



PINPOINT WEBINAR

Dec 16, 2020

Thanks for joining us a few minutes early.

We will start promptly at 2 p.m.!

ROOFING TECHNICAL UPDATE

... a conversation with NRCA's Mark Graham



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Agenda

2:00 | Start Program and Webinar Housekeeping Items

Debbie Hathorne, CRA Executive Director

2:02 | CRA Announcements & Speaker Intro

Debbie Hathorne, CRA Executive Director

2:05 | Technical Update

Mark Graham, NRCA

3:15 | Q & A

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Webinar Courtesies:

- ✦ Thank you for being on-time.
- ✦ All attendees are muted
- ✦ **Use the Q&A at the bottom your screen to send your questions to Debbie.** She will relay them to the speaker(s).
- ✦ We will not use the raise hand function, please use Q & A.
- ✦ Links and other information will be sent in Chat box if applicable. Otherwise, the chat function is limited and we ask you to use Q&A.
- ✦ Due to the number of participants, we may not get to all the questions, but we will try.
- ✦ Please participate in our interactive polling through-out the presentation.
- ✦ Final note, in order to earn CIU credit, you will be required to answer a final poll question at the end of today's presentation.

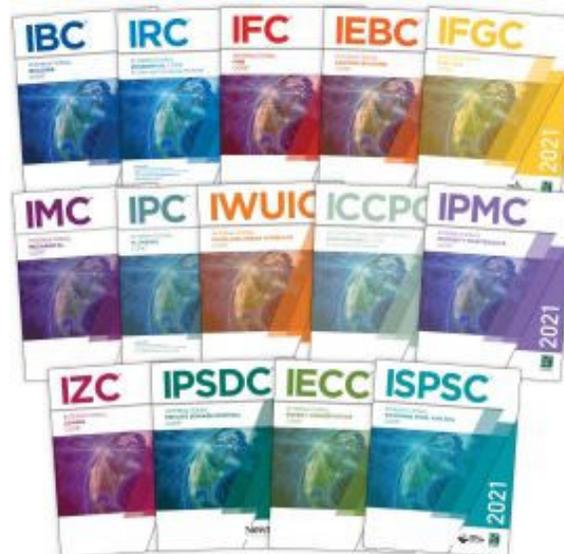
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Topics

- 2021 I-codes
 - Roofing-related revisions
- FM very severe hail (VSH) classification
 - Operational procedures for dealing with FM Global-insured buildings/owners
- NRCA’s 2020 MB sheet testing
- Synthetic underlayment
 - Code requirements
 - 2020 testing
 - Status of ASTM product standard
- New IIBEC *Manual of Practice*

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New 2021 I-codes



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2021 I-codes development progress

- 2018 (Group A):
 - Plumbing and fire committees
- 2019 (Group B):
 - General, structural, residential and energy conservation committees
 - Completed in October 2019
- 2020 appeals process
 - October 2020

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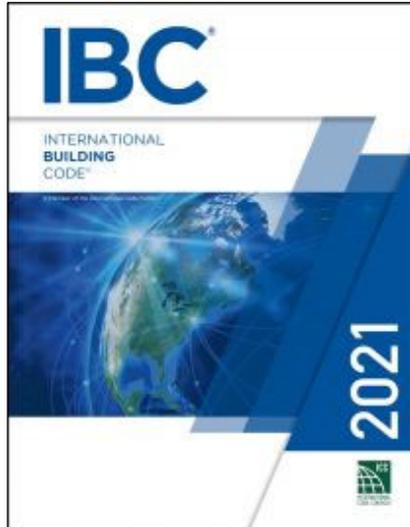
The appeals process impact on publication

- 2015 and 2018 I-codes were published in June of the year before the edition date
 - 2015 I-codes: June 2014
 - 2018 I-codes: June 2017
- 2021 I-codes have still not been completed published
 - Publication in June – August 2020 was originally planned
 - Publication may not be complete until Jan.-Feb. 2021

