FS205-06/07 Part I
Table 1507.8

Proposed Change as Submitted:

Proponent: Steven William Harris, Quality Auditing Institute, representing Cedar Shake and Shingle Bureau

PART I – IBC STRUCTURAL

Revise table as follows:

TABLE 1507.8
WOOD SHINGLE AND SHAKE INSTALLATION

ROOF ITEM	WOOD SHINGLES	WOOD SHAKES
5. Application	—	—
Attachment	Fasteners for wood shingles shall be corrosion resistant with a minimum penetration of 0.75 inch into the sheathing. For sheathing less than 0.5 inch thick, the fasteners shall extend through the sheathing.	Fasteners for wood shakes shall be corrosion resistant with a minimum penetration of 0.75 inch into the sheathing. For sheathing less than 0.5 inch thick, the fasteners shall extend through the sheathing.
No. of fasteners	Two per shingle.	Two per shake.
Exposure	Weather exposures shall not forth in Table 1507.8.6	Weather exposures shall not exceed those set forth in Table 1507.9.7
Method	Shingles shall be laid with a side lap of not less than 1.5 inches between joints in courses, and ~~no two joints in any three adjacent courses shall be in direct alignment~~ not more than 10% of joints shall be in direct alignment in alternate courses. Spacing between shingles shall be 0.25 to 0.375 inch	Shakes shall be laid with a side lap of not less than 1.5 inches between joints in adjacent courses. Spacing between shakes shall not be less than 0.375 inch or more than 0.625 inch for shakes and tapersawn shakes of naturally durable wood and shall be 0.25 to 0.375 inch for preservative taper sawn shakes.

(Portions of table not shown remain unchanged)

Reason: (IBC and IRC) Cedar shingle roofs have been applied this way for many years in accordance with the Cedar Shake and Shingle Bureau application manual page 5. To the best of the Cedar Shake and Shingle Bureau's knowledge, allowing 10% of the shingle keyways in alternate courses to line up does not adversely affect the performance of the roof. When you consider how many shingles there are to apply to a roof it would be very difficult to ensure that no two joints in alternate courses would be in direct alignment. The Cedar Shake and Shingle Bureau believes that shingle roofs are already being applied this way as our experts inform us that it is very near impossible to apply a shingle roof without any of the shingle keyways in alternate courses lining up. I have included letters and pictures from roofing consultants, manufacturers and applicators in support of this code change.

Cost Impact: This code change proposal will not increase the cost of construction.

Analysis: The letters of support were received with this proposal but have not been printed here. The letters are from: Anbrook Industries Ltd.; G&R Cedar Ltd.; Watkins Sawmills Ltd.; and Quality Auditing Institute.

Committee Action: **Disapproved**

Committee Reason: There are concerns with enforceability and particularly how an inspector will determine that no more than 10 percent of the wood shingle joints are in direct alignment.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Steven William Harris, Quality Auditing Institute, representing Cedar Shake and Shingle Bureau, requests Approval as Modified by this public comment for Part I.

Modify proposal as follows:

TABLE 1507.8
WOOD SHINGLE AND SHAKE INSTALLATION

ROOF ITEM	WOOD SHINGLES	WOOD SHAKES
5. Application	—	—
Attachment	Fasteners for wood shingles shall be corrosion resistant with a minimum penetration of 0.75 inch into the sheathing. For sheathing less than 0.5 inch thick, the fasteners shall extend through the sheathing.	Fasteners for wood shakes shall be corrosion resistant with a minimum penetration of 0.75 inch into the sheathing. For sheathing less than 0.5 inch thick, the fasteners shall extend through the sheathing.
No. of fasteners	Two per shingle.	Two per shake.
Exposure	Weather exposures shall not forth in Table 1507.8.6	Weather exposures shall not exceed those set forth in Table 1507.9.7
Method	Shingles shall be laid with a side lap of not less than 1.5 inches between joints in courses, and not more than ~~10%~~ 25% of joints shall be in direct alignment in alternate courses. Spacing between shingles shall be 0.25 to 0.375 inch	Shakes shall be laid with a side lap of not less than 1.5 inches between joints in adjacent courses. Spacing between shakes shall not be less than 0.375 inch or more than 0.625 inch for shakes and tapersawn shakes of naturally durable wood and shall be 0.25 to 0.375 inch for preservative taper sawn shakes.

