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CHICAGO ROOFING
CONTRACTORS ASSOCIATION

Roofing Week in Chicago
January 20-22, 2021



Chicago Area Chapter
IBEC
International Institute of
Building Enclosure Consultants

Technical and code issues – Now and the future



NRCA

Mark S. Graham
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National Roofing Contractors Association
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LAFARGEHOLCIM TO ACQUIRE FIRESTONE BUILDING PRODUCTS FROM BRIDGESTONE AMERICAS

- Acquiring industry leader in commercial roofing and building envelope solutions to position it for continued growth
- A milestone in the transformation of LafargeHolcim to become the global leader in innovative and sustainable building materials and solutions
- Strengthening LafargeHolcim’s biggest market, the US, with annual sales to exceed USD 6bn
- Plans to expand in Europe and Latin America to become the global leader in flat roofing systems
- Sale to enable Bridgestone to strengthen investments in company’s tire business and fast-growing mobility solutions business

NASHVILLE, TN (January 7, 2021) – LafargeHolcim has signed an agreement to acquire Firestone Building Products (FSBP), a leader in commercial roofing and building envelope solutions based in the United States (US), with 2020 (est.) net sales of USD 1.8 billion and EBITDA of USD 270 million. This acquisition is a milestone in LafargeHolcim’s transformation to become the global leader in innovative and sustainable building solutions.

This transaction is valued at USD 3.4 billion, to be financed with cash and debt while maintaining net debt below 2x. Synergies of USD 110 million per year are expected on a run-rate basis within two years of closing, which is expected in the second quarter. The acquisition is earnings per share (EPS) accretive from the first year.

Jan Jenisch, LafargeHolcim CEO: “I am excited to be entering the highly attractive roofing business. With Firestone Building Products we are strengthening our biggest market, the US, while also building a global growth and innovation platform for the company. Today’s milestone is a strategic leap on our journey to become the global leader in innovative and sustainable building solutions, to build a world that works for people and the planet. I have great respect for the high-caliber leadership and expertise of the Firestone Building Products’ team and look forward to welcoming them into the LafargeHolcim family.”

Paolo Ferrari, Bridgestone Americas President, CEO & COO: “This transaction will create new growth opportunities for Firestone Building Products and allow Bridgestone to focus its resources to further invest in the company’s tire business and rapidly growing mobility solutions business. Like Bridgestone, LafargeHolcim is a global company with a strong financial position and thriving culture. We know they will take great care of our Firestone Building Products employees and customers, and ensure the business enjoys growth and success for many years to come.”

With up to 60% of buildings’ energy lost through roofs, FSBP plays an instrumental role in mitigating this process with its industry-leading technologies, including cool roofs, insulation and waterproofing systems. In addition, its green roofs contribute to more sustainable urban environments. These technologies complement LafargeHolcim’s sustainable building solutions, from its ECOPact green concrete to its EcoLabel range, accelerating the company’s net zero commitment. With this acquisition LafargeHolcim will add 15 manufacturing facilities, 1,800 distribution points, and three R&D laboratories to its network. Upon completion of the sale, FSBP will continue to be headquartered in Nashville, Tennessee, and all 1,900 FSBP employees will transition to LafargeHolcim.

[Link](#)

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Some things to watch for...

- Warranties?
- Contractors' applicator agreements?
- Re-branding?
- Culture?

<https://www.lafargeholcim.com/>

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IIBEC Technical Advisory on New Concrete Roof Decks



Technical Advisory
Roof Covering Systems and New Concrete Roof Decks – 20-2021

TITLE: Roof Covering Systems and New Concrete Roof Decks

DESIGNATION: IIBEC TA-020-2021

OBJECTIVE: To provide commentary on the installation and design of low-slope roof systems over new concrete roof deck substrates.

BACKGROUND

Roof membrane and roof assembly installations over new concrete roof decks have always been prone to moisture-related problems due to latent moisture release by the concrete as it cures to cure. The problems are due to the release of excess moisture from the concrete into the roof assembly, which can impact roof system performance, the roof membrane, roof insulation, and related components. Moisture-related problems for roof membrane and roof assembly installations over concrete decks have increased significantly in recent years with changes in roofing materials, adhesives, construction practices, and schedules. The extent of these problems is visible in roofing industry bulletins, advisories,¹ and industry technical articles on this subject issued by the Midwest Roofing Contractors Association,² National Roofing Contractors Association,³ Asphalt Roofing Manufacturers Association, GAF,⁴ and IIBEC.

