

Code Review

2018 Changes to International Codes

IRC - ROOFING - ROOFING 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) -(Roofing)

RCCIWG and
Roofing Technical Advisory Committee (TAC)

2018 International Residential Code – Roofing

Roofing TAC

IRC-Roofing Code Change No.	IRC-Roofing Section	Change Summary b/t 2015 IRC-R and 2018 IRC-R	Change Summary b/t 2017 IRC-R and 2018 IRC-R	Staff comments										
S8-16 Part II	R905.2.4.1	Revises to make an editorial clarification that aligns the labeling requirement for the wind standards for asphalt shingles to provide consistent labeling requirements between the IRC and IBC. Cost Impact: Will not increase the cost of construction. The proposal is editorial and adds no new requirements	Same as change between 2015 IRC-B and 2018 IRC-B											
<table border="1"> <thead> <tr> <th>RCCIWG – Comment</th> <th>TAC Action</th> <th>Commission Action</th> <th>TAC</th> <th>Commission</th> </tr> </thead> <tbody> <tr> <td>Impactful (Explain) <input type="checkbox"/></td> <td>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="text"/></td> <td>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="text"/></td> <td><input type="checkbox"/> No Action Needed <input type="checkbox"/> Overlapping provisions</td> <td><input type="checkbox"/> <input type="checkbox"/></td> </tr> </tbody> </table>					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): <input type="text"/>	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="text"/>	<input type="checkbox"/> No Action Needed <input type="checkbox"/> Overlapping provisions	<input type="checkbox"/> <input type="checkbox"/>
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S18-16 Part II	1504.7, 1507.11.2, 1507.12.2, 1507.13.2	Revised to remove withdrawn Canadian Standards. Cost Impact: Will not increase the cost of construction. The referenced standards have been withdrawn and are invalid.	Same as change between 2015 IRC-B and 2018 IRC-B											
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S28-16 Part II	R905.1.1	Modifies text of Section R905.1.1 “Underlayment”. The proposal adds a requirement that self-adhering underlayments bear a label to demonstrate compliance to the code. The proposal also adds photovoltaic shingles to the list of roof covering	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

		materials requiring labeled underlayment materials in the IRC. Cost Impact: Will increase the cost of construction. Will require products bear a label, which will add product approval costs. The IRC already contains an underlayment labeling requirement, so the cost impact is expected to be minimal.		
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						<input type="checkbox"/> Overlapping provisions		<input type="checkbox"/>	

S43-16 Part II	R905.11.1, R905.11.2, R905.11.2.1 (New)	Revised to include a change to terminology for modified bitumen roofing materials for consistency with referenced standards and industry terminology. In addition, it includes a new section permitting the use of base sheet materials that comply with ASTM D 1970, ASTM D4601, or other standards as applicable. Cost Impact: Will not increase the cost of construction. The proposal increases product options.	Same as change between 2015 IRC-B and 2018 IRC-B	
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						<input type="checkbox"/> Overlapping provisions		<input type="checkbox"/>	

S51-16 Part II	R202 (New), R908.3.1	Revised to clarify the enforcement process by adding additional substrates (i.e., existing roof coverings) that are acceptable for the installation of a roof coating. The code change was further modified by the Committee. The modification corrects an error in the definition. Cost Impact: Will not increase the cost of construction	Same as change between 2015 IRC-B and 2018 IRC-B	
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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:
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

		This will likely reduce the cost of construction when questions are raised about the appropriate use of a roof coating on existing roofs.		
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RB154-16	R317.1, R402.1.2, R504.3, R905.8.5	Modifies text of Section R317.1 “Location required”, R402.1.2 “Wood treatment”, R504.3 “Materials”, TABLE R905.8.5 “WOOD SHAKE MATERIAL REQUIREMENTS”. The existing text was outdated, requiring clarification and updates to current AWPA section numbering. Cost Impact: Will not increase the cost of construction.	Same as change between 2015 IRC-B and 2018 IRC-B		
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RB164-16	R324.3, R324.3.1, R324.4, R324.4.1, R324.5, R324.5.1, R324.5.2 (New), R907, R907.1, R907.2, R907.3, R907.4,	Modifies Sections R324.3 “Photovoltaic systems”, R324.3.1 “Equipment listings”, R324.4 “Rooftop-mounted photovoltaic systems”, R324.4.1 “Structural requirements”, R324.4.1.1 “Roof live load”, R324.4.1.2 “Wind resistance”, R324.4.2 “Fire classification”, R324.4.3 “Roof penetrations”, R324.5 “Building-integrated photovoltaic systems”, R324.5.1 “Photovoltaic shingles”, Section R907 “ROOFTOP-MOUNTED PHOTOVOLTAIC PANEL SYSTEMS”. Adds new Section R324.5.2 “Fire classification”. Deletes Section R907.4 “Installation”, R907.5 “Photovoltaic panels and modules”, SECTION R909 “ROOFTOP-MOUNTED	Same as change between 2015 IRC-B and 2018 IRC-B		
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	R907.5, R909, R909.1, R909.2, R909.3	PHOTOVOLTAIC PANEL SYSTEMS”. The intent of this proposal is to address redundant code requirements and consolidate/reorganize requirements that were also included in Chapter 9 during the last code cycle. These changes will help to address any confusion regarding the installation of photovoltaic systems. Cost Impact: Will not increase the cost of construction. The proposal clarifies the applicable requirements for photovoltaic systems.		
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RB165-16	R324.4.1	Revises text of section R324.4.1 “Roof live load”. This proposal is intended to clarify and correct the requirements for design loads for roofs with PV panels. The current code text is confusing, incomplete, and technically incorrect. Cost Impact: Will not increase the cost of construction. This proposal merely clarifies how loads are to be applied to the roof structure. Properly-designed roof structures should have been using the load cases in this proposal, so no change in cost or construction is anticipated.	Same as change between 2015 IRC-B and 2018 IRC-B	
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RB172-16	R202 (New),	Modifies text of Section R401.4 “Soil tests” and R801.3 “Roof	Same as change	
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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:
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

	R401.4, R801.3	<p>drainage”. Adds Definitions “COLLAPSIBLE SOILS”, “COMPRESSIBLE SOILS”, EXPANSIVE SOILS”. There is currently no definition for collapsible soils to provide guidance to design professionals and building officials on identification and design procedures to address these soils. These terms are used in IRC Section R401.4 and R801.3.</p> <p>Cost Impact: Will not increase the cost of construction.</p>	between 2015 IRC-B and 2018 IRC-B	
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RB339-16	R902.4	<p>Modifies text of Section R902.4 “Rooftop-mounted photovoltaic panel systems”. Adds new standard “UL 2703-14, Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels”. This proposal aligns the IRC requirements with IBC Section 1505.9 for fire classification of photovoltaic panel systems. The code change was further modified by the Committee. The modification is an editorial correction for the term photovoltaic panel systems.</p> <p>Cost Impact: Will not increase the cost of construction. This code change simply provides the appropriate method for testing photovoltaic panel systems for fire classification, as required by the ANSI standards. This method is already in use within the industry therefore there is no additional cost to construction</p>	This change is not similar to that of the FRC. The FRC provides for Florida specific changes to this section	Overlapping provision to be considered during step 2 of the code change process
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						<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RB341-16	R905.1.1	<p>Modifies text of Section R905.1.1 “Underlayment”. This proposal simply adds an additional method for preventing water penetration when the primary roof covering is lost due to high winds. The code change was further modified by the Committee. The modification adds another acceptable type of ASTM D4869 that provides another option.</p> <p>Cost Impact: Will not increase the cost of construction. The proposed criteria is optional.</p>		This change is not similar to that of the FRC. The FRC provides for Florida specific changes to this section		Overlapping provision to be considered during step 2 of the code change process		
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						<input type="checkbox"/> Overlapping provisions	<input type="checkbox"/>	<input type="checkbox"/>
RB343-16	R905.1.1, R905.16.3, R905.16.4, R905.16.4.1, R905.16.4.2	<p>Revises TABLE R905.1.1 (1) “UNDERLAYMENT TYPES”, TABLE R905.1.1 (2) “UNDERLAYMENT APPLICATION”, TABLE R905.1.1 (3) “UNDERLAYMENT ATTACHMENT”. Modifies text of Section R905.16.3 “Underlayment” and R905.16.3.1 “Ice barrier.” Deletes Section R905.16.4 “Underlayment application” and R905.16.4.2 “Underlayment and high winds”.</p> <p>This proposal is primarily a clarification regarding the lapping requirements for underlayment and brings the underlayment requirements for PV shingles in line with other roof covering types. The code change was further modified by the Committee. The modification adds another acceptable type of ASTM D4869 that provides another option.</p>		This change is not similar to that of the FRC. The FRC provides for Florida specific changes to this section		Overlapping provision to be considered during step 2 of the code change process		

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		<p>Cost Impact: Will increase the cost of construction. Will increase the cost of construction Will result in a cost increase for PV shingles in some areas. The wind speed trigger for the enhanced underlayment provisions has been slightly lowered resulting in it applying to more areas where PV shingles are installed. Underlayment provisions for PV shingles will be aligned with other roof covering types.</p>		
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RB345-16	R905.15.3	<p>Modifies text of Section R905.15.3 “Application”. The proposal adds necessary language so that the application of roof coatings follows manufacturer’s approved installation instructions.</p> <p>Cost Impact: Will not increase the cost of construction. The proposal adds clarity and does not change code requirements.</p>	<p>This change is not similar to that of the FRC. The FRC provides for Florida specific changes to this section</p>	<p>Overlapping provision to be considered during step 2 of the code change process</p>
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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): <input type="text"/>	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="text"/>	<input type="checkbox"/> No Action Needed <input type="checkbox"/> Overlapping provisions	<input type="checkbox"/> <input type="checkbox"/>