(Portions of proposed changes to table not shown do not change)

Commenter's Reason: We request that the Code Change Proposal FS 205-06/07 be approved as modified as Part 2 – IRC R905.7.5 Application was approved as modified at the code hearings This code change was disapproved under IBC Structural Committee review as the Committee felt that there were concerns about the enforceability and particularly how an inspector will determine that no more than 10 percent of the wood shingle joints in alternate courses were in direct alignment. However, at the same ICC 2006 hearings [Part 2 – IRC R905.7.5], the IRC Committee felt that with an allowance of 25% it would be easier for a inspector to determine if the roof complied with the standard or not. The Cedar Shake and Shingle Bureau agrees with this analogy and is requesting that the FS 205-06/07 be approved as above which will harmonize the shake and shingle application requirements for the IBC and IRC.

Final Action: AS AM AMPC____ D

FS205-06/07 Part II
IRC R905.7.5

Proposed Change as Submitted:

Proponent: Steven William Harris, Quality Auditing Institute, representing Cedar Shake and Shingle Bureau

PART II – IRC BUILDING/ENERGY

Revise as follows:

R905.7.5 Application. Wood shingles shall be installed according to this chapter and the manufacturer's installation instructions. Wood shingles shall be laid with a side lap not less than 1½ inches (38 mm) between joints in courses, ~~and no two joints in any three adjacent courses shall be in direct alignment~~ and not more than 10% shall be in direct alignment in alternate courses. Spacing between shingles shall not be less than ¼ inch to 3/8 inch (6 mm to 10 mm). Weather exposure for wood shingles shall not exceed those set in Table R905.7.5. Fasteners for wood shingles shall be corrosion resistant with a minimum penetration of 1/2 inch (13 mm) into the sheathing. For sheathing less than ½ inch (13 mm) in thickness, the fasteners shall extend through the sheathing. Wood shingles shall be attached to the roof with two fasteners per shingle, positioned no more than 3/4 inch (19 mm) from each edge and no more than 1 inch (25 mm) above the exposure line.

Reason: (IBC and IRC) Cedar shingle roofs have been applied this way for many years in accordance with the Cedar Shake and Shingle Bureau application manual page 5. To the best of the Cedar Shake and Shingle Bureau's knowledge, allowing 10% of the shingle keyways in alternate courses to line up does not adversely affect the performance of the roof. When you consider how many shingles there are to apply to a roof it would be very difficult to ensure that no two joints in alternate courses would be in direct alignment. The Cedar Shake and Shingle Bureau believes that shingle roofs are already being applied this way as our experts inform us that it is very near impossible to apply a shingle roof without any of the shingle keyways in alternate courses lining up. I have included letters and pictures from roofing consultants, manufacturers and applicators in support of this code change.

Cost Impact: This code change proposal will not increase the cost of construction.

Analysis: The letters of support were received with this proposal but have not been printed here. The letters are from: Anbrook Industries Ltd.; G&R Cedar Ltd.; Watkins Sawmills Ltd.; and Quality Auditing Institute.

Committee Action: **Approved as Modified**

Modify proposal as follows:

R905.7.5 Application. Wood shingles shall be installed according to this chapter and the manufacturer's installation instructions. Wood shingles shall be laid with a side lap not less than 1½ inches (38 mm) between joints in courses, and not more than ~~10%~~ 25% shall be in direct alignment in alternate courses. Spacing between shingles shall not be less than ¼ inch to 3/8 inch (6 mm to 10 mm). Weather exposure for wood shingles shall not exceed those set in Table R905.7.5. Fasteners for wood shingles shall be corrosion resistant with a minimum penetration of 1/2 inch (13 mm) into the sheathing. For sheathing less than ½ inch (13 mm) in thickness, the fasteners shall extend through the sheathing. Wood shingles shall be attached to the roof with two fasteners per shingle, positioned no more than 3/4 inch (19 mm) from each edge and no more than 1 inch (25 mm) above the exposure line.

Committee Reason: This change provides needed guidance for the alignment of the shingles keyways (space between shingles). The modification changes the allowance to 25% for ease of inspection.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

James R. Kirby, National Roofing Contractors Association, requests Disapproval for Part II.

Commenter's Reason: This code change proposal was submitted to the IBC and IRC. The IBC Structural Committee disapproved the code change proposal because "there are concerns with enforceability and particularly how an inspector will determine that no more than 10 percent (in this case 25% due to the modification) of the wood shingle joints are in direct alignment." Allowing this code change in the IRC would create a conflict with IBC. This code change proposal is generally unenforceable and determining this percentage is extremely difficult and time consuming for a code official.

Additionally, allowing such a large amount of wood shingle joints to be in alignment also raises concerns these roofs may leak.

I recommend disapproval of FS205-06/07 Part II.

Final Action: AS AM AMPC____ D

FS206-06/07, Part I
Table 1507.8; IRC R905.8.6

Proposed Change as Submitted:

PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED HERE FOR INFORMATIONAL PURPOSES ONLY.