The primary changes in roofing materials, adhesives, construction practices, and schedules that affect roof system performance over concrete roof decks include the following:

- **Use of alternative methods instead of asphalt as an adhesive for the direct attachment of roof insulation to substrate decks.** A continuous film of asphalt properly bonded to the concrete can function as a vapor retarder. Thus, the use of asphalt as an adhesive mitigated the amount of latent moisture release from the concrete into the roof assembly in amounts large enough to cause roof membrane distress or failure. However, alternative attachment methods—specifically the use of ribbon applications of low-rise foam adhesives or mechanical attachment—have resulted in portions of the roof deck directly exposed to the roof insulation, allowing moisture to enter the roof assembly. The use of mechanical attachment or low-rise foam adhesives over concrete decks is primarily a change in low-slope roofing construction practices.
- **Use of concrete roof decks with lightweight aggregate instead of normal-weight aggregate.** The use of lightweight aggregate in structural concrete has increased as designers look to minimize overall building weight and lessen construction costs. Lightweight aggregate is typically expanded shale, clay, or slate materials, which have been fired in a rotary kiln to create a porous structure, or air-cooled blast surface slag. Because lightweight aggregate is porous, it retains moisture longer than normal-weight aggregate.

DISCLAIMER

This Technical Advisory is intended to serve only as a general resource and to identify potential issues for consideration by industry professionals. Each person using this Technical Advisory is solely responsible for the evaluation of the Technical Advisory in light of the unique circumstances of any particular situation, must independently determine the applicability of such information, and assumes all risks in connection with the use of such information. The materials contained in this Technical Advisory do not supersede any code, rule, regulation, or legislation and are not intended to represent the standard of care in any jurisdiction.

[Link](#)

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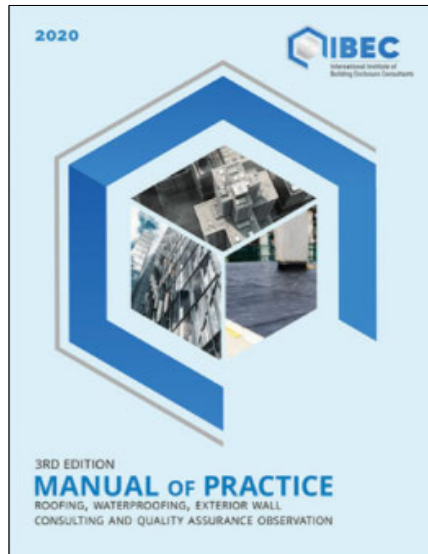
	<p style="text-align: center;">IIBEC RECOMMENDATIONS</p> <p>Designers and installers of insulated roofing assemblies over concrete roof decks should consider the following:</p> <ul style="list-style-type: none"> • Concrete Mixture Proportions and Placement: <ul style="list-style-type: none"> ○ Limit the water-to-cementitious materials ratio (w/c ratio) (for normal-weight concrete, the w/c should be less than or equal to 0.40; for lightweight structural concrete, the w/c should be less than or equal to 0.45) ○ Avoid hard-troweling the slab, which densifies the newly placed concrete surface ○ Use a cover to cure the concrete and avoid film-forming curing compounds • New Concrete Roof Decks: Allow time in the schedule for drying of the concrete roof deck past the 28-day curing period prior to roof installation. Precipitation on exposed concrete roof decks during and after the initial concrete curing will significantly increase the required drying time that must also be taken into consideration. • New Lightweight Aggregate Concrete Roof Decks: Concrete utilizing lightweight aggregate can take much longer to release excess moisture than normal-weight aggregate concrete and, as such, should not be expected to be adequately dry for the installation of an insulated roof assembly without a vapor retarder or moisture release system. • New Normal-weight Aggregate Concrete Roof Decks: Concrete using normal-weight aggregate typically releases moisture much quicker than lightweight aggregate mixtures; however, it should not be expected to be adequately dry on a typical project for the installation of an insulated roof assembly without a vapor retarder. • Use of Ventilated Steel Pan Decks vs. Non-Ventilated Steel Pan Decks with Concrete: Although ventilated steel pan decks will not allow significant downward drying, specifying ventilated steel pan decks beneath concrete to provide additional moisture release is recommended in lieu of non-ventilated steel pan decks. • Roofing-Manufacturer-Specific Assemblies Over New Concrete: Some manufacturers have developed roof assemblies specifically for installation over new concrete decks. Such assemblies are designed to allow the release of excess moisture through venting to the exterior. These systems, however, are new to the market and without widespread long-term performance history. As such, it is recommended that 	
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	<p>designers carefully review the roof performance requirements with the roofing manufacturer and any system performance history prior to selection of a new proprietary system.</p> <ul style="list-style-type: none"> • Roof Replacement - Existing Concrete Roof Decks: Existing concrete decks are typically in place for many years prior to a roof replacement. As such, excess moisture from initial concrete placement is often not an issue. However, moisture from roof leaks can result in rewetting of the cured concrete and result in a large quantity of excess moisture in the concrete. Designers of roof replacement systems over existing concrete decks should analyze and consider the moisture content of concrete roof decks at and around leak locations at a minimum, and should consider the impacts of modern methods and systems detailed above for the roof as a whole. • Moisture Content and Testing of Concrete Roof Decks: Currently there are no roofing industry standard criteria for an acceptable moisture content in concrete roof decks and no accepted standard field testing for measurement of the moisture content. Results from ASTM D4263 and ASTM F1869 are only reflective of surface moisture and are not effective in detecting moisture levels in lower portions of the concrete slab. Field measurement of concrete relative humidity using in-situ probes using ASTM F2170, as currently used in the flooring industry, has possibilities in the future but needs further refinement and standardization for field use on concrete roof decks. • Use of a Vapor Retarder: Designers should consider installing a Class I vapor retarder with a perm rating of 0.1 or less over both lightweight aggregate and normal-weight aggregate concrete roof decks. The installation of a vapor retarder will mitigate the latent release of excess moisture concrete over time and still require that the moisture content of concrete be low enough to achieve proper adhesion. Field-verify adhesion per manufacturer recommendations and review manufacturer requirements for vapor retarder installation. • Roof Assembly Wind Uplift: Roof assembly wind uplift resistance with adhered systems (i.e., those that are adhered directly to the roof deck) is dependent on the adhesion of the vapor retarder to the concrete deck and all subsequent layers that are adhered to it. Designers should consider the adhesion performance and installation requirements of vapor retarders over concrete roof decks when designing a roof assembly over a concrete roof deck that relies on the adhesion for wind uplift resistance. • Roofing Manufacturers: Contact roofing manufacturers for current recommendations and installation practices for their products over concrete roof deck substrates. 	
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New IIBEC Manual of Practice