RB351-16	R202 (New), R324.5.2 (New), R905.17 (New), R905.17.1 (New),	<p>Adds a new definition “BUILDING-INTEGRATED PHOTOVOLTAIC ROOF PANEL (BIPV Roof Panel).” Adds new Sections R324.5.2 “BIPV roof panels”, R905.17 “BIPV roof panels applied directly to the roof deck”, R905.17.1 “Deck requirements”, R905.17.2 “Deck slope”, R905.17.3 “Underlayment”, R905.17.3.1 “Ice barrier”, R905.17.5 “Material standards”, R905.17.6 “Attachment”, R905.17.7 “Wind</p>	<p>This change is not similar to that of the FRC. The FRC provides for Florida specific changes to this section</p>	<p>Overlapping provision to be considered during step 2 of the code change process</p>
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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:

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

	R905.17.2 (New), R905.17.3 (New), R905.17.3.1 (New), R905.17.4 (New), R905.17.5 (New), R905.17.6 (New), R905.17.7 (New), UL (New)	<p>resistance”. Adds new standard “UL 1897-12 Uplift Tests for Roof Covering System”.</p> <p>This proposal adds new sections to the IRC to address Building-integrated (BIPV) roof panels. These products form part of the roof assembly and are subject to the same requirements as any other roof covering.</p> <p>The code change was further modified by the Committee. The modification clarifies the underlayment requirements and adds reference to the proper code sections.</p> <p>Cost Impact: Will not increase the cost of construction. This proposal does not increase the cost of construction. It adds another type of roof covering, enhancing builder choices.</p>		
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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 <input type="checkbox"/> <input type="checkbox"/>	Commission <input type="checkbox"/> <input type="checkbox"/>

RB352-16	R906.2	<p>Modifies TABLE R906.2 “MATERIAL STANDARDS FOR ROOF INSULATION”. Adds new standard ASTM C726-12 “Standard Specification for Mineral Wool Roof Insulation Board”. This proposal will add reference to the appropriate ASTM Standard specification for mineral wool roof insulation and make Table R906.2 consistent with IBC Table 1508.2. The code change was further modified by the Committee. The modification adds the clarification that it applies to the installation also.</p> <p>Cost Impact: Will not increase the cost of construction. This proposal does not add to the cost of construction because it provides an additional, non-mandatory, alternative material that may or may not be used in these applications at the discretion of the user.</p>	Same as change between 2015 IRC-B and 2018 IRC-B	
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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:

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"/>
RB354-16	R907.2	Modifies text of Section R324.4.2 “Wind load”. This proposal places the requirement for PV panel wind design in the same location as the other design load requirements Cost Impact: Will not increase the cost of construction. This proposal only moves a requirement and provides clarification and does not result in a change of design or construction	This change is not similar to that of the FRC. The FRC provides for Florida specific changes to this section			Overlapping provision to be considered during step 2 of the code change process
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"/>
RB371-16	U103, U103.1, U103.2, U103.3, U103.4, U103.5, U103.5 (New), U103.6, U103.6 (New), U103.7, U103.8	Modifies text of Section U103.1 “General”, U103.7 “Roof load documentation”, U103.8 “Interconnection pathway”, U103.9 “Electrical service reserved space”, U103.10 “Construction documentation certificate”. Adds new Section U103.5 “Shading” and U103.6 “Capped roof penetration sleeve”. The modifications proposed are designed to provide clarification and strengthen the existing Solar-ready Appendix U. Cost Impact: Will increase the cost of construction. Only in roofs with a slope of 2:12 or less will this proposal increase the cost of construction by \$100. In all other projects it will not increase the cost of construction.	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

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"/>
G14-16 Part IV	IRC: 202	Revises section 202 definition “[BS] Roof assembly” to clarify and make corrections in the definition. The code change was further modified by the Committee. The modification removes unnecessary language. The updates to the language improve the code. Cost Impact: Will not increase the cost of construction. This is a clarification of a definition and does not add any additional restrictions or requirements.			Same as change between 2015 IBC and 2018 IBC			
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"/>

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: S8-16 Part II

Original Proposal

Section: IBC: 1504.1.1

Proponent: Mike Fischer, Kellen, representing Asphalt Roofing Manufacturers Association (mfischer@kellencompany.com)

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

Revise as follows:

R905.2.4.1 Wind resistance of asphalt shingles. Asphalt shingles shall be tested in accordance with ASTM D 7158. Asphalt shingles shall meet the classification requirements of Table R905.2.4.1 for the appropriate ultimate design wind speed. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D 7158 and the required classification in Table R905.2.4.1.

Exception: Asphalt shingles not included in the scope of ASTM D 7158 shall be tested and labeled in accordance with ASTM D 3161. Asphalt shingle packaging shall bear a label to indicate compliance with ASTM D 3161 and the required classification in Table R905.2.4.1.

Reason: This proposal is an editorial clarification that aligns the labeling requirement for the wind standards for asphalt shingles to provide consistent labeling requirements between the IRC and IBC.

Cost Impact: Will not increase the cost of construction
The proposal is editorial and adds no new requirements.

Report of Committee Action Hearings

Committee Action:

Approved as Submitted

Committee Reason: The committee approved this proposal based on the proponents published reason statement. This clarifies the labeling requirements

Assembly Action

None

Final Action Results

S8-16 Part II

AS

Code Change No: **S18-16 Part II**

Original Proposal

Section: IRC: R905.11.2, R905.12.2, R905.13.2

Proponent: Mike Fischer, Kellen, representing Asphalt Roofing Manufacturers Association., representing Asphalt Roofing Manufacturers Association (mfischer@kellencompany.com)

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

Revise as follows:

**TABLE R905.11.2
MODIFIED BITUMEN ROOFING MATERIAL STANDARDS**

MATERIAL	STANDARD
Acrylic coating	ASTM D 6083
Asphalt adhesive	ASTM D 3747
Asphalt cement	ASTM D 3019
Asphalt coating	ASTM D 1227; D 2824
Asphalt primer	ASTM D 41
Modified bitumen roof membrane	ASTM D 6162; D 6163; D 6164; D 6222; D 6223; D 6298; CGSB 37-GP-56M

R905.12.2 Material standards. Thermoset single-ply roof coverings shall comply with ASTM D 4637, or ASTM D 5019 ~~or CGSB 37-GP-52M.~~

R905.13.2 Material standards. Thermoplastic single-ply roof coverings shall comply with ASTM D 4434, ASTM D 6754, or ASTM D 6878 ~~or CGSB CAN/CGSB 37.54.~~

Reason: The proposal removes withdrawn Canadian standards.

Cost Impact: Will not increase the cost of construction
The referenced standards have been withdrawn and are invalid.

**Report of Committee Action
Hearings**

Committee Action: **Approved as Submitted**

Committee Reason: This code change removes a referenced standard that has been withdrawn.

Assembly Action **None**

Final Action Results

S18-16 Part II AS

Code Change No: S28-16 Part II

Original Proposal

Section: R905.1.1

Proponent: Mike Fischer, Kellen, representing Asphalt Roofing Manufacturers Association (mfischer@kellencompany.com)

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

Revise as follows:

R905.1.1 Underlayment. Underlayment for asphalt shingles, clay and concrete tile, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes ~~and~~ metal roof panels and photovoltaic shingles shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D 226, D 1970, D 4869 and D 6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1(1). Underlayment shall be applied in accordance with Table R905.1.1(2). Underlayment shall be attached in accordance with Table R905.1.1(3).

Exceptions:

1. As an alternative, self-adhering polymer-modified bitumen underlayment complying with ASTM D 1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed, shall be permitted.
2. As an alternative, a minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D 1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment for the applicable roof covering for maximum ultimate design wind speeds, V_{ult} , less than 140 miles per hour shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.

Reason: Roofing underlayments are a critical component and provide protection to the roof deck and other components during installation as well as replacements and after storm events. The proposal adds a requirement that self-adhering underlayments bear a label to demonstrate compliance to the code. The labeling requirement for underlayments was part of a comprehensive proposal for the IRC by IBHS in the past cycle; it is hoped that a similar proposal will be approved for the IBC this year. The proposal also adds photovoltaic shingles to the list of roof covering materials requiring labeled underlayment materials in the IRC.

Cost Impact: Will increase the cost of construction
Will require products bear a label, which will add product approval costs. The IRC already contains an underlayment labeling requirement, so the cost impact is expected to be minimal.

**Report of Committee Action
Hearings**

Committee Action:

Approved as Submitted

Committee Reason: This code change levels the playing field for underlayment by clarifying the requirement for labeling.

Assembly Action

None

Final Action Results

S28-16 Part II

AS

Code Change No: S43-16 Part II

Original Proposal

Section: R905.11.1, R905.11.2, R905.11.2.1 (New)

Proponent: Mike Fischer, Kellen, representing Asphalt Roofing Manufacturers Association (mfischer@kellencompany.com)

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

Revise as follows:

R905.11.1 Slope. Modified bitumen ~~membrane roofs~~ roofing shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) for drainage.

R905.11.2 Material standards. Modified bitumen ~~roof coverings~~ roofing shall comply with the standards in Table R905.11.2.

Add new text as follows:

R905.11.2.1 Base sheet. A base sheet that complies with the requirements of 1507.11.2, ASTM D 4601, or ASTM D 1970 shall be permitted to be used with a modified bitumen cap sheet.

Reason: The proposal includes a change to terminology for modified bitumen roofing materials for consistency with referenced standards and industry terminology. In addition, it includes a new section permitting the use of base sheet materials that comply with ASTM D 1970, ASTM D4601, or other standards as applicable.

Cost Impact: Will not increase the cost of construction
The proposal increases product options.

Report of Committee Action Hearings

Committee Action:

Approved as Submitted

Committee Reason: This proposal coordinates terminology and underlayment standards for modified bitumen roofing.