PART I – IBC STRUCTURAL

Proponent: Steven William Harris, Quality Auditing Institute, representing Cedar Shake and Shingle Bureau

Revise table as follows:

TABLE 1507.8
WOOD SHINGLE AND SHAKE INSTALLATION

ROOF ITEM	WOOD SHINGLES	WOOD SHAKES
5. Application	—	—
Attachment	Fasteners for wood shingles shall be corrosion resistant with a minimum penetration of 0.75 inch into the sheathing. For sheathing less than 0.5 inch thick, the fasteners shall extend through the sheathing.	Fasteners for wood shakes shall be corrosion resistant with a minimum penetration of 0.75 inch into the sheathing. For sheathing less than 0.5 inch thick, the fasteners shall extend through the sheathing.
No. of fasteners	Two per shingle.	Two per shake.
Exposure	Weather exposures shall not forth in Table 1507.8.6	Weather exposures shall not exceed those set forth in Table 1507.9.7
Method	Shingles shall be laid with a side lap of not less than 1.5 inches between joints in courses, and no two joints in any three adjacent courses shall be in direct alignment. Spacing between shingles shall be 0.25 to 0.375 inch.	Shakes shall be laid with a side lap of not less than 1.5 inches between joints in adjacent courses. Spacing between shakes shall ~~not be less than 0.375 inch or more than 0.625~~ 3/8 inch to 5/8 inch for shakes and tapersawn shakes of naturally durable wood and shall be ~~0.25~~ 3/8 to ~~0.375~~ 5/8 inch for preservative taper sawn shakes.

(Portions of table not shown remain unchanged)

PART II – IRC BUILDING/ENERGY

R905.8.6 Application. Wood shakes shall be installed according to this chapter and the manufacturer's installation instructions. Wood shakes shall be laid with a side lap not less than 1½ inches (38 mm) between joints in adjacent courses. Spacing between shakes in the same course shall be ~~1/8~~ 3/8 inch to 5/8 inch (~~3~~ 9.5 mm to ~~16~~ 15.9 mm) for shakes and taper sawn shakes of naturally durable wood and shall be ~~¼~~ 3/8 inch to ~~3/8~~ 5/8 inch (~~6~~ 9.5 mm to ~~10~~ 15.9 mm) for preservative treated taper sawn shakes. Weather exposure for wood shakes shall not exceed those set forth in Table R905.8.6. Fasteners for wood shakes shall be corrosion-resistant, with minimum penetration of ½ inch (12.7 mm) into the sheathing. For sheathing less than ½ inch (12.7 mm) in thickness, the fasteners shall extend through the sheathing. Wood shakes shall be attached to the roof with two fasteners per shake, positioned no more than 1 inch (25 mm) from each edge and no more than 2 inches (51 mm) above the exposure line.

Reason: The Cedar Shake and Shingle Bureau's application instructions require that the minimum spacing between shakes be 3/8 inches. The reason for this is that with a 1/8 inch spacing it has been found that leaves and/or needles from evergreen trees get trapped in the keyways and may cause premature aging of the product.

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

PART I – IBC STRUCTURAL
Committee Action: **Disapproved**

Committee Reason: The committee does not believe there is a basis for revising the minimum spacing between wood shakes.

Assembly Action: **None**

PART II - IRC
Committee Action: **Approved as Submitted**

Committee Reason: This change clarifies the manufacturer's requirements for the width of the keyways (spacing between shakes).

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Steven William Harris, Quality Auditing Institute, representing Cedar Shake and Shingle Bureau, requests Approval as Submitted for Part I.

Commenter's Reason: IBC Table 1507.8 Method (Wood Shakes)
This code change request corrects a misprint in the code. The Cedar Shake and Shingle Bureau's installation instructions require that the minimum spacing between shakes be 3/8 inches. The reason for this is that with a 1/8 inch spacing it has been found that leaves and/or needles from evergreen trees get trapped in the keyways which will cause water to be retained on the roof causing early decay of the wood roofing. It is worth noting that all shake and shingle manufacturers have this same application requirement for their product.

Final Action: AS AM AMPC____ D

FS210-06/07
1507.16 (New)

Proposed Change as Submitted:

Proponent: Mark S. Graham, James R. Kirby, National Roofing Contractors Association

Add new text as follows:

1507.16 Roof gardens and landscaped roofs. Roof gardens and landscaped roof shall comply with the requirements of this Chapter, Section 1607.11.2.2 and Section 1607.11.2.3.