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RESEARCH+TECH

IIBEC's new manual of practice
Roof consultants' roles and responsibilities are explained in an updated document
by Mark S. Graham

In March, the International Institute of Building Enclosure Consultants updated the manual of practice. This new manual provides guidance on IIBEC's intended role delineation and responsibilities for building envelope consultants, including roof consultants and roof-top quality assurance.

Manual of practice
The IIBEC Manual of Practice: Roofing, Waterproofing, Exterior Wall Consulting and Quality Assurance Observation, 3rd Edition is intended to update and supersede the organization's previous manual of practice, which was published in 2010. IIBEC indicates the manual is intended to be a general guide for its members and its use is strictly voluntary.

The manual is arranged in four primary sections and appendices, which are shown in the figure. The document currently only is available in an electronic format. IIBEC does not permit printing, copying and posting text from the document.

Section 1 - Introduction provides general information about IIBEC, its programs and services, code of ethics and professional responsibilities, fundamental canon, rules of practice and best practices. Information also is provided about IIBEC's registration programs, including

20 www.professionalroofing.net JUNE 2020

Professional Roofing

June 2020

[Link](#)

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PERFORMANCE BOND

Know all men by these presents: That _____, the Contractor ("Principal") whose principal place of business is located at _____ and _____ ("Surety") are held and firmly bound unto _____ the Owner ("Obligee") in the amount of _____ dollars (\$ _____) for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Whereas, Principal has by written agreement dated _____ entered into a contract with Obligee for _____ which contract (the "Contract") is by reference expressly made a part hereof.

Now therefore, the condition of this obligation is such that, if the Principal shall promptly and faithfully perform said Contract in conformity with the plans, specifications, and conditions of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Provided that any alterations which may be made in the terms of the Contract, or in the Work to be done under it, or the giving by the Obligee of any extension of time for the Contract, or any other alterations, extensions, or forbearance on the part of either or both of the Obligee or the Principal to the other shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors, or assigns from their liability hereunder, notice to the Surety of any such alterations, extension, or forbearance being hereby waived.

No action shall be brought on this bond unless brought within two years after: (a) completion of the Contract and all Work thereunder, or (b) default of the Principal, whichever shall occur first.

The Surety represents to the Principal and to the Obligee that it is legally authorized to do business in the State in which the Work is being carried out.