Assembly Action

None

Final Action Results

S43-16 Part II

AS

Code Change No: **S51-16 Part II**

Original Proposal

Section: IRC: R202 (New), R908.3.1

Proponent: James Kirby, representing Roof Coating Manufacturers Association, representing Center for Environmental Innovation in Roofing (jkirby@kellenccompany.com)

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.

Revise as follows:

R908.3.1 Roof re-cover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. Where the new roof covering is installed in accordance with the roof covering manufacturer's approved instructions
2. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs where applied in accordance with Section R908.4.
4. ~~The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.~~
4. The application of a new protective *roof coating* over an existing protective *roof coating*, metal roof panel, metal roof shingle, mineral surfaced roll roofing, built-up roof, modified bitumen roofing, thermoset and thermoplastic single-ply roofing and spray polyurethane foam roofing system shall be permitted without tear off of existing roof coverings.

Add new definition as follows:

ROOF COATING. A fluid-applied and fully adhered coating used for roof maintenance, *roof repair*, or as a component of a *roof covering system* or *roof assembly*

Reason: The proposal clarifies the enforcement process by adding additional substrates (i.e., existing roof coverings) that are acceptable for the installation of a roof coating.

Cost Impact: Will not increase the cost of construction

This will likely reduce the cost of construction when questions are raised about the appropriate use of a roof coating on existing roofs.

Report of Committee Action Hearings

Committee Action:

Approved as Modified

Modify as follows:

2015 International Building Code

ROOF COATING. A fluid-applied and fully adhered coating used for roof maintenance, *roof repair*, or as a component of a *roof covering system* or *roof assembly*

Committee Reason: The committee approved this proposal based on the proponents published reason statement and it defines roof coating. The modification corrects an error in the definition.

Assembly Action

None

Final Action Results

S51-16 Part II

AM

Code Change No: RB154-16

Original Proposal

Section: R317.1, R402.1.2, R504.3, R905.8.5

Proponent: Colin McCown, representing American Wood Protection Association

Revise as follows:

R317.1 Location required. Protection of wood and wood-based products from decay shall be provided in the following locations by the use of naturally durable wood or wood that is preservative-treated in accordance with AWP A U1 ~~for the species, product, preservative and end use. Preservatives shall be listed in Section 4 of AWP A U1.~~

1. Wood joists or the bottom of a wood structural floor when closer than 18 inches (457 mm) or wood girders when closer than 12 inches (305 mm) to the exposed ground in crawl spaces or unexcavated area located within the periphery of the building foundation.
2. Wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8 inches (203 mm) from the exposed ground.
3. Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.
4. The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 1/2 inch (12.7 mm) on tops, sides and ends.
5. Wood siding, sheathing and wall framing on the exterior of a building having a clearance of less than 6 inches (152 mm) from the ground or less than 2 inches (51 mm) measured vertically from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to the weather.
6. Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier.
7. Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below *grade* except where an *approved* vapor retarder is applied between the wall and the furring strips or framing members.

R402.1.2 Wood treatment. All lumber and plywood shall be pressure-preservative treated and dried after treatment in accordance with AWP A U1 (Commodity Specification A, ~~Use Category 4B and Section 5.2 Special Requirement 4.2~~), and shall bear the *label* of an accredited agency. Where lumber and/or plywood is cut or drilled after treatment, the treated surface shall be field treated with copper naphthenate, the concentration of which shall contain a minimum of 2-percent copper metal, by repeated brushing, dipping or soaking until the wood absorbs no more preservative.

R504.3 Materials. Framing materials, including sleepers, joists, blocking and plywood subflooring, shall be pressure-preservative treated and dried after treatment in accordance with AWP A U1 (Commodity Specification A, ~~Use Category 4B and Section 5.2 Special Requirement 4.2~~), and shall bear the *label* of an accredited agency.

**TABLE R905.8.5
WOOD SHAKE MATERIAL REQUIREMENTS**

MATERIAL	MINIMUM GRADES	APPLICABLE GRADING RULES
Wood shakes of naturally durable wood	1	Cedar Shake and Shingle Bureau
Tapersawn shakes of naturally durable wood	1 or 2	Cedar Shake and Shingle Bureau
Preservative-treated shakes and shingles of naturally durable wood	1	Cedar Shake and Shingle Bureau
Fire-retardant-treated shakes and shingles of naturally durable wood	1	Cedar Shake and Shingle Bureau
Preservative-treated tapersawn shakes of Southern pine treated in accordance with AWPA Standard U1 (Commodity Specification A, <u>Special Requirement 4.6 Use Category 3B and Section 5.6</u>)	1 or 2	Forest Products Laboratory of the Texas Forest Services

Reason: The existing text was outdated, requiring clarification and updates to current AWPA section numbering.

Cost Impact: Will not increase the cost of construction
These changes merely clarify and update the existing text without any impact on the required specifications for materials used.

**Report of Committee Action
Hearings**

Committee Action:

Approved as Submitted

Committee Reason: This proposal replaces outdated text and correlates to the new standard.

Assembly Action:

None

Final Action Results

RB154-16

AS

Code Change No: RB164-16

Original Proposal

Section: R324.3, R324.3.1, R324.4, R324.4.1, R324.5, R324.5.1, R324.5.2 (New), R907, R907.1, R907.2, R907.3, R907.4, R907.5, R909, R909.1, R909.2, R909.3

Proponent: Joseph Cain, SunEdison, representing Solar Energy Industries Association (SEIA) (joecainpe@aol.com); Edward Kulik, representing Building Code Action Committee (bcac@iccsafe.org)

Revise as follows:

R324.3 Photovoltaic systems. Photovoltaic systems shall be designed and installed in accordance with Sections R324.3.1 through ~~R324.6.1 and R324.5.2.5~~, NFPA 70. ~~Inverters shall be listed and labeled in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction manufacturers installation instructions.~~

R324.3.1 Equipment listings. Photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703. Inverters shall be listed and labeled in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction.

R324.4 Rooftop-mounted photovoltaic systems. Rooftop-mounted ~~photovoltaic panel systems~~ photovoltaic panel systems installed on or above the roof covering shall be designed and installed in accordance with ~~Section R907~~ this section.

~~R909.2~~ **R324.4.1 Structural requirements.** Rooftop-mounted ~~photovoltaic panel systems~~ photovoltaic panel systems shall be designed to structurally support the system and withstand applicable gravity loads in accordance with Chapter 3. The roof upon which these systems are installed shall be designed and constructed to support the loads imposed by such systems in accordance with Chapter 8.

R324.4.1 R324.4.1.1 Roof live load. *No change to text.*

~~R907.2~~ **R324.4.1.2 Wind resistance.** *No change to text.*

~~R907.3~~ **R324.4.2 Fire classification.** Rooftop-mounted ~~photovoltaic panels or modules~~ photovoltaic panel systems shall have the same fire classification as the roof assembly required in Section R902.

~~R909.3~~ **R324.4.3 Installation-Roof penetrations.** ~~Rooftop-mounted photovoltaic systems shall be installed in accordance with the manufacturer's instructions.~~ Roof penetrations shall be flashed and sealed in accordance with ~~this chapter~~ Chapter 9.

R324.5 Building-integrated photovoltaic systems. Building-integrated photovoltaic systems that serve as roof coverings shall be designed and installed in accordance with Section R905.

R324.5.1 Photovoltaic shingles. Photovoltaic shingles shall comply with Section R905.16.

Add new text as follows:

R324.5.2 Fire classification. Building-integrated photovoltaic systems shall have a fire classification in accordance with Section 902.3.

Revise as follows:

SECTION R907 ROOFTOP-MOUNTED PHOTOVOLTAIC PANEL SYSTEMS

R907.1 Rooftop-mounted photovoltaic panel systems. Rooftop-mounted photovoltaic panels or modules ~~photovoltaic panel systems~~ shall be designed and installed in accordance with ~~this section,~~ Section R324 and NFPA 70.

Delete without substitution:

~~**R907.4 Installation.** Rooftop-mounted photovoltaic panels or modules shall be installed in accordance with the manufacturer's instructions.~~

~~**R907.5 Photovoltaic panels and modules.** Rooftop-mounted photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703 and shall be installed in accordance with the manufacturer's printed instructions.~~

~~SECTION R909 ROOFTOP-MOUNTED PHOTOVOLTAIC PANEL SYSTEMS~~

~~**R909.1 General.** The installation of photovoltaic panel systems that are mounted on or above the roof covering shall comply with this section, Section R324 and NFPA 70.~~

Reason: Proposal RM98-13 established R324, which was intended to consolidate and organize all the requirements, with necessary section revisions and section additions, in an easily-used format that assists the user to find all the applicable requirements – fire, electrical, structural, plumbing, and mechanical – related to solar thermal and photovoltaic systems. The intent of this proposal is to address redundant code requirements and consolidate/reorganize requirements that were also included in Chapter 9 during the last code cycle. These changes will help to address any confusion regarding the installation of photovoltaic systems.

The following explains the changes proposed:

1. Load requirements for rooftop mounted photovoltaic system installations are partially covered in R907.2 and R324.4.1. Relocating R907.2 to be a subsection of R324.4 consolidates the load requirements. The structural requirements (Section R909.2) are relocated to be a subsection of R324.4.
2. Fire classification requirements (Section R907.3) are for rooftop mounted photovoltaic systems, not rooftop mounted photovoltaic panels and modules, and are referenced in Section R324.4.2. The fire classification requirements for building-integrated photovoltaic systems are not linked in Section R324 or R905.16 (see new Section R324.5.2).
3. Installation in accordance with the manufacturer's installation instructions (Sections R907.4 and R907.5 and R909.3) are consolidated into Section R324.3.
4. Listed and labeled rooftop mounted panels and modules (Section 907.5) is already required by Section R324.3.1.
5. Two separate sections (Section 907 and 909) are not needed for rooftop-mounted photovoltaic panel systems.
6. Flashing of roof penetrations for rooftop-mounted photovoltaic systems (Section R909.3) is addressed in Section R324.4.3.
7. Equipment listing requirements relocated from Section R324.3 to R324.3.1 to consolidate in one location these requirements.