Reason: This proposed code change adds new requirements and clarifies existing requirements in the code. This proposed code language requires roof gardens and landscaped roofs to equivalently meet the same requirements as all other roof systems. Additionally, this proposed code language ties the existing requirements for special purpose roofs (e.g., garden roofs) and landscaped roofs in Chapter 16 to Chapter 15.

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

Analysis: Is this provision better located in 1504 or 1509?

Committee Action: **Approved as Submitted**

Committee Reason: This code change provides cross references to Chapter 16 that assure loading requirements for landscaped roofs are included by the designer.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

David L. Roodvoets, DLR Consultants, representing SPRI, requests Disapproval.

Commenter's Reason: This code requirement is unenforceable, and unrealistic. Code officials have no standard by which to judge either the fire or wind resistance of roof gardens and landscaped roofs.

Currently testing agencies are not willing or able to complete wind and fire tests for garden roofs. The scope of ASTM E 108 does not cover fire testing of roof gardens and landscaped roofs. There is little expectation that a consensus fire resistance test can be developed, as the conditions on vegetative roofs are almost always in a state of flux.

The wind resistance is equally difficult to establish. Currently there is no test for wind resistance of roof gardens and landscaped roofs and no definition of what that means. Although wind tunnel tests provide a method of evaluating alternative systems, this is impractical with a growing media where conditions are constantly changing. Yet these systems inherently provide benefits to the building and the environment.

Public Comment 2:

Edward Tierney, American Hydrotech, Inc., requests Disapproval.

Commenter's Reason: Green roofs cannot simply be added to Section 1507 - Requirements For Roof Coverings as proposed – a green roof is not a 'Roof Covering' as defined by the code. Some green roof systems also do not conform to the definition of a 'Roof Assembly' as defined by the code, as some of these systems do not include 'Roof Coverings" and can be installed over a variety of materials. Components of green roofs include root barrier protection to the roof covering, water retention and drainage, growing media, and vegetation.

Further, testing agencies currently do not have the means and methods developed or a consensus on how to go about testing green roofs for wind and fire resistance. Likely, these are areas that may never be truly testable as the surfacing of green roofs is composed of potentially ever-changing vegetation and growing media - where too many variables and combinations exist from depth and type of growing media and vegetation to various states of water saturation.
As such, the proposed code change/requirement is presently unenforceable.

Final Action: AS AM AMPC____ D

FS213-06/07, Part I
1510.3

Proposed Change as Submitted:

Proponent: T. Eric Stafford, Institute for Business and Home Safety, Birmingham, AL

PART I – IBC STRUCTURAL

Revise as follows:

1510.3 Recovering versus replacement. New roof coverings shall not be installed without first removing all existing layers of roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. For tested assemblies, where the roof covering being installed has not been tested indicating equivalent performance for installation over existing roofs.

Exceptions:

1. 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 that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1510.4.
3. 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.

Reason: (IBC 1510.3 and IRC R907.3) This proposal is intended to ensure that when new roof coverings that are required to be tested are installed over existing roof coverings, that the new roof covering has been tested and shown to perform equivalently over an existing roof as compared to installation directly to the roof deck. This provision only applies to roof coverings required to be tested. For example, currently asphalt shingles are required to be tested for areas where the basic wind speed is 110 mph or greater. For asphalt shingles installed over existing asphalt shingle roofs in areas where the basic wind speed is 110 mph or greater, the testing will have to show that installation over a existing roof will not be detrimental to the performance of the new roof covering.

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

Committee Action: **Disapproved**

Committee Reason: The proposal does not indicate exactly what test standards are being referred to for tested assemblies. It is not specific enough.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

T. Eric Stafford, Institute for Business and Home Safety, Birmingham, AL, requests Approval as Modified by this public comment for Part I.

Modify proposal as follows:

1510.3 Recovering versus replacement. New roof coverings shall not be installed without first removing existing roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is watersoaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. ~~For tested assemblies where the roof covering being installed has not been tested indicating equivalent performance for installation over existing roofs.~~ Where the Basic Wind Speed equals or exceeds 110 mph, tested assemblies that rely on adhesive sealants for all or part of their wind resistance.

Exceptions:

1. 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 that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1510.4.
3. 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. Roof coverings in item 4 which have been tested and indicate equivalent performance over existing roofs.

Commenter's Reason: We are requesting AMPC for FS 213 Parts 1 and II. The modification proposed in this Public Comment more specifically addresses the types of roof coverings that we have concerns with. The primary concern is the wind resistance of roof coverings, such as asphalt shingles, installed over existing roof coverings. The tests for asphalt shingles wind resistance are conducted with the shingles attached directly to the roof deck. We are concerned about the ability of these tested systems to achieve the same level of resistance when installed over another roof covering.