DISCLAIMER: This document has important legal and insurance consequences, and users are encouraged to consult with an attorney and insurance or surety advisor. The applicability or enforceability of this document may be affected by applicable Federal, State and Local laws and regulations. IIBEC SPECIFICALLY DISCLAIMS ANY AND ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. PURCHASERS ASSUME ALL LIABILITY WITH RESPECT TO THE USE OF THIS BOND FORM. IIBEC SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY DAMAGES RESULTING FROM SUCH USE, INCLUDING BUT NOT LIMITED TO ACTUAL, DIRECT, INDIRECT, CONSEQUENTIAL, OR PUNITIVE DAMAGES.

PERFORMANCE BOND

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PAYMENT BOND

Know all men by these presents: That _____, the Contractor ("Principal") whose principal place of business is located at _____ and _____ ("Surety") are held and firmly bound unto _____ the Owner ("Obligee") in the amount of _____ dollars (\$ _____) for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, Principal has by written agreement dated _____ entered into a contract with Obligee for _____ which contract (the "Contract") is by reference expressly made a part hereof.

Now therefore, the condition of this obligation is such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for labor performed and material furnished in the prosecution of the Work provided for in the Contract, then this obligation shall be void, otherwise it shall remain in full force and effect; subject, however, to the following conditions.

The Principal and Surety, jointly and severally, hereby agree with Obligee as follows:

1. A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, material, or both for use in the performance of the Contract. A "subcontractor" of the Principal, for the purposes of this bond only, includes not only those subcontractors having a direct contractual relationship with the Principal (a "first-tier subcontractor"), but also any other contractor or supplier having a direct contractual relationship with a first-tier subcontractor (a "second-tier subcontractor"). "Labor" and "material" shall include, but not be limited to, public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the work site.
2. Subject to the provisions of paragraph 3, any claimant who has performed labor or furnished material in accordance with the Contract documents in the prosecution of the Work provided in the Contract, who has not been paid in full therefore before the expiration of ninety (90) days after the day on which such claimant performed the last of such labor or furnished the last of such materials for which he claims payment, may bring action on this bond to recover any amount due him for such labor or material, and may prosecute such action to final judgment and have execution on the judgment. The Obligee need not be a party to such action and shall not be liable for the payment of any costs, fees, or expenses of any such suit.
3. Any claimant who has a direct contractual relationship with any subcontractor of the Principal from whom the Principal has not required a subcontractor payment bond, but who has no contractual relationship, express or implied, with the Principal, may bring an action on this bond only if he has given notice of the claim to Principal no later than ninety (90) days after said claimant performed the last of the labor or furnished the last of the material for which he claims payment, stating with substantial accuracy the amount claimed and the name of the person for whom the Work was performed or to whom the material was furnished. Notice to the Principal shall be served by registered or certified mail, postage prepaid, in an envelope addressed to the Principal at any place where his office is regularly maintained for the transaction of business.

PAYMENT BOND

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NRCA NATIONAL ROOFING CONTRACTORS ASSOCIATION

Home > News

Contract provision addresses working with roof consultants and observers

February 25, 2019

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When pricing a job, some roofing contractors want to know whether there will be a full- or part-time roof inspector on the job monitoring the contractor's work. In addition to asking whether a roof monitor is going to be retained, a roofing contractor may want to include the mentioned provision in the contract so the roofing contractor knows the roof monitor's involvement before executing the roof construction contract.

When a roof monitor is retained, the roofing contractor should be advised of alleged deficiencies and concerns the roof monitor has when the alleged deficiency is observed so the concern can be addressed promptly. The provision is intended to trigger prompt communication to the roofing contractor and avoid the situation where the roof consultant's or monitor's concerns are not communicated to the roofing contractor until after substantial roofing work has been installed. This provision entitles the roofing contractor to receive daily reports as they are issued so the roofing contractor is aware of and can respond to concerns raised by the roof monitor as the work proceeds rather than learning of alleged deficiencies after the roof system is installed.

Working with Roof Consultants and Observers: If Owner, Architect, Construction Manager or Contractor intend to retain a consultant or observer to monitor or evaluate roofing contractor's work during construction, roofing contractor shall be advised prior to execution of the roofing contract. If the roof monitor has concerns regarding the execution or quality of the work being performed by roofing contractor, those concerns should be promptly communicated to roofing contractor so that all such concerns can be discussed and addressed in a timely manner. Roofing contractor shall be provided with copies of all daily, weekly or other reports issued by the roof consultant or monitor as they are prepared and issued.

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2021 I-codes

*2021 IRC and 2021 IECC
still have not been published/shipped*

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Code development process

The 2021 I-codes present the code as originally published in 2000, with changes reflected in the 2003 through 2018 editions and further changes approved by the ICC Code Development Process through 2020. A new edition is promulgated every three years.