The ICC Building Code Action Committee (BCAC) is a co-proponent of this proposal. 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
The proposal clarifies the applicable requirements for photovoltaic systems.

**Report of Committee Action
Hearings**

Committee Action:

Approved as Submitted

Committee Reason: This proposal correlates and organizes the provisions in the code.

Assembly Action:

None

Final Action Results

RB164-16

AS

Code Change No: **RB165-16**

Original Proposal

Section: R324.4.1

Proponent: Jonathan Siu, City of Seattle Department of Construction & Inspections, representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov)

Delete and substitute as follows:

~~**R324.4.1 Roof live load.** Roof structures that provide support for photovoltaic panel systems shall be designed for applicable roof live load. The design of roof structures need not include roof live load in the areas covered by photovoltaic panel systems. Portions of roof structures not covered by photovoltaic panels shall be designed for roof live load. Roof structures that provide support for photovoltaic panel systems shall be designed for live load, LR, for the load case where the photovoltaic panel system is not present.~~

Portions of roof structures not covered with photovoltaic panel systems shall be designed for dead loads and roof loads in accordance with Sections R301.4 and R301.6. Portions of roof structures covered with photovoltaic panel systems shall be designed for the following load cases:

1. Dead load (including photovoltaic panel weight) plus snow load in accordance with Table R301.2(1).
2. Dead load (excluding photovoltaic panel weight) plus roof live load or snow load, whichever is greater, in accordance with Section R301.6.

Reason: This proposal is intended to clarify and correct the requirements for design loads for roofs with PV panels. The current code text is confusing, incomplete, and technically incorrect.

- The text is confusing because the fourth sentence appears to contradict the second sentence. In addition, the term L_R is not used in the IRC so it is unclear how this is to be applied.
- The text is incomplete because it does not appear to include snow load on top of the PV panels as a load case for roof design.
- The text is technically incorrect because it implies the PV panels themselves would be considered as live load. This is inconsistent with how ASCE 7 and other portions of the IRC treat fixed equipment (see Section R301.4 and the definition of "Dead Load" in Section R202).

We believe the proposed code change more clearly and completely states the intended requirement.

It is to be noted that Section R324.4 does not contain the wind load requirement for PV panels, although it references Section R907, which does. A separate code change proposal will move Section 907.2 to this section so the requirement will not get missed.

Cost Impact: Will not increase the cost of construction

This proposal merely clarifies how loads are to be applied to the roof structure. Properly-designed roof structures should have been using the load cases in this proposal, so no change in cost or construction is anticipated.

Report of Committee Action Hearings

Committee Action:

Approved as Submitted

Committee Reason: The committee approved this proposal based on the proponents published reason statement. The committee felt this change provides good clarification of the design loads for roofs supporting photovoltaic panel systems.

Assembly Action:

None

Final Action Results

RB165-16

AS

Code Change No: RB172-16

Original Proposal

Section: R202 (New), R401.4, R801.3

Proponent: Woodward Vogt, Paradigm Consultants, Inc., representing GeoCoalition (woody@paradigmconsultants.com); Lori Simpson, P.E.,G.E., representing GeoCoalition

Add new definition as follows:

COLLAPSIBLE SOILS. Soils that exhibit volumetric reduction in response to partial or full wetting under load.

COMPRESSIBLE SOILS Soils that exhibit volumetric reduction in response to the application of load even in the absence of wetting or drying.

EXPANSIVE SOILS. Soils that exhibit volumetric increase or decrease (swelling or shrinking) in response to partial or full wetting or drying under load.

Revise as follows:

R401.4 Soil tests. Where quantifiable data created by accepted soil science methodologies indicate *expansive soils*, *compressible soils*, shifting or other questionable soil characteristics are likely to be present, the *building official* shall determine whether to require a soil test to determine the soil's characteristics at a particular location. This test shall be done by an *approved agency* using an *approved* method.

R801.3 Roof drainage. In areas where *expansive soils* or *collapsible soils* are known to exist, all *dwellings* shall have a controlled method of water disposal from roofs that will collect and discharge roof drainage to the ground surface not less than 5 feet (1524 mm) from foundation walls or to an *approved* drainage system.

Reason: [Click here to view the members of the GeoCoalition who developed this proposal.](#)

There is currently no definition for collapsible soils to provide guidance to design professionals and building officials on identification and design procedures to address these soils. These terms are used in IRC Section R401.4 and R801.3.

Cost Impact: Will not increase the cost of construction
The change is for clarification so there is not change to construction requirements.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This proposal adds needed definitions for these soils and provides clarification to the code text.

Assembly Action: **None**

Final Action Results

RB172-16 AS

Code Change No: RB339-16

Original Proposal

Section: R902.4

Proponent: Jonathan Roberts (jonathan.roberts@ul.com)

Revise as follows:

R902.4 Rooftop-mounted photovoltaic panels and modules panel systems. Rooftop-mounted photovoltaic ~~panels and modules panel systems~~ installed on or above the roof covering shall be tested, listed and identified with a fire classification in accordance with UL 1703 and UL 2703. Class A, B or C photovoltaic panels and modules shall be installed in jurisdictions designated by law as requiring their use or where the edge of the roof is less than 3 feet (914 mm) from a lot line.

Reference standards type: This reference standard is new to the ICC Code Books
Add new standard(s) as follows:

UL 2703-14, Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels

Reason: This correlates with the action taken in group A, S2-15 at the public comment hearing. This proposal aligns the IRC requirements with IBC Section 1505.9 for fire classification of photovoltaic panel systems. The position of the photovoltaic panels, as well as the slope of the roof, are critical factors in determining the fire classification of a photovoltaic panel system. The position of the photovoltaic panels is established by the racking system. Thus, the testing for photovoltaic panel systems are covered in both UL 1703 and UL 2703. The new UL 2703 standard, which is an ANSI consensus standard, provides the test method for testing multiple panels for each racking system

Cost Impact: Will not increase the cost of construction
 This code change simply provides the appropriate method for testing photovoltaic panel systems for fire classification, as required by the ANSI standards. This method is already in use within the industry therefore there is no additional cost to construction.

Analysis: A review of the standard(s) proposed for inclusion in the code, UL 2703-14, 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 1, 2016.

Report of Committee Action Hearings

Committee Action:

Approved as Modified

Modify as follows:

R902.4 Rooftop-mounted photovoltaic panel systems. Rooftop-mounted ~~photovoltaic panel systems~~ photovoltaic panel systems installed on or above the roof covering shall be tested, listed and identified with a fire classification in accordance with UL 1703 and UL 2703. Class A, B or C ~~photovoltaic panels and modules~~ photovoltaic panel systems shall be installed in jurisdictions designated by law as requiring their use or where the edge of the roof is less than 3 feet (914 mm) from a lot line.

Committee Reason: The committee approved this proposal based on the proponents published reason statement. This adds a new reference standard for testing of photovoltaic panel systems. The modification is an editorial correction for the term photovoltaic panel systems.

Assembly Action

None

Final Action Results

RB339-16

AM

Code Change No: **RB341-16**

Original Proposal

Section: R905.1.1

Proponent: T. Eric Stafford, PE, representing Institute for Business and Home Safety

Revise as follows:

R905.1.1 Underlayment. Underlayment for asphalt shingles, clay and concrete tile, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and metal roof panels shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D 226, D 1970, D 4869 and D 6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1(1). Underlayment shall be applied in accordance with Table R905.1.1(2). Underlayment shall be attached in accordance with Table R905.1.1(3).

Exceptions:

1. As an alternative, self-adhering polymer-modified bitumen underlayment complying with ASTM D 1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed, shall be permitted.
2. As an alternative, a minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D 1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment for the applicable roof covering for maximum ultimate design wind speeds, V_{ult} , less than 140 miles per hour shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.
3. As an alternative, two layers of underlayment complying with ASTM D 226 Type II or ASTM D 4869 Type IV shall be permitted to be installed as follows: Apply a 19-inch strip of underlayment parallel with the eave. Starting at the eave, apply 36-inch-wide strips of underlayment felt, overlapping successive sheets 19 inches. The underlayment shall be attached with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at side and end laps. End laps shall be 4 inches and shall be offset by 6 feet (1829 mm). Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

Reason: This proposal simply adds an additional method for preventing water penetration when the primary roof covering is lost due to high winds. Water penetration has been well documented from post-hurricane damage assessments where hurricane winds were strong enough to blow off the primary roof covering, but not strong enough to blow off roof sheathing. In such instances, significant property damage and extended occupant displacement routinely occur due to water intrusion. Such damage is common as asphalt shingles age and is particularly common in inland areas, where hurricane-strength winds occur, but building codes and standards are not as stringent as in coastal jurisdictions.

While the enhanced underlayment provisions are addressed in Tables R905.1.1(1), R905.1.1(2), and R905.1.1(3), the protection afforded by the current exceptions to Section R905.1.1 are in a bit of a different category. When the self-adhering polymer-modified bitumen underlayment as described in Exceptions 1 and 2 is used, the condition it creates is referred to as a "sealed roof deck" in that it prevents water from entering the building through gaps in the roof sheathing. They are also a component of the IBHS Fortified program for creating a sealed roof deck. The Fortified program is a set of engineering and building

standards designed to help strengthen new and existing homes through system-specific building upgrades to minimum building code requirements that will reduce damage from specific natural hazards. Recent tests conducted at the IBHS Research Facility have found the system proposed as new Exception 3, to perform similar to the self-adhering polymer-modified bitumen underlayment. As a result, this system of underlayment application and attachment is now recognized by the Fortified program for creating a sealed roof deck.

