17 regarding combustion air openings on the sides and rear of the furnace. If these requirements are really necessary, then why does the exception negate them for subsequent (replacement) installations?

This proposal is submitted by the ICC Plumbing, Mechanical and Fuel Gas Code Action Committee (PMGCAC) The PMGCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. This includes both the technical aspects of the codes and the code content in terms of scope and application of referenced standards. The PMGCAC has held one open meeting and multiple conference calls which included members of the PMGCAC. Interested parties also participated in all conference calls to discuss and debate the proposed changes.

**Cost Impact:** Will not increase the cost of construction

This proposal will not increase the cost of construction because no additional labor, materials, equipment, appliances or devices are mandated beyond what is currently required by the code nor are the code requirements made more stringent.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Required clearances are already addressed in the appliance manufacturer's instructions. Deletion of this text will eliminate conflicts with the appliance installation instructions.

**Assembly Action:**

**None**

### Final Action Results

**M15-15 Part II**

**AS**

## Code Change No: **G17-16 Part II**

### Original Proposal

#### Section: R202 (New)

**Proponent:** Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

**THIS IS A 2 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.**

#### Add new definition as follows:

**SOLAR ENERGY SYSTEM.** A system that converts solar radiation to usable energy, including photovoltaic panel system and solar thermal system.

**SOLAR THERMAL COLLECTOR.** Components in a solar thermal system that collect and convert solar radiation to thermal energy.

**SOLAR THERMAL SYSTEM.** A system that converts solar radiation to thermal energy for use in heating or cooling.

**Reason:** The proposed terms "solar thermal collector" and "solar thermal system" are from ICC 900/SRCC 300-15, Solar Thermal System Standard. These terms are currently used in the IRC and it is therefore appropriate for the definitions to be included. The expansion of Section 3111 in the International Building Code by Proposal G211-15 in the Group A cycle covers all that is within Section 1510.7 and its subsections, as well as providing all the applicable requirements for photovoltaic panels and modules in one location of the code. There are additional requirements that apply to rooftop-mounted photovoltaic panels and modules that are not covered in Section 1510.7, including roof access, signage, routing of conductors, and additional electrical requirements. By locating all applicable requirements in one location in the chapter for Special Construction, all applicable requirements will be addressed. In addition, Section 3111 also covers all the applicable requirements for solar thermal systems, which include the solar thermal collectors mounted on the roof. Revising Section 1512.1 provides the appropriate pointer to the requirements in Section 3111. This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portions thereof. In 2014 and 2015 the BCAC has held 5 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: [BCAC](#)

**Cost Impact:** Will not increase the cost of construction  
No cost increase as this correlates the requirements relocated to Section 3111.

### Report of Committee Action Hearings

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** This proposal brings a consensus ICC standard into the IRC.

**Assembly Action**

**None**

### Final Action Results

**G17-16 Part II**

**AS**