This proposal specifically complies with intent of the code in that, while not stated, it is the intent that tested products, assemblies, etc. are to be installed in the same manner for which the tests were performed. The code committees argued that there was no studies or evidence to justifying this change. However, there also are no studies or evidence suggesting that new roof coverings installed over existing roofs will perform equivalently to new roof coverings installed directly to the roof deck. This logic is flawed. We have received anecdotal evidence from field teams that performed hurricane damage assessments implying higher failures for roofs where roof coverings were installed over existing roof coverings. We believe this proposal, with the modification provided, meets the intent of the code.

Final Action: AS AM AMPC____ D

FS213-06/07, Part II
IRC R907.3

Proposed Change as Submitted:

Proponent: T. Eric Stafford, Institute for Business and Home Safety, Birmingham, AL
PART II – IRC BUILDING/ENERGY

Revise as follows:

R907.3 Re-covering versus replacement. New roof coverings shall not be installed with out first removing existing roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is water-soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. For asphalt shingles, when the building is located in an area subject to moderate or severe hail exposure according to Figure R903.5.
5. For tested assemblies, where the roof covering being installed has not been tested indicating equivalent performance for installation over existing roofs

Exceptions:

1. 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 that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Installation of metal panel, metal shingle, and concrete and clay tile roof coverings over existing wood shake roofs shall be permitted when the application is in accordance with Section R907.4.
3. The application of new protective coating over existing spray polyurethane foam roofing systems shall be permitted without tear-off of existing roof coverings.

Reason: (IBC 1510.3 and IRC R907.3) This proposal is intended to ensure that when new roof coverings that are required to be tested are installed over existing roof coverings, that the new roof covering has been tested and shown to perform equivalently over an existing roof as compared to installation directly to the roof deck. This provision only applies to roof coverings required to be tested. For example, currently asphalt shingles are required to be tested for areas where the basic wind speed is 110 mph or greater. For asphalt shingles installed over existing asphalt shingle roofs in areas where the basic wind speed is 110 mph or greater, the testing will have to show that installation over a existing roof will not be detrimental to the performance of the new roof covering.

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

Committee Action: **Disapproved**

Committee Reason: There was no technical data submitted to justify additional testing. Not specific as to the type of test required.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

T. Eric Stafford, Institute for Business and Home Safety, Birmingham, AL, requests Approval as Modified by this public comment for Part II.

Modify proposal as follows:

R907.3 Re-covering versus replacement. New roof coverings shall not be installed with out first removing existing roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is water-soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. For asphalt shingles, when the building is located in an area subject to moderate or severe hail exposure according to Figure R903.5.
5. ~~For tested assemblies, where the roof covering being installed has not been tested indicating equivalent performance for installation over existing roofs.~~ Where the Basic Wind Speed equals or exceeds 110 mph, tested assemblies that rely on adhesive sealants for all or part of their wind resistance.

Exceptions:

1. 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 that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Installation of metal panel, metal shingle, and concrete and clay tile roof coverings over existing wood shake roofs shall be permitted when the application is in accordance with Section R907.4.
3. The application of new protective coating over existing spray polyurethane foam roofing systems shall be permitted without tear-off of existing roof coverings.
4. Roof coverings in item 5 which have been tested and indicate equivalent performance over existing roofs.

Commenter's Reason: We are requesting AMPC for FS 213 Parts 1 and II. The modification proposed in this Public Comment more specifically addresses the types of roof coverings that we have concerns with. The primary concern is the wind resistance of roof coverings, such as asphalt shingles, installed over existing roof coverings. The tests for asphalt shingles wind resistance are conducted with the shingles attached directly to the roof deck. We are concerned about the ability of these tested systems to achieve the same level of resistance when installed over another roof covering.

This proposal specifically complies with intent of the code in that, while not stated, it is the intent that tested products, assemblies, etc. are to be installed in the same manner for which the tests were performed. The code committees argued that there was no studies or evidence to justifying this change. However, there also are no studies or evidence suggesting that new roof coverings installed over existing roofs will perform equivalently to new roof coverings installed directly to the roof deck. This logic is flawed. We have received anecdotal evidence from field teams that performed hurricane damage assessments implying higher failures for roofs where roof coverings were installed over existing roof coverings. We believe this proposal, with the modification provided, meets the intent of the code.

Final Action: AS AM AMPC____ D

FS214-06/07, Part I
1510.3

Proposed Change as Submitted:

Proponent: Mason Knowles, Spray Polyurethane Foam Alliance

PART I – IBC STRUCTUEAL

Revise as follows:

1510.3 Recovering versus replacement. New roof coverings shall not be installed without first removing all existing layers of roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.