While this system is currently required in the code for roof slopes between 2:12 and 4:12 by Tables R905.1.1(2), R905.1.1(2), and R905.1.1(3), it provides an enhanced level of water penetration protection for roof slopes above 4:12 as well. Incorporating this method in the code provides an option for reducing the risk of water penetration that is on par with the self-adhering polymer-modified bitumen underlayment and makes it easier for local jurisdictions to accept its use as an option in areas where incentives for a sealed roof deck are provided.

Cost Impact: Will not increase the cost of construction
The proposed criteria is optional.

Report of Committee Action Hearings

Committee Action:

Approved as Modified

Modify as follows:

R905.1.1 Underlayment. Underlayment for asphalt shingles, clay and concrete tile, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and metal roof panels shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D 226, D 1970, D 4869 and D 6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1(1). Underlayment shall be applied in accordance with Table R905.1.1(2). Underlayment shall be attached in accordance with Table R905.1.1(3).

Exceptions:

1. As an alternative, self-adhering polymer-modified bitumen underlayment complying with ASTM D 1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed, shall be permitted.
2. As an alternative, a minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D 1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment for the applicable roof covering for maximum ultimate design wind speeds, V_{ult} , less than 140 miles per hour shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.
3. As an alternative, two layers of underlayment complying with ASTM D 226 Type II or ASTM D 4869 Type III or Type IV shall be permitted to be installed as follows: Apply a 19-inch strip of underlayment parallel with the eave. Starting at the eave, apply 36-inch-wide strips of underlayment felt, overlapping successive sheets 19 inches. The underlayment shall be attached with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at side and end laps. End laps shall be 4 inches and shall be offset by 6 feet (1829 mm). Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

Committee Reason: This proposal adds another underlayment system that is an alternative to the self-adhering underlayment. The modification adds another acceptable type of ASTM D4869 that provides another option.

Assembly Action

None

Final Action Results

RB341-16

AM

Code Change No: **RB343-16**

Original Proposal

Section: R905.1.1, R905.16.3, R905.16.4, R905.16.4.1, R905.16.4.2

Proponent: T. Eric Stafford, PE, representing Institute for Business and Home Safety

Revise as follows:

**TABLE R905.1.1 (1)
UNDERLAYMENT TYPES**

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} \geq 140$ MPH
Asphalt shingles	R905.2	ASTM D 226 Type I ASTM D 4869 Type I, II, III or IV ASTM D 6757	ASTM D 226 Type II ASTM D 4869 Type IV ASTM D 6757
Clay and concrete tile	R905.3	ASTM D 226 Type II ASTM D 2626 Type I ASTM D 6380 Class M mineral-surfaced roll roofing	ASTM D 226 Type II ASTM D 2626 Type I ASTM D 6380 Class M mineral-surfaced roll roofing
Metal roof shingles	R905.4	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Mineral-surfaced roll roofing	R905.5	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Slate and slate-type shingles	R905.6	ASTM D 226 Type I ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Wood shingles	R905.7	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Wood shakes	R905.8	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 Type IV
Metal panels	R905.10	Manufacturer's instructions	ASTM D 226 Type II ASTM D 4869 Type IV
Photovoltaic shingles	R905.16	<u>ASTM D 4869 Type I, II, III or IV</u> <u>ASTM D 6757</u>	<u>ASTM D 4869 Type IV</u> <u>ASTM D 6757</u>

**TABLE R905.1.1 (2)
UNDERLAYMENT APPLICATION**

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} \geq 140$ MPH
Asphalt shingles	R905.2	For roof slopes from two units vertical in 12 units horizontal (2:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a 19-inch strip of underlayment felt parallel to and starting at the eaves. Starting at the eave, apply 36-inch-wide sheets of underlayment, overlapping successive sheets 19 inches. Distortions in the underlayment shall	Same as Maximum Ultimate Design Wind Speed, V_{ult}

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} \geq 140$ MPH
		<p>not interfere with the ability of the shingles to seal. <u>End laps shall be 4 inches and shall be offset by 6 feet.</u> For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches, Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.</p>	
Clay and concrete tile	R905.3	<p>For roof slopes from two and one-half units vertical in 12 units horizontal ($2\frac{1}{2}$:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be a minimum of two layers applied as follows: starting at the eave, apply a 19-inch strip of underlayment parallel with the eave. Starting at the eave, apply 36-inch-wide strips of underlayment felt, overlapping successive sheets 19 inches. <u>End laps shall be 4 inches and shall be offset by 6 feet.</u> For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be a minimum of one layer of underlayment felt applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches. End laps shall be 4 inches and shall be offset by 6 feet.</p>	Same as Maximum Ultimate Design Wind Speed, V_{ult}
Photovoltaic Shingles	R905.16	<p><u>For roof slopes from two units vertical in 12 units horizontal (2:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a 19-inch strip of underlayment felt parallel to and starting at the eaves. Starting at the eave, apply 36-inch-wide sheets of underlayment, overlapping successive sheets 19 inches.</u> Distortions in the underlayment shall not interfere with the ability of the shingles to seal. <u>End laps shall be 4 inches and shall be offset by 6 feet.</u> For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches, Distortions in the underlayment shall not interfere with the ability of the</p>	<p><u>Same as Maximum Ultimate Design Wind Speed, $V_{ult} < 140$ mph except all laps shall be not less than 4 inches</u></p>

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} \geq 140$ MPH
		shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.	
Metal roof shingles	R905.4	Apply in accordance with the manufacturer's installation instructions.	For roof slopes from two units vertical in 12 units horizontal (2:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a 19-inch strip of underlayment felt parallel to and starting at the eaves. Starting at the eave, apply 36-inch-wide sheets of underlayment, overlapping successive sheets 19 inches, and fastened sufficiently to hold in place. End laps shall be 4 inches and shall be offset by 6 feet. For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches. End laps shall be 4 inches and shall be offset by 6 feet.
Mineral-surfaced roll roofing	R905.5		
Slate and slate-type shingles	R905.6		
Wood shingles	R905.7		
Wood shakes	R905.8		
Metal panels	R905.10		

**TABLE R905.1.1 (3)
UNDERLAYMENT ATTACHMENT**

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} \geq 140$ MPH
Asphalt shingles	R905.2	Fastened sufficiently to hold in place	The underlayment shall be attached with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at the side and end laps. Underlayment shall be attached using metal or plastic cap nails or cap staples with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Staples shall be not less than 21 gage. Cap nail shank and cap staple legs shall have a length sufficient to penetrate through the roof sheathing or not less than $\frac{3}{4}$ inch into the roof sheathing.
Clay and concrete tile	R905.3		
Photovoltaic shingles	R905.16		
Metal roof shingles	R905.4	Manufacturer's installation	The underlayment shall be

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} \geq 140$ MPH
Mineral-surfaced roll roofing	R905.5	instructions.	attached with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at the side and end laps. Underlayment shall be attached using metal or plastic cap nails or cap staples with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of at least 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Staples shall be not less than 21 gage. Cap nail shank and cap staple legs shall have a length sufficient to penetrate through the roof sheathing or not less than $3/4$ inch into the roof sheathing.
Slate and slate-type shingles	R905.6		
Wood shingles	R905.7		
Wood shakes	R905.8		
Metal panels	R905.10		

For SI: 1 inch = 25.4 mm.

Revise as follows:

R905.16.3 Underlayment. ~~Unless otherwise noted, required underlayment~~
Underlayment shall conform to ASTM D 4869 or ASTM D6757, ~~comply with Section R905.1.1~~

R905.16.4.1 R905.16.3.1 Ice barrier. ~~In areas where there has been a history of~~
~~When required, ice forming along the eaves causing a backup of water, as designated in Table~~
R301.2(1), an ice barrier that consists of not less than two layers of underlayment cemented together or
of a self-adhering polymer modified bitumen sheet barriers shall be used in lieu of normal underlayment
and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside
the exterior wall line of the building ~~comply with Section R905.1.2.~~

Exception: ~~Detached accessory structures that contain no conditioned floor area.~~

Delete without substitution:

R905.16.4 Underlayment application. ~~Underlayment shall be applied shingle fashion, parallel to and~~
~~starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.~~

R905.16.4.2 Underlayment and high winds. ~~Underlayment applied in areas subject to high winds~~
[above 140 mph (63 m/s), in accordance with Figure R301.2(4)A] shall be applied with corrosion-resistant
fasteners in accordance with the manufacturer's installation instructions. Fasteners are to be applied
along the overlap not farther apart than 36 inches (914 mm) on center.

~~Underlayment installed where the ultimate design wind speed equals or exceeds 150 mph (67 m/s)~~
shall comply with ASTM D 4869 Type IV, or ASTM D 6757. The underlayment shall be attached in a grid
pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps.
Underlayment shall be applied as required for asphalt shingles in accordance with Table R905.1.1(2).
Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1
inch (25 mm) with a thickness of not less than 32-gage sheet metal. The cap-nail shank shall be not less

than 12 gage (0.105 inches) with a length to penetrate through the roof sheathing or not less than 3/4 inch (19 mm) into the roof sheathing.

Exception: As an alternative, adhered underlayment complying with ASTM D 1970 shall be permitted.

Reason: This proposal is primarily a clarification regarding the lapping requirements for underlayment and brings the underlayment requirements for PV shingles in line with other roof covering types.

For the two-layer underlayment application on low-sloped roofs, ends of the underlayment should be lapped 4 inches and offset 6 feet as required for the single layer application. The language "fastened to sufficiently hold in place" should be deleted from the underlayment application table (Table R905.1.1(2)) because underlayment attachment is covered in Table R905.1.1(3) and contains specific fastening requirements for wind speeds greater than or equal to 140 mph. Also, Table R905.1.1(3) has been revised to clarify that fastener spacing is the same for side and end laps.

Underlayment requirements for PV shingles have been relocated to Section R905.1.1 with the underlayment requirements for other roof coverings. The underlayment types, fastening requirements and wind speed triggers have been revised for consistent with the other roof covering types as required in the 2015 IRC.