2018 Group A: IBC Building Fire, Building General and Plumbing Committees

2019 Group B: IBC Structural, IECC-Commercial, IECC-Residential Committees

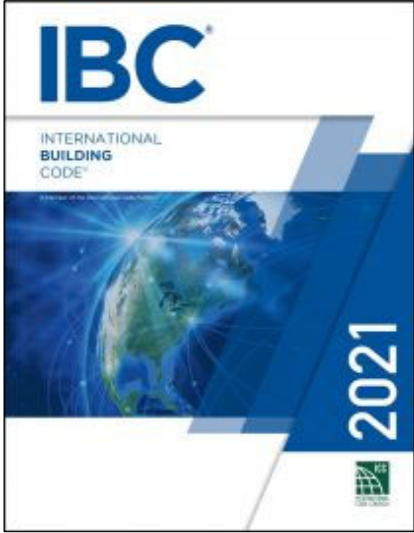
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My adoption predictions....

Assuming publication is finalized in February:

- Some (suburban) jurisdictions may begin the adoption process in mid- to late-2021.
- Earliest feasible adoption may be at the end of 2021 (early- to mid-2022 seems more likely)

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2021 IBC

Roofing-related changes:

- Reformatted single ply section
- Reformatted and new liquid-applied membrane requirements
- Reformatted and new roof coating requirements
- New aggregate-surfacing requirements
- New gutter testing requirement (ANSI/SPRI GT-1)
- Roof zones required in Construction Documents

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CHAPTER 15
ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

**SECTION 1501
GENERAL**

1501.1 Scope. The provisions of this chapter shall govern the design, materials, construction and quality of roof assemblies, and rooftop structures.

**SECTION 1502
ROOF DRAINAGE**

[P] 1502.1 General. Design and installation of roof drainage systems shall comply with this section, Section 1511 of this code and Chapter 11 of the International Plumbing Code.

[P] 1502.2 Secondary (emergency overflow) drains or scuppers. Where roof drains are required, secondary (emergency overflow) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be trapped if the primary drains allow building for any reason. The installation and sizing of secondary emergency overflow drains, leaders and conductors shall comply with Section 1511 of this code and Chapter 11 of the International Plumbing Code.

1502.3 Scuppers. Where scuppers are used for secondary emergency overflow roof drainage, the quantity, size, location and inlet elevation of the scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section 1511.1. Scuppers shall not have an opening dimension of less than 4 inches (102 mm). The flow through the primary system shall not be considered when locating and sizing scuppers.

1502.4 Gutters. Gutters and leaders placed on the outside of buildings, other than Group R-3, private garage and buildings of Type V construction, shall be of noncombustible material or not less than Schedule 40 plastic pipe.

**SECTION 1503
WEATHER PROTECTION**

1503.1 General. Roof decks shall be covered with approved roof covering secured to the building or structure in accordance with the provisions of this chapter. Roof covering shall be designed in accordance with this code, and installed in accordance with this code and the manufacturer's approved instructions.

1503.2 Flashing. Flashing shall be installed in such a manner so as to prevent water from entering the wall and roof through joints in copings, through moisture-permeable materials and at intersections with parapet walls and other penetrations through the roof plane.

1503.2.1 Location. Flashing shall be installed at wall and roof intersections, at gutters, wherever there is a change in roof slope or direction and around roof openings. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than 0.019 inch (0.483 mm) (No. 26 galvanized sheet).

1503.3 Parapet walls. Parapet walls shall be coped or covered in accordance with Sections 1503.3.1 and 1503.3.2. The top surface of the parapet wall shall provide positive drainage.

1503.3.1 Fire-resistance-rated parapet wall. Parapet walls required by Section 705.11 shall be coped or covered with weatherproof materials of a width not less than the thickness of the parapet wall such that the fire-resistance rating of the wall is not decreased.

1503.3.2 Other parapet walls. Parapet walls meeting one of the exceptions in Section 705.11 shall be coped or covered with weatherproof materials of a width not less than the thickness of the parapet wall.

1503.4 Attic and rafter ventilation. Intake and exhaust vents shall be provided in accordance with Section 1202.2 and the vent product manufacturer's installation instructions.

1503.5 Crickets and saddles. A cricket or saddle shall be installed on the ridge side of any chimney or penetration greater than 30 inches (762 mm) wide as measured perpendicular to the slope. Cricket or saddle coverings shall be sheet metal or of the same material as the roof covering.

Exception: One 30-inch or smaller in accordance with Section 2405.5 and finished in accordance with the manufacturer's instructions shall be permitted to be installed without a cricket or saddle.

Revision bars indicate changes from the previous edition

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Aggregate surfacing

Changes in IBC 2021

1504.9 Wind resistance of aggregate-surfaced roofs. Parapets shall be provided for aggregate surfaced roofs and shall comply with Table 1504.9.