Exceptions:

1. 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 that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.

2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1510.4.
3. 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 spray polyurethane foam roofing systems shall be permitted over asphalt shingles, clay and concrete tile roof coverings without tear-off when installed in accordance with Section 1507.14 and Section 1510.5.

Reason: (IBC) The code change is to specifically allow the use of SPF roofing systems over shingle and tile roof systems. Use of SPF over shingles and tile is an enhancement of the existing roofing system.

SPF installed over existing shingles and tile roofing systems has performed exceptionally well in high wind areas. Installing SPF roofing systems over existing shingles and tile increases the wind up lift resistance of the existing system and minimizes damage from wind driven debris.

Bibliography (IBC): The proponent shall submit a bibliography of any substantiating material submitted with the code change proposal. The bibliography shall be published with the code change and the proponent shall make the substantiating materials available for review at the appropriate ICC office and during the public hearing.

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

Committee Action: **Disapproved**

Committee Reason: No data was provided to the committee to substantiate that the spray foam covering applied over shingles will perform well.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Mason Knowles, Spray Polyurethane Foam Alliance, requests Approval as Submitted for Part I.

Commenter's Reason: This code change proposal would allow the use of SPF roofing over clay tile and asphalt shingles. The Committee disapproved the proposals because no data was provided to the committee to substantiate that the spray foam covering applied over shingles will perform well.

SPFA recommends overturning the disapproval of the Committee and cites the following information and test data.
FM test on SPF over Clay Tile number 3023964 (FM report attached)
FM Class 1 roofing covering project number 3016938 (attached)

Final Action: AS AM AMPC____ D

FS214-06/07, Part II
IRC R907.3

Proposed Change as Submitted:

Proponent: Mason Knowles, Spray Polyurethane Foam Alliance

PART II – IRC BUILDING/ENERGY

Revise as follows:

R907.3 Re-covering versus replacement. New roof coverings shall not be installed without first removing existing roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is water-soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. For asphalt shingles, when the building is located in an area subject to moderate or severe hail exposure according to Figure R903.5.

Exceptions:

1. 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 that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Installation of metal panel, metal shingle, and concrete and clay tile roof coverings over existing wood shake roofs shall be permitted when the application is in accordance with Section R907.4.
3. The application of new protective coating over existing spray polyurethane foam roofing systems shall be permitted without tear-off of existing roof coverings.
4. The application of spray polyurethane foam roofing systems shall be permitted over asphalt shingles, clay and concrete tile roof coverings without tear-off when installed in accordance with Section R905.14 and R907.5.

Reason: (IRC) The code change would allow the use of SPF over existing shingle and tile roofing systems.
SPF installed over existing shingles and tile roofing systems has performed exceptionally well in high wind areas. Installing SPF roofing systems over existing shingles and tile increases the wind up lift resistance of the existing system and minimizes damage from wind driven debris. The proponent shall justify changing the current code provisions, stating why the proposal is superior to the current provisions of the Code. Proposals that add or delete requirements shall be supported by a logical explanation which clearly shows why the current Code provisions are inadequate or overly restrictive, specifies the shortcomings of the current Code provisions and explains how such proposals will improve the Code.

The Roofing Industries Committee for Weather Issues, (RICOWI) Hurricane Charley and Ivan report documents exceptional performance of SPF roofing systems over shingles and tile roofs in high wind areas. The proponent shall substantiate the proposed code change based on technical information and substantiation. Substantiation provided which is reviewed in accordance with Section 4.2 and determined as not germane to the technical issues addressed in the proposed code change shall be identified as such. The proponent shall be notified that the proposal is considered an incomplete proposal in accordance with Section 4.3, and the proposal shall be held until the deficiencies are corrected. The proponent shall have the right to appeal this action in accordance with the policy of the ICC Board. The burden of providing substantiating material lies with the proponent of the code change proposal. A minimum of two copies of all substantiating information shall be submitted.

Bibliography (IRC): Research conducted by the Roofing Industry's Committee on Weather Issues confirm that SPF installed over shingles and tile roofing systems perform exceptionally well in high wind areas.. Refer to the Roofing Industries Committee for Weather Issues, Hurricane Charley and Ivan report.

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

Committee Action: **Disapproved**

Committee Reason: There was no technical data provided to substantiate that this application will perform properly.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Mason Knowles, Spray Polyurethane Foam Alliance, requests Approval as Submitted for Part II.

Commenter's Reason: This code change proposal would allow the use of SPF roofing over clay tile and asphalt shingles. The Committee disapproved the proposals because no data was provided to the committee to substantiate that the spray foam covering applied over shingles will perform well.