Cost Impact: Will increase the cost of construction

Will result in a cost increase for PV shingles in some areas. The wind speed trigger for the enhanced underlayment provisions has been slightly lowered resulting in it applying to more areas where PV shingles are installed. Underlayment provisions for PV shingles will be aligned with other roof covering types.

**Report of Committee Action
Hearings**

Committee Action:

Approved as Modified

Modify as follows:

**TABLE R905.1.1 (1)
UNDERLAYMENT TYPES**

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult}	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} \geq 140$ MPH
Asphalt shingles	R905.2	ASTM D 226 Type I ASTM D 4869 Type I, II, III or IV ASTM D 6757	ASTM D 226 Type II ASTM D 4869 <u>Type III or Type IV</u> ASTM D 6757
Clay and concrete tile	R905.3	ASTM D 226 Type II ASTM D 2626 Type I ASTM D 6380 Class M mineral-surfaced roll roofing	ASTM D 226 Type II ASTM D 2626 Type I ASTM D 6380 Class M mineral-surfaced roll roofing
Metal roof shingles	R905.4	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 <u>Type III or Type IV</u>
Mineral-surfaced roll roofing	R905.5	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 <u>Type III or Type IV</u>
Slate and slate-type shingles	R905.6	ASTM D 226 Type I ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 <u>Type III or Type IV</u>
Wood shingles	R905.7	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 <u>Type III or Type IV</u>
Wood shakes	R905.8	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Type II ASTM D 4869 <u>Type III or Type IV</u>
Metal panels	R905.10	Manufacturer's instructions	ASTM D 226 Type II ASTM D 4869 <u>Type III or Type IV</u>
Photovoltaic shingles	R905.16	ASTM D 4869 Type I, II, III or IV	ASTM D 4869 <u>Type III or Type IV</u>

		ASTM D 6757	ASTM D 6757
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Committee Reason: The committee approved this proposal based on the proponents published reason statement. This proposal clarifies the lapping requirements for the underlayment. The modification adds another acceptable type of ASTM D4869 that provides another option.

Assembly Action

None

Final Action Results

RB343-16

AM

Code Change No: RB345-16

Original Proposal

Section(s): R905.15.3

Proponent: James Kirby, representing Roof Coating Manufacturers Association, representing Center for Environmental Innovation in Roofing (jkirby@kellencompany.com)

Revise as follows:

R905.15.3 Application. Liquid-applied roofing shall be installed in accordance with this chapter and the manufacturer's approved installation instructions.

Reason: The proposal adds necessary language so that the application of roof coatings follows manufacturer's approved installation instructions.

Cost Impact: Will not increase the cost of construction
The proposal adds clarity and does not change code requirements.

Report of Committee Action Hearings

Committee Action:

Approved as Submitted

Committee Reason: The committee approved this proposal based on the proponents published reason statement and prior action on S29-16, Part II.

Assembly Action:

None

Public Comments

Public Comment 1:

James Kirby, representing Roof Coating Manufacturers Association (jameskirby47@icloud.com) requests Approve as Modified by this Public Comment.

Modify as follows:

R905.15.3 Application. Liquid-applied roofing shall be installed in accordance with this chapter and the manufacturer's approved installation instructions.

Commenter's Reason: The word "approved" was found to be controversial in subsequent proposals even though this proposal was Approved As Submitted. In order to be consistent in the 2018 codes, this public comment removes the word "approved" so there is no confusion by code officials regarding manufacturer's installation instructions for liquid-applied roofing in the IRC.

Final Action Results

RB345-16

AMPC1

Code Change No: **RB351-16**

Original Proposal

Section: R202 (New), R324.5.2 (New), R905.17 (New), R905.17.1 (New), R905.17.2 (New), R905.17.3 (New), R905.17.3.1 (New), R905.17.4 (New), R905.17.5 (New), R905.17.6 (New), R905.17.7 (New), UL (New)

Proponent: Lorraine Ross, Intech Consulting Inc, representing The Dow Chemical Company (Intech@tampabay.rr.com)

Add new definition as follows:

BUILDING-INTEGRATED PHOTOVOLTAIC ROOF PANEL (BIPV Roof Panel). *A photovoltaic panel that functions as a component of the building envelope.*

Add new text as follows:

R324.5.2 BIPV roof panels. *BIPV roof panels shall comply with Section R905.17.*

R905.17 BIPV roof panels applied directly to the roof deck. *The installation of BIPV roof panels shall comply with the provisions of this section, Section R324 and NFPA 70.*

R905.17.1 Deck requirements. *BIPV roof panels shall be applied to a solid or closely-fitted deck, except where the roof covering is specifically designed to be applied over spaced sheathing.*

R905.17.2 Deck slope. *BIPV roof panels shall be used only on roof slopes of two units vertical in 12 units horizontal (2:12) or greater.*

R905.17.3 Underlayment. *Unless otherwise noted, required underlayment shall conform to ASTM D4869 or ASTM D6757.*

R905.17.4 Underlayment application. *Underlayment shall be applied shingle fashion, parallel to and starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.*

R905.17.4.1 Ice barrier. *In areas where there has been a history of ice forming along the eaves causing a backup of water, as designated in Table R301.2(1), an ice barrier that consists of not less than two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the building.*

Exception. *Detached accessory structures that contain no conditioned floor area.*

R905.17.4.2 Underlayment and high winds. *Underlayment applied in areas subject to high winds [above 140 mph (63 m/s), in accordance with Figure R301.2(4)A] shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners are to be applied along the overlap not further apart than 36 inches (914 mm) on center. Underlayment installed where the ultimate design wind speed equals or exceeds 150 mph (67 m/s) shall comply with ASTM D 4869 Type IV, or ASTM D 6757. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. Underlayment shall be applied as required for asphalt shingles in accordance with Table R905.1.1(2). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 12 gage (0.105 inches) with a length to*

penetrate through the roof sheathing or not less than 3/4 inch (19 mm) into the roof sheathing.

Exception: As an alternative, adhered underlayment complying with ASTM D 1970 shall be permitted.

R905.17.5 Material standards. BIPV roof panels shall be listed and labeled in accordance with UL 1703.

R905.17.6 Attachment. BIPV roof panels shall be attached in accordance with the manufacturer's installation instructions.

R905.17.7 Wind resistance. BIPV roof panels shall be tested in accordance with UL 1897. BIPV roof panel packaging shall bear a label to indicate compliance with UL 1897.

Add new standard(s) follows:

UL 1897-12 Uplift Tests for Roof Covering System

Reason: This proposal adds new sections to the IRC to address Building-integrated (BIPV) roof panels. These products form part of the roof assembly and are subject to the same requirements as any other roof covering. As opposed to BIPV Shingles that are already regulated by the code, these BIPV panels are larger and the wind resistance is determined by UL 1897 Uplift Tests for Roof Covering System. The overall proposal contains four parts:

- A new definition for BIPV Roof Panel is added to Chapter 2
- A new section is added to R324 to point to the applicable technical requirements in Chapter 9 Roof Assemblies.
- A new section is added to Chapter 9 to detail the proper application of BIPV Roof Panels, including deck, underlayment, material standards and attachment requirements.
- A new standard, UL 1897 Uplift Tests for Roof Covering System is added to Chapter 44 of the IRC. This standard is already included in Chapter 34 of the IBC.

Cost Impact: Will not increase the cost of construction
This proposal does not increase the cost of construction. It adds another type of roof covering, enhancing builder choices.

Report of Committee Action Hearings

Committee Action:

Approved as Modified

Modify as follows:

R905.17.3 Underlayment. ~~Unless otherwise noted, required underlayment~~ Underlayment shall conform to ASTM D4869 or ASTM D6757 ~~comply with Section 905.1.1.~~

R905.17.3.1 Ice barrier. When required, an ice barrier shall comply with Section R905.1.2.

R905.17.4.2 Underlayment and high winds. ~~Underlayment applied in areas subject to high winds [above 140 mph (63 m/s), in accordance with Figure R301.2(4)A] shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners are to be applied along the overlap not further apart than 36 inches (914 mm) on center. Underlayment installed where the ultimate design wind speed equals or exceeds 150 mph (67 m/s) shall comply with ASTM D 4869 Type IV, or ASTM D 6757. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. Underlayment shall be applied as required for asphalt shingles in accordance with Table R905.1.1(2). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 12 gage (0.105 inches) with a length to penetrate through the roof sheathing or not less than 3/4 inch (19 mm) into the roof sheathing.~~

Exception: As an alternative, adhered underlayment complying with ASTM D 1970 shall be permitted.

R905.17.4 Underlayment application. ~~Underlayment shall be applied shingle fashion, parallel to and starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.~~

Committee Reason: The committee approved this proposal based on the proponents published reason statement. This introduces new technology and provide another option for roof covering. The modification clarifies the underlayment requirements and adds reference to the proper code sections.

Assembly Action

None

Final Action Results

RB351-16

AM

Code Change No: **RB352-16**

Original Proposal

Section: R906.2

Proponent: Rick Roos, ROXUL Inc., representing ROXUL Inc. (richard.roos@roxul.com)

Revise as follows:

**TABLE R906.2
MATERIAL STANDARDS FOR ROOF INSULATION**

Cellular glass board	ASTM C 552
Mineral wool board	ASTM C 726
Composite boards	ASTM C 1289, Type III, IV, V or VI
Expanded polystyrene	ASTM C 578
Extruded polystyrene board	ASTM C 578
Perlite board	ASTM C 728
Polyisocyanurate board	ASTM C 1289, Type I or II
Wood fiberboard	ASTM C 208
Fiber-reinforced gypsum board	ASTM C 1278
Glass-faced gypsum board	ASTM C 1177

Reference standards type: This is an update to reference standard(s) already in the ICC Code Books
Add new standard(s) as follows:

ASTM C726-12 Standard Specification for Mineral Wool Roof Insulation Board

Reason: This proposal will add reference to the appropriate ASTM Standard specification for mineral wool roof insulation and make Table R906.2 consistent with IBC Table 1508.2. This will help to ensure that roofing systems designed using mineral wool roof insulation will perform as intended by the IRC. This standard has been referenced in the IBC since the 2012 edition.