**TABLE 1504.9
MINIMUM REQUIRED PARAPET HEIGHT (INCHES) FOR AGGREGATE SURFACED ROOFS^{a, b, c}**

AGGREGATE SIZE	MEAN ROOF HEIGHT (ft)	WIND EXPOSURE AND BASIC DESIGN WIND SPEED (MPH)																			
		Exposure B										Exposure C ^d									
		≤ 95	100	105	110	115	120	130	140	150	≤ 95	100	105	110	115	120	130	140	150		
ASTM D1863 (No. 7 or No. 67)	15	2	2	2	2	12	12	16	20	24	2	13	15	18	20	23	27	32	37		
	20	2	2	2	2	12	14	18	22	26	12	15	17	19	22	24	29	34	39		
	30	2	2	2	13	15	17	21	25	30	14	17	19	22	24	27	32	37	42		
	50	12	12	14	16	18	21	25	30	35	17	19	22	25	28	30	36	41	47		
	100	14	16	19	21	24	27	32	37	42	21	24	26	29	32	35	41	47	53		
ASTM D1863 (No. 6)	150	17	19	22	25	27	30	36	41	46	23	26	29	32	35	38	44	50	56		
	15	2	2	2	2	12	12	12	15	18	2	2	13	15	17	22	26	30			
	20	2	2	2	2	12	12	13	17	21	2	2	12	15	17	19	23	28	32		
	30	2	2	2	2	12	12	16	20	24	2	12	14	17	19	21	26	31	35		
	50	12	12	12	12	14	16	20	24	28	12	15	17	19	22	24	29	34	39		
	100	12	12	14	16	19	21	26	30	35	16	18	21	24	26	29	34	39	45		
	150	12	14	17	19	22	24	29	34	39	18	21	23	26	29	32	37	43	48		

For SI: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 mile per hour = 0.447 m/s.
 a. Interpolation shall be permitted for mean roof height and parapet height.
 b. Basic design wind speed, *V*, and wind exposure shall be determined in accordance with Section 1609.
 c. Where the minimum required parapet height is indicated to be 2 inches (51 mm), a gravel stop shall be permitted and shall extend not less than 2 inches (51 mm) from the roof surface and not less than the height of the aggregate.
 d. For Exposure D, add 8 inches (203 mm) to the parapet height required for Exposure C and the parapet height shall not be less than 12 inches (305 mm).

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Gutter testing

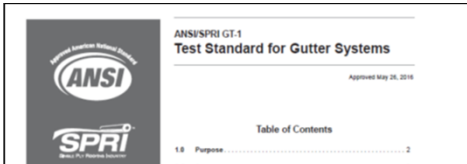
Changes in IBC 2021

1504.6 Edge systems for low-slope roofs. Metal edge systems, except gutters and counterflashing, installed on built-up, modified bitumen and single-ply roof systems having a slope less than 2 units vertical in 12 units horizontal (2:12) shall be designed and installed for wind loads in accordance with Chapter 16 and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, except basic design wind speed, *V*, shall be determined from Figures 1609.3(1) through 1609.3(12) as applicable.

1504.6.1 Gutter securement for low-slope roofs. Gutters that are used to secure the perimeter edge of the roof membrane on low-slope (less than 2:12 slope) built-up, modified bitumen, and single-ply roofs, shall be designed, constructed and installed to resist wind loads in accordance with Section 1609 and shall be tested in accordance with Test Methods G-1 and G-2 of SPRI GT-1.

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ANSI/SPRI GT-1



ANSI/SPRI GT-1
Test Standard for Gutter Systems
Approved May 28, 2016

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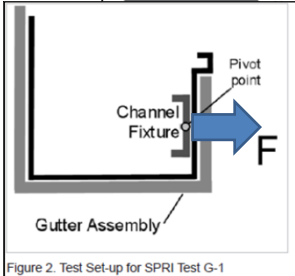


Figure 2. Test Set-up for SPRI Test G-1

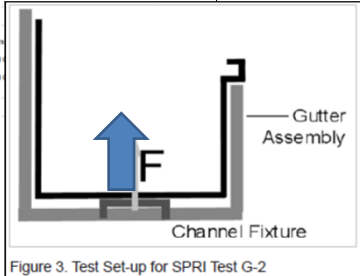


Figure 3. Test Set-up for SPRI Test G-2

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SPRI
1000 North Dearborn Street
Suite 200
Itasca, IL 60143
www.spri.org

Disclaimer
This standard is for use by architects, engineers, roofing contractors and building owners when designing, installing or evaluating a building's gutter system. SPRI, its members and employees do not warrant that this standard is proper and/or applicable under all conditions.