SPFA recommends overturning the disapproval of the Committee and cites the following information and test data.
FM test on SPF over Clay Tile number 3023964 (FM report attached)
FM Class 1 roofing covering project number 3016938 (attached)

Final Action: AS AM AMPC____ D

FS215-06/07
2602.1, 2604 (New)

Proposed Change as Submitted:

Proponent: Charles Cottrell, North American Insulation Manufacturers Association (NAIMA), Alexandria, VA

Add new text as follows:

2602.1 General. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

REFLECTIVE PLASTIC CORE INSULATION. A reduced-density plastic insulation material with a reflective metallic surface on at least one side and less than 0.5 inches (12.7 mm) thick containing voids consisting of open or closed cells distributed throughout the material.

SECTION 2604
REFLECTIVE PLASTIC CORE INSULATION

2604.1 General. The provisions of this section shall govern the requirements and uses of reflective plastic core insulation in buildings and structures.

2604.2 Labeling and identification. Packages and containers of reflective plastic core insulation and reflective plastic core insulation components delivered to the job site shall bear the label of an approved agency showing the manufacturer's name, the product listing, product identification and information sufficient to determine that the end use will comply with the code requirements.

2604.3 Surface-burning characteristics. Except as provided for in Section 2604.5, reflective plastic core insulation shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 when tested at the maximum thickness intended for use in accordance with ASTM E 84. The ASTM E84 test shall be conducted using a mounting method related to the actual end-use configuration.

Reflective plastic core insulations used as an interior finish based on the tests in Section 2604.5 shall also conform to the flame spread requirements of Chapter 8.

2604.4 Thermal barrier. Reflective plastic core insulation shall be separated from the interior of a building by an approved thermal barrier of 0.5-inch (12.7 mm) gypsum wallboard or equivalent thermal barrier material that will limit the average temperature rise of the unexposed surface to not more than 250ºF (120ºC) after 15 minutes of fire exposure, complying with the standard time-temperature curve of ASTM E 119. The thermal barrier shall be installed in such a manner that it will remain in place for 15 minutes based on FM 4880, UL 1040, NFPA 286 or UL 1715.

2604.5 Special approval. Reflective plastic core insulation shall not be required to comply with the requirements of Sections 2604.3 and 2604.4 where specifically approved based on large-scale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.2) FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished reflective plastic core insulation assembly in the maximum thickness intended for use. Reflective plastic core insulations that are used as interior finish on the basis of special tests shall also conform to the flame spread requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.

(Renumber subsequent sections)

Reason: The purpose of this proposal is to add a definition for reflective foam core insulation and requirements for this type of materials to the IBC.

There are a number of reflective insulation materials made using "bubble pack" plastic as the core. This is the material used as a packing material for fragile items. (You know the stuff that is fun to pop.) Most manufacturers of these materials claim they do not have to comply with the combustibility requirements for foam plastics in chapter 26 because they do not use a "blowing agent to expand the plastic core.

These reflective insulation materials are being advertised for exposed installation in buildings without any thermal barrier or protective covering. This presents a significant fire hazard.

The current definition of foam plastic does not include "bubble pack" type materials because the "bubbles" in the materials are not formed with a foaming agent - but are mechanically formed using a stamping process. From a fire performance standpoint, these materials are predominantly plastic containing voids filled with air that support combustion.

The requirements in the new Section 2604, are modeled after those for "foam plastics" but have been modified to address specific issues NAIMA has identified in the testing of these materials. Specifically, the language, "The ASTM E84 test shall be conducted using a mounting method related to the actual end-use configuration" is to address the issue of how NAIMA believes some manufacturers are mounting their materials in the tunnel test. In 2001 NAIMA performed several ASTM E84 tests on these types of materials that showed if they are mounted in the tunnel and supported with poultry netting (chicken wire) the flame spread index is reduced from over 300 to 25 or less.

The addition of the language, “Reflective plastic core insulations used as interior finish on the basis of special tests in Section 2604.5 shall also conform to the flame spread requirements of Chapter 8” was added to direct the user to the requirements in chapter 8 when the materials are used as an interior finish. This was done because these materials are specifically marketed for that application, unlike most foam plastic materials.

Finally, for those that argue the materials will not be able to be used because they cannot meet the flame and smoke spread indices, new 2604.5 Special Approvals allows a manufacturer to demonstrate the material is safe for the intended application using accepted full-scale tests like a corner room.

This change will add a definition and requirements for a combustible material that technically is not covered in the building codes. The materials will be required to pass one of the large scale tests in the new section 2604.5 Special Approvals or to be covered with an appropriate thermal barrier.