ASTM C 726 specifies the composition and physical properties of mineral fiber insulation board used above structural roof decks as a base for built-up roofing and single ply membrane systems in building construction.

The use of thermal insulation materials covered by this Standard are regulated by the codes in the same manner as the other materials in the Table. This Standard covers testing and conformance to the following physical properties: compressive resistance, tensile strength, breaking load strength, water absorption, response to thermal and humid aging, linear dimensional change, thermal resistance, and dimensions.

Cost Impact: Will not increase the cost of construction

This proposal does not add to the cost of construction because it provides an additional, non-mandatory, alternative material that may or may not be used in these applications at the discretion of the user.

**Report of Committee Action
Hearings**

Committee Action:

Approved as Submitted

Committee Reason: The committee approved this proposal based on the proponents published reason statement. The proposal adds a new option for roof insulation.

Assembly Action:

None

Final Action Results

RB352-16

AS

Code Change No: RB354-16

Original Proposal

Section: R907.2

Proponent: Jonathan Siu, City of Seattle Department of Construction & Inspections, representing Washington Association of Building Officials Technical Code Development Committee (jon.siu@seattle.gov)

Revise as follows:

~~R907.2~~ **R324.4.2 Wind resistance load.** Rooftop-mounted photovoltaic panel or modules systems and their supports shall be installed ~~designed~~ to resist the component and cladding loads specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

Reason: This proposal places the requirement for PV panel wind design in the same location as the other design load requirements.

Section R324.4 does not contain the wind load requirements for PV panels, although it references Section 907, which does. This proposal moves the text to a new section R324.4.2, so the requirement does not get missed. The phrase, "and their supports" was added to clarify that a complete load path must be provided to resist the wind loads. A separate proposal addresses roof loads.

Cost Impact: Will not increase the cost of construction
This proposal only moves a requirement and provides clarification and does not result in a change of design or construction.

Report of Committee Action Hearings

Committee Action:

Approved as Modified

Modify as follows:

R324.4.2 Wind load. Rooftop-mounted photovoltaic panel or modules systems and their supports shall be designed and installed to resist the component and cladding loads specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

Committee Reason: The committee approved this proposal based on the proponents published reason statement. The modification adds the clarification that it applies to the installation also.

Assembly Action

None

Final Action Results

RB354-16

AM

Code Change No: RB371-16

Original Proposal

Section: U103, U103.1, U103.2, U103.3, U103.4, U103.5, U103.5 (New), U103.6, U103.6 (New), U103.7, U103.8

Proponent: Kathleen Petrie, City of Seattle, Department of Construction and Inspections, representing City of Seattle, Department of Construction and Inspections (kathleen.petrie@seattle.gov)

Revise as follows:

U103.1 General. New detached one- and two-family dwellings, and multiple single-family dwellings (townhouses) with not less than 600 square feet (55.74 m²) of roof area oriented between ~~110-90~~ degrees and 270 degrees of true north shall comply with sections U103.2 through ~~U103.8~~ U103.10.

Exceptions:

1. New residential buildings with a permanently installed on-site renewable energy system.
2. A building ~~with a solar-ready zone where all areas of the roof that is shaded would otherwise meet the requirements of Section U103 are in full or partial shade~~ for more than 70 percent of daylight hours annually.

U103.2 Construction document requirements for solar ready zone. Construction documents shall indicate the solar- ready *zone*.

U103.3 Solar-ready zone area. The total solar-ready *zone* area shall be not less than 300 square feet (27.87 m²) exclusive of mandatory access or set back areas as required by the *International Fire Code*. New multiple single-family dwellings (townhouses) three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.8 m²) per dwelling shall have a solar-ready *zone* area of not less than 150 square feet (13.94 m²). The solar-ready *zone* shall be composed of areas not less than 5 feet (1.52 m) in width and not less than 80 square feet (7.44 m²) exclusive of access or set back areas as required by the *International Fire Code*.

U103.4 Obstructions. Solar-ready *zones* shall be free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment.

Add new text as follows:

U103.5 Shading The solar-ready zone shall be set back from any existing or new permanently affixed object on the building or site that is located south, east, or west of the solar zone a distance at least two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees, and roof plantings.

U103.6 Capped roof penetration sleeve A capped roof penetration sleeve shall be provided adjacent to a solar-ready zone located on a roof slope of 2:12 or less. The capped roof penetration sleeve shall be sized to accommodate the future photovoltaic system conduit, but shall have an inside diameter of not less than 1 ¼ inches.

Revise as follows:

~~U103.5~~ **U103.7 Roof load documentation.** *No change to text.*

~~U403.6~~ U103.8 Interconnection pathway. No change to text.

~~U403.7~~ U103.9 Electrical service reserved space. No change to text.

~~U403.8~~ U103.10 Construction documentation certificate. No change to text.

Reason: The modifications proposed are designed to provide clarification and strengthen the existing Solar-ready Appendix U.

In Section U103.1, the roof area orientation has been modified from 110 degrees to 90 in order to maximize the roof slopes that maximize solar technology effectiveness. For similar reasons, Section U103.3 now precludes any portion of the solar zone from being located on a roof slope greater than 2:12 that faces within 45 degrees of true north.

New Section U103.5 clarifies the term "shading" used in Section U103.1, Exception #2, by clarifying how far the designated solar-ready zone should be set back from permanently affixed objects.

If necessary for the system, it is considerably cheaper to provide a path for future wiring from the solar panel to the meter at the time of new construction than after, so roofs with a slope of 2:12 or less must provide a pipe sleeve penetration. There are other design options for roofs with greater slopes, so a penetration is not necessary.

Cost Impact: Will increase the cost of construction

Only in roofs with a slope of 2:12 or less will this proposal increase the cost of construction by \$100. In all other projects it will not increase the cost of construction.

**Report of Committee Action
Hearings**

Committee Action:

Approved as Submitted

Committee Reason: The new language takes shading into account, clarifies the code and adds flexibility for builders.

Assembly Action:

None

Final Action Results

RB371-16

AS

Code Change No: G14-16 Part IV

Original Proposal

Section: IRC: 202

Proponent: Theresa Weston, representing DuPont Building Innovations
(theresa.a.weston@dupont.com)

THIS IS A 4 PART CODE CHANGE. PART I WILL BE HEARD BY THE IBC-STRUCTURAL CODE COMMITTEE. PART II WILL BE HEARD BY THE IECC-COMMERCIAL CODE COMMITTEE. PART III WILL BE HEARD BY THE IECC-RESIDENTIAL CODE COMMITTEE. PART IV WILL BE HEARD BY THE IRC-BUILDING CODE COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THESE COMMITTEES.

Revise as follows:

[RB] ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof deck, ~~vapor retarder underlayment, substrate or~~ and roof covering and can also include a thermal barrier, insulation, or a vapor retarder, and roof covering based on design specifications.

Reason: This proposal makes clarifies and makes corrections to the definition. Specifically, in the definition in the IBC and IRC it replaces one of the redundant "vapor retarder" listings with "underlayment". Additionally it separates the items that are only present in some roof assemblies, from those that are present in all roof assemblies.

Cost Impact: Will not increase the cost of construction
This is a clarification of a definition and does add any additional restrictions or requirements.

Report of Committee Action Hearings

Committee Action:

Approved as Modified

Modify as follows:

[RB] ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system assembly includes the roof deck, underlayment, and roof covering and can also include a thermal barrier, insulation or a vapor retarder, ~~based on design specifications.~~

Committee Reason: The modification removes unnecessary language. The updates to the language improve the code.

Assembly Action

None

Final Action Results

G14-16 Part IV

AM

RB339-16

R902.4 Rooftop-mounted photovoltaic panels and modules.

~~Rooftop-mounted photovoltaic panels and modules installed on or above the roof covering shall be tested, listed and identified with a fire classification in accordance with UL 1703. Class A, B or C photovoltaic panels and modules shall be installed in jurisdictions designated by law as requiring their use or where the edge of the roof is less than 3 feet (914 mm) from a lot line.~~

RB341-16

R905.1.1 Underlayment. ~~Unless otherwise noted U underlayment for asphalt shingles, clay and concrete tile, metal roof shingles, mineral surfaced roll roofing, slate and slate type shingles, wood shingles, wood shakes and metal roof panels shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D 226(2009), D 1970(2015a), D 4869(2016) and D 6757(2016) shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1(1). Underlayment shall be applied and attached in accordance with Table R905.1.1 (2)-(1). Underlayment shall be attached in accordance with Table R905.1.1(3).~~

Exceptions:

1. ~~As an alternative, self-adhering polymer-modified bitumen underlayment complying with ASTM D 1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed, shall be permitted.~~
2. ~~As an alternative, a minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D 1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment for the applicable roof covering for maximum ultimate design wind speeds, V_{ult} , less than 140 miles per hour shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.~~

~~A reinforced synthetic underlayment that is approved as an alternate to underlayment complying with ASTM D226(2009) Type II and having a minimum tear strength per ASTM D1970(2015a) or ASTM D 4533(2015) of 20 lbs shall be permitted. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table R905.1.1 for the applicable roof covering and slope, except metal cap nails shall be required where the ultimate design wind speed, V_{ult} , equals or exceeds 150 mph. All seams shall be sealed with a compatible adhesive or compatible 4-inch wide tape.~~

RB343-16

TABLE R905.1.1(1) UNDERLAYMENT TYPES

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult} < 140 MPH	MAXIMUM ULTIMATE DESIGN WIND SPEED, V_{ult} ≥ 140 MPH
Asphalt shingles	R905.2	ASTM D 226 Type I ASTM D 4869 Type I, II, III or IV ASTM D 6757	ASTM D 226 Type I
Clay and concrete tile	R905.3	ASTM D 226 Type II ASTM D 2626 Type I ASTM D 6380 Class M	ASTM D 226 Type II