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Roof zones

Changes in IBC 2021

CHAPTER 16
STRUCTURAL DESIGN

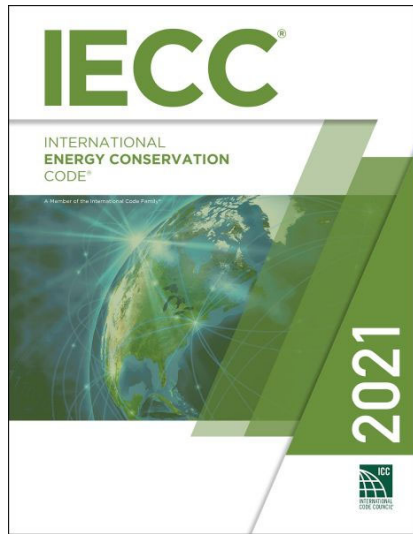
1603.1.4 Wind design data. The following information related to wind loads shall be shown, regardless of whether wind loads govern the design of the lateral force-resisting system of the structure:

1. Basic design wind speed, V , miles per hour and allowable stress design wind speed, V_{asd} , as determined in accordance with Section 1609.3.1.
2. Risk category.
3. Wind exposure. Applicable wind direction if more than one wind exposure is utilized.
4. Applicable internal pressure coefficient.
5. Design wind pressures and their applicable zones with dimensions to be used for exterior component and cladding materials not specifically designed by the registered design professional responsible for the design of the structure, pounds per square foot (kN/m^2).

2021 INTERNATIONAL BUILDING CODE®
INTERNATIONAL CODE COUNCIL

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2021 IECC



Roofing-related changes:

- Reformatted roofing provisions
- Rewrote the U-factor approach to also apply to roof assemblies
- Revised tapered insulation criteria:
 - Average R-value method
- Clarified language on roof re-covers

Not successful:

- Height limitation (e.g., curb height) exception

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FEATURED PRODUCTS

DIGITAL CODES PREMIUM INTERNATIONAL CODES

Product Title	Price (As low as)
International Codes Wind Design Overview (ASCE 7-16 And 2018/2021 IBC)	\$13.60
International Codes 2021 International Fuel Gas Code®	\$4.90
International Codes 2021 International Building Code®	\$7.95
International Codes 2021 Complete 14 Collection	-
International Codes 2021 International Residential Code®	-
International Codes 2021 International Mechanical Code®	-

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ICC is currently considering changing its development process for future editions of the IECC to their standard development process.

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New FM Global Loss Prevention Data Sheets

February 26, 2020 – Accessible at www.fmglobaldatasheets.com

- FM 1-15, “Roof-Mounted Solar Photovoltaic Panels
- FM 1-28, “Wind Design”
- FM 1-29, “Roof Deck Securement and Above-deck Roof Components”
- FM 1-30, “Repair of Wind-damaged Single- and Multi-ply Roof Systems
- FM 1-31, “Roof Panel Systems”
- FM 1-34, “Hail Damage”
- FM 1-35, “Vegetative Roof Systems
- FM 1-49, “Perimeter Flashing”
- FM 1-52, “Field Verification of Roof Wind Uplift Resistance”

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February 26, 2020
Publication date... and implementation date

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FM Global-insured roofing project process

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CHECKLIST FOR ROOFING SYSTEM

FM Global OFFICE REVIEW
(Please leave blank for FM Global Office Review)

FM Global OFFICE REVIEW
(Please leave blank for FM Global Office Review)

WIND:

Design Wind Speed: <input type="text"/> (mph)	Ground Terrain: <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Uplift Pressure in field: <input type="text"/> (psf)	Uplift Rating Required: <input type="text"/>
Adequate Uplift Rating Provided: <input type="checkbox"/>	Adequate? <input type="checkbox"/> Yes <input type="checkbox"/> No

If standing seam, has collapse been reviewed? Yes No

COMMENTS:

X2688 ENGINEERING (Rev. Oct 2016)

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Affiliated FM Online Training (<http://training.affiliatedfm.com>)
 Approval Guide (<http://www.approvalguide.com>)
 RootNav (<http://rootnav.fmglobal.com>)

Distribution:

This report has been developed for insurance underwriting purposes. It is provided to you for informational purposes only to reduce the possibility of loss to insured property by bringing to your attention various potential hazards or conditions. Life, injury, or health issues are not addressed. You must make the decision whether to take any action. The company undertakes no duty to you or any other party by providing this report or the activities on which it is based. The liability of the company is limited to that contained in its insurance policies.