The North American Insulation Manufacturers Association (NAIMA), the trade association representing the fiber glass industry has performed 2 full scale fire tests on these materials. The bubble pack types of materials that NAIMA tested in a UL 1715 corner room test and a full scale metal building demonstration (a modified NFPA 286 test) flashed over in less than 2 minutes. A summary of the UL 1715 testing is available on line in our literature piece entitled, “Fire & Thermal Performance of Reflective Insulations in Metal Building Applications” which can be viewed on line at http://www.naima.org/pages/resources/library/pdf/MB313.PDF

Although this publication is focused on metal building applications these types of materials are sold in home improvement stores for homeowners to install in any application they see fit without sufficient warnings about the combustibility of the products. Additionally there is an extensive explanation of the testing contained on a video CD produced by NAIMA entitled, “*Reflective Insulation Fire Testing*” in January 2006.

The ASTM E84 tests NAIMA did in 2001 on these types of materials showed if they are mounted in the tunnel and supported with poultry netting (chicken wire) the flame spread index is reduced from over 300 to 25 or less. These test results are summarized in a video CD entitled, “*Metal Building Insulation Code Compliance”* which is available upon request from the association.

Below is a photo of a reflective bubble pack insulation material installed without any covering in a utility type metal building – the photo was taken less than 1 minute and 30 seconds after the material was exposed to a 40Kw (approximately wastebasket size) fire.

Copies of all applicable ASTM E84, UL 1715 and modified NFPA 286 test reports will also be supplied upon request.

Bibliography:

Omega Point Laboratories (UL 1715) – Project # 13220-109402, November 15, 2001
Omega Point Laboratories (ASTM E84) – Project # 13220-109403, August 23, 2001
Omega Point Laboratories (ASTM E84) – Project # 13220-109417, August 23, 2001
Omega Point Laboratories (UL 1715) – Project # 13220-109410, November 15, 2001
Omega Point Laboratories (ASTM E84) – Project # 13220-109406, August 23, 2001
Omega Point Laboratories (ASTM E84) – Project # 13220-109405, August 23, 2001
Intertek ETK SEMKO (modified NFPA 286) – Project No. 3088157-501, January 13, 2006

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

Committee Action: Disapproved

Committee Reason: While the committee did feel that there is a need for some requirements to clearly regulate these products, this proposal is not ready for inclusion and there is still another cycle before the 2009 code. The floor testimony indicated the industry has currently completed tests and is developing code requirements based on this testing. It is anticipated that these proposals will be ready for the next code development cycle. The definition indicates the material is a “reduced-density plastic” but the provisions provide no density requirements and it does not provide any explanation regarding what it is reduced from. The 0.5 inch bubble dimension is not tied to a specific product or standard. By simply modifying the bubble size to just over 0.5 inches, the product would be unregulated again yet the hazard is not reduced or changed. The committee was also unwilling to take this action at this time since it was uncertain who in the industry this proposal would be helping and who it would be hurting. However as demonstrated by both this proposal and by FS147-06/07 these products do need to be addressed in a manner that does correspond to their end use while also addressing the variety of products which may be considered as reflective insulations.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Charles Cottrell, North American Insulation Manufacturers Association (NAIMA), Alexandria, VA , requests Approval as Submitted.

Commenter's Reason: There are a number of reflective insulation materials made using "bubble pack" plastic as the core. This is the material used as a packing material for fragile items. Most manufacturers of these materials claim they do not have to comply with the combustibility requirements for foam plastics in Chapter 26 because they do not use a "blowing agent" to expand the plastic core.

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Finally, for those that argue the materials will not be able to be used because they cannot meet the flame and smoke spread indices, new 2604.5 Special Approvals allows a manufacturer to demonstrate the material is safe for the intended application using accepted full-scale tests like a corner room.

This change will add a definition and requirements for a combustible material that manufacturers claim are not covered in the building codes. The materials will be required to pass one of the large scale tests in the new section 2604.5 Special Approvals or to be covered with an appropriate thermal barrier.

The North American Insulation Manufacturers Association (NAIMA), the trade association representing the fiber glass industry has performed 2 full scale fire tests on these materials. The bubble pack types of materials that NAIMA tested in a UL 1715 corner room test and a full scale metal building demonstration (a modified NFPA 286 test) flashed over in less than 2 minutes. A summary of the UL 1715 testing is available on line in our literature piece entitled, "Fire & Thermal Performance of Reflective Insulations in Metal Building Applications" which can be viewed on line at http://www.naima.org/pages/resources/library/pdf/MB313.PDF

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Final Action: AS AM AMPC____ D