Metal roof shingles	R905.4	mineral-surfaced roll roofing	mineral-surfaced
Mineral-surfaced roll roofing	R905.5	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Typ
Slate and slate-type shingles	R905.6	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Typ
Wood shingles	R905.7	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Typ
Wood shakes	R905.8	ASTM D 226 Type I or II ASTM D 4869 Type I, II, III or IV	ASTM D 226 Typ
Metal panels	R905.10	Manufacturer's instructions	ASTM D 226 Typ

TABLE R905.1.1(2) UNDERLAYMENT APPLICATION

SECTION		MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} < 140$ MPH	MAXIMUM ULTIMATE DESIGN WIND SPEED, $V_{ult} = 140$ MPH
ROOF COVERING			
Asphalt shingles	R905.2	For roof slopes from two units vertical in 12 units horizontal (2:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a 19-inch strip of underlayment felt parallel to and starting at the eaves. Starting at the eave, apply 36-inch wide sheets of underlayment, overlapping successive sheets 19 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be 4 inches and shall be offset by 6 feet.	Same as Maximum Ultimate Design Wind Speed, $V_{ult} < 140$ mph except all laps shall be not less than 4 inches.
Clay and concrete tile	R905.3	For roof slopes from two and one-half units vertical in 12 units horizontal (2½:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be a minimum of two layers applied as follows: starting at the eave, apply a 19-inch strip of underlayment parallel with the eave. Starting at the eave, apply 36-inch wide strips of underlayment felt, overlapping successive sheets 19 inches. For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be a minimum of one layer of underlayment felt applied shingle fashion, parallel to and starting from the eaves and lapped 2 inches. End laps shall be 4 inches and shall be offset by 6 feet.	Same as Maximum Ultimate Design Wind Speed, $V_{ult} < 140$ mph except all laps shall be not less than 4 inches.
Metal roof shingles	R905.4	Apply in accordance with the manufacturer's installation instructions.	For roof slopes from two units vertical in 12 units horizontal (2:12), up to four units vertical in 12 units horizontal (4:12), underlayment shall be two layers applied in the following manner: apply a 19-inch strip of underlayment felt parallel to and starting at the eaves. Starting at the eave, apply 36-inch wide sheets of underlayment, overlapping successive sheets 19 inches, and fastened sufficiently to hold in place. For roof slopes of four units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer applied in the following manner: underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches. End laps shall be 4 inches and shall be offset by 6 feet.
Mineral-surfaced roll roofing_R905.5	-		
Slate and slate-type shingles_R905.6	-		
Wood shingles_R905.7	-		
Wood shakes_R905.8	-		
Metal panels_R905.10	-		

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

TABLE R905.1.1 (3) UNDERLAYMENT ATTACHMENT

ROOF COVERING	SECTION	MAXIMUM ULTIMATE DESIGN WIND SPEED, - Vult < 140 MPH	MAXIMUM ULTIMATE DESIGN WIND SPEED, Vult ? 140 MPH
Asphalt shingles Clay and concrete tile	R905.2 R905.3	Fastened sufficiently to hold in place	The underlayment shall be attached with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at the side laps. Underlayment shall be attached using metal or plastic cap nails or cap staples with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Staples shall be not less than 21-gage. Cap nail shank and cap staple legs shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.
Metal roof shingles Mineral-surfaced roll roofing Slate and slate-type shingles Wood shingles Wood shakes Metal panels	R905.4 R905.5 R905.6 R905.7 R905.8 R905.10	Manufacturer's installation instructions.	The underlayment shall be attached with corrosion-resistant fasteners in a grid pattern of 12 inches between side laps with a 6-inch spacing at the side laps. Underlayment shall be attached using metal or plastic cap nails or cap staples with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of at least 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Staples shall be not less than 21-gage. Cap nail shank and cap staple legs shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.

For SI: 1 inch = 25.4 mm.

R905.16.3 Underlayment. ~~Unless otherwise noted, required u~~ Underlayment shall conform to ASTM D 4869 or ASTM D6757 ~~comply and be installed in accordance with Section R905.1.1.~~

R905.16.4 Underlayment application.

~~Underlayment shall be applied shingle fashion, parallel to and starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.~~ **RESERVED**

R905.16.4.1 Ice barrier.

In areas where there has been a history of ice forming along the eaves causing a backup of water, as designated in Table R301.2(1), an ice barrier that consists of not less than two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the building.

Exception: Detached accessory structures that contain no conditioned floor area. **RESERVED**

R905.16.4.2 Underlayment and high winds.

Underlayment applied in areas subject to high winds [above 140 mph (63m/s), in accordance with Figure R301.2(4)A] shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners are to be applied along the overlap not farther apart than 36 inches (914 mm) on center.

Underlayment installed where the ultimate design wind speed equals or exceeds 150 mph (67 m/s) shall comply with ASTM D 4869 Type IV, or ASTM D 6757. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. Underlayment shall be applied as required for asphalt shingles in accordance with Table R905.1.1(2). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1 inch (25 mm) with a thickness of not less than 32-gage sheet metal. The cap nail shank shall be not less than 12 gage (0.105 inches) with a length to penetrate through the roof sheathing or not less than $\frac{3}{4}$ inch (19 mm) into the roof sheathing.

Exception: As an alternative, adhered underlayment complying with ASTM D 1970 shall be permitted. **RESERVED**

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R905.15.3 Application.

Liquid-applied roofing shall be installed in accordance with this chapter and the manufacturer's instructions. The approved allowable uplift resistance for the liquid-

applied coatings shall be equal to or greater than the uplift resistance for the roof based on Table R301.2(2).

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R905.16 Building-integrated photovoltaic roofing modules/shingles.

The installation of building-integrated photovoltaic roofing modules/shingles shall comply with the provisions of this section, Section R324 and NFPA 70.

R905.16.1 Deck requirements.

~~Photovoltaic shingles shall be applied to a solid or closely fitted deck, except where the roof covering is specifically designed to be applied over spaced sheathing.~~ **RESERVED**

R905.16.2 Deck slope.

~~Photovoltaic shingles shall be used only on roof slopes of two units vertical in 12 units horizontal (2:12) or greater.~~ **RESERVED**

R905.16.3 Underlayment. ~~Unless otherwise noted, required u~~ Underlayment shall conform to ASTM D 4869 or ASTM D6757 comply and be installed in accordance with Section R905.1.1.

R905.16.4 Underlayment application.

~~Underlayment shall be applied shingle fashion, parallel to and starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.~~ **RESERVED**

R905.16.4.1 Ice barrier.

~~In areas where there has been a history of ice forming along the eaves causing a backup of water, as designated in Table R301.2(1), an ice barrier that consists of not less than two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the building.~~

Exception: ~~Detached accessory structures that contain no conditioned floor area.~~ **RESERVED**

R905.16.4.2 Underlayment and high winds.

~~Underlayment applied in areas subject to high winds [above 140 mph (63m/s), in accordance with Figure R301.2(4)A] shall be applied with corrosion-resistant fasteners in accordance with the manufacturer's installation instructions. Fasteners are to be applied along the overlap not farther apart than 36 inches (914 mm) on center.~~

~~Underlayment installed where the ultimate design wind speed equals or exceeds 150 mph (67 m/s) shall comply with ASTM D 4869 Type IV, or ASTM D 6757. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. Underlayment shall be applied as required for asphalt shingles in accordance with Table R905.1.1(2). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1 inch (25 mm) with a thickness of not less than 32-gage sheet metal. The cap nail shank shall be not less than 12-gage (0.105 inches) with a length to penetrate through the roof sheathing or not less than $\frac{3}{4}$ inch (19 mm) into the roof sheathing.~~

~~**Exception:** As an alternative, adhered underlayment complying with ASTM D 1970 shall be permitted. **RESERVED**~~

R905.16.5 Material standards.

~~Building-integrated Pphotovoltaic roofing modules/shingles shall be listed and labeled in accordance with UL 1703.~~

R905.16.6 Attachment.

~~Building-integrated Pphotovoltaic roofing modules/shingles shall be attached in accordance with the manufacturer's installation instructions.~~

R905.16.7 Wind resistance.

~~Building-integrated Pphotovoltaic roofing modules/shingles shall be tested in accordance with procedures and acceptance criteria in ASTM D 3161 or TAS 107. Building-integrated Pphotovoltaic roofing modules/shingles shall comply with the classification requirements of Table R905.2.4-~~6~~.1 for the appropriate maximum basic wind speed. Building-integrated Pphotovoltaic roofing modules/shingles packaging shall bear a label to indicate~~

compliance with the procedures in ASTM D 3161 or TAS 107 and the required classification from Table R905.2.4-6.1.

R905.17 Photovoltaic systems. Rooftop mounted photovoltaic systems shall be designed in accordance with this section.

R905.17.1 Wind resistance. Rooftop mounted photovoltaic systems shall be designed for wind loads for component and cladding in accordance with Chapter 16 of the *Florida Building Code, Building* using an effective wind area based on the dimensions of a single unit frame.

R905.17.2 Fire classification. Rooftop mounted photovoltaic systems shall have the same fire classification as the roof assembly required by Section R902.

R905.17.3 Installation. Rooftop mounted photovoltaic systems shall be installed in accordance with the manufacturer's installation instructions.

R905.17.4 Photovoltaic panels and modules. Photovoltaic panels and modules mounted on top of a roof shall be listed and labeled in accordance with UL 1703 and shall be installed in accordance with the manufacturer's installation instructions.

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R905.17.1 Wind resistance. Rooftop mounted photovoltaic systems shall be designed for wind loads for component and cladding in accordance with Chapter 16 of the *Florida Building Code, Building* using an effective wind area based on the dimensions of a single unit frame.