T281D (07/2019)

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The following design criteria were used for this review:

- 125 mph Wind Speed (for 3-second gusts)
- 1.15 Wind Importance Factor (for cladding)
- Ground Roughness "C"
- Partially Enclosed Building Classification

The following wind ratings are needed for each area:

Roof Area	Field	Perimeter	Corner
Main Roof	1-150	1-225 (8 ft.)	1-225 (8 ft. x 16 ft.)

Review Comments:

1. After completion of the roof installation, conduct uplift testing in accordance with FM Global Property Loss Prevention Data Sheet 1-52, *Field Verification of Roof Wind Uplift Resistance*. Perform 2 tests in the field, 2 tests in the perimeter, and 1 test in the corner. Final acceptance of the roofing installation will be dependent upon satisfactory performance of the roof installation during the uplift testing. The following pressures are considered passing for each roof area:
 - Field: 90 psf
 - Perimeters: 137 psf
 - Corners: 137 psf

roof system components and installation.

Design loads (ASCE 7-10) from the Construction Documents:

- Field: -68.6 psf
- Perimeter and corners: -115.4 psf

Resulting loads for FM 1-52 testing:

- Field: -52 psf
- Perimeter and corners: -87 psf

This key section. The company undertakes no duty to you or any other party by providing this report or the activities on which it is based. The liability of the company is limited to that contained in its insurance policies.
7281D (07/2019)

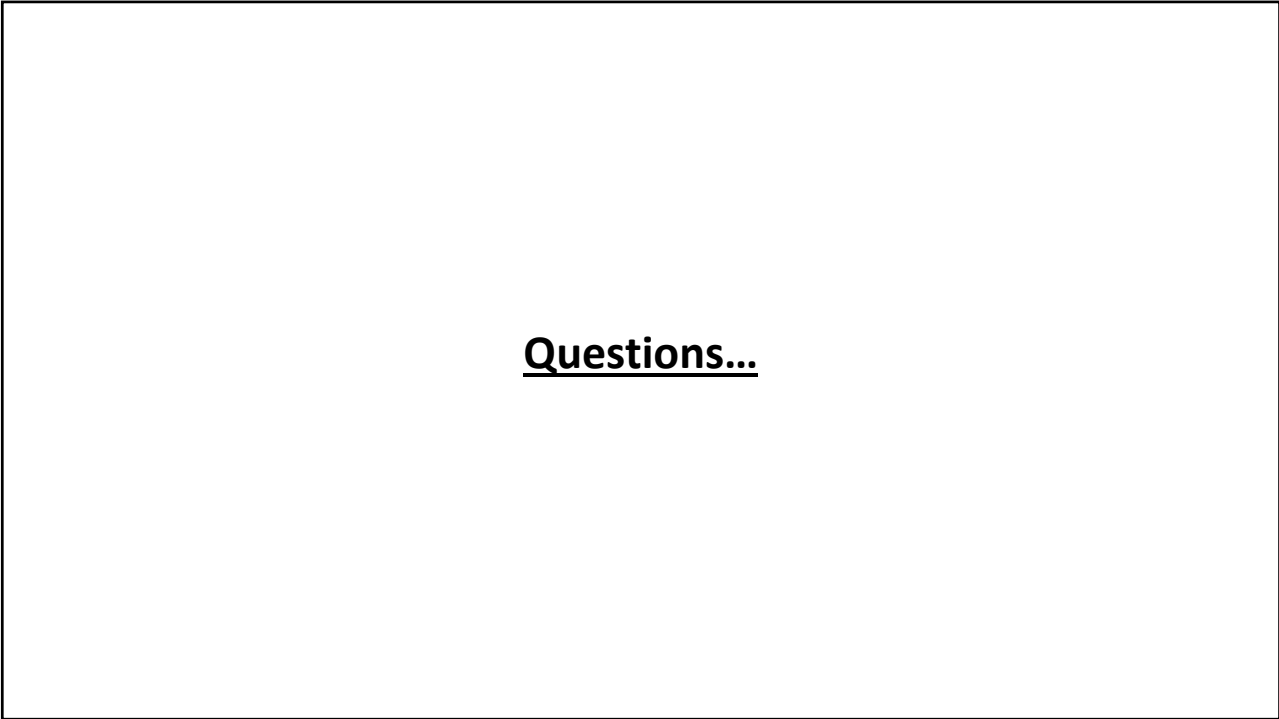
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Recommendations

FM Global-insured roofing project process

- Realize a FM Global-insured roof assembly is a premium product
 - It is typically (well) above minimum code requirements
- Actively manage roofing projects for FM Global-insured clients

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Questions...

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