Jurisdictions' adoption processes for the new codes are delayed

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2021 IBC roofing-related changes

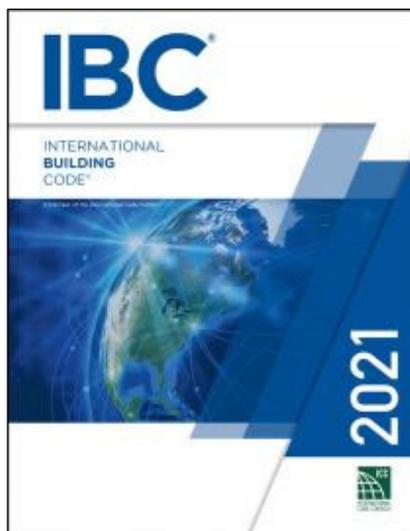


- Parapet wall fire classification
- ES-1 scope
- Add GT-1 (gutters) test requirement
- New aggregate surfacing criteria
- Rooftop PV clarifications
- Reformat of single-ply membrane criteria

[Continued...]

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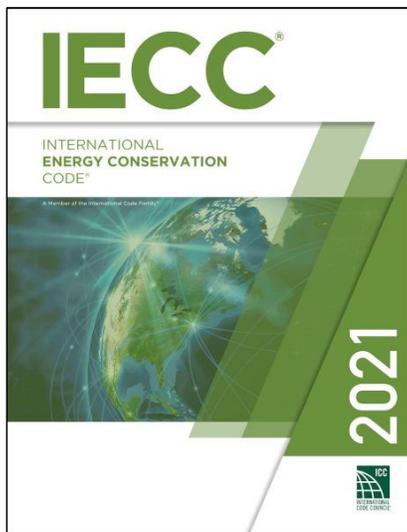
2021 IBC roofing-related changes -- continued



- Reformat of liquid-applied membrane criteria
- New roof coating section
- Re-use of stone ballast permitted

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2021 IECC roofing-related changes



- Reformatted roof insulation requirements
 - No changes to R-values
 - U-factor approach is now applicable to roofing
- Tapered insulation R-values now determined by the “average” R-value method
- Reroofing clarifications

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FM’s very severe hail (VSH) classification

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RESEARCH+TECH



Understanding FM VSH
FM has implemented a new impact-resistance classification
by Mark S. Graham

Commercial and industrial insuree FM Global and the code-approved testing agency subsidiaries, FM Approvals, have implemented a True Severe Hail (VSH) impact-resistance classification that could affect some of the work you do.

FM Global guidelines
FM Global traditionally has recommended its lowest building covers non-moderate hail (MS) and severe hail (SS) classified roof systems for buildings located in areas FM Global considers to be susceptible to moderate-severe hail impacts. FM Loss Prevention Data Sheet 1-34 (FM 1-34), "Hail Damage," provides a map identifying these regions.

In recent years, the U.S. insurance industry has experienced increases in losses from hail in terms of the number of claims reported and costs of those claims. A majority of the hail damage occurs to roof systems and other rooftop components.

In the latest version of FM 1-34, dated October 2016, FM Global has identified a new "VSH" region, encompassing Oklahoma, Kansas and some northern counties in Texas. FM 1-34's Table 3 identifies the specific northern Texas counties.

To access FM Global Data Sheets, including FM 1-34—"Hail Damage," go to www.professionalroofing.net.

22 www.professionalroofing.net DECEMBER 2017

Professional Roofing, December 2017
[Link to access this article](#)

RESEARCH+TECH



Designing for hail resistance
Did you know FM Global has updated its hail design guidance?
by Mark S. Graham

A March property and building loss insurer FM Global updated its Property Loss Prevention Data Sheet 1-34, "Hail Damage" (FM 1-34). If you work on buildings insured by FM Global, you should be aware of its latest hail-resistance guidelines and the effects they may have on roof system selection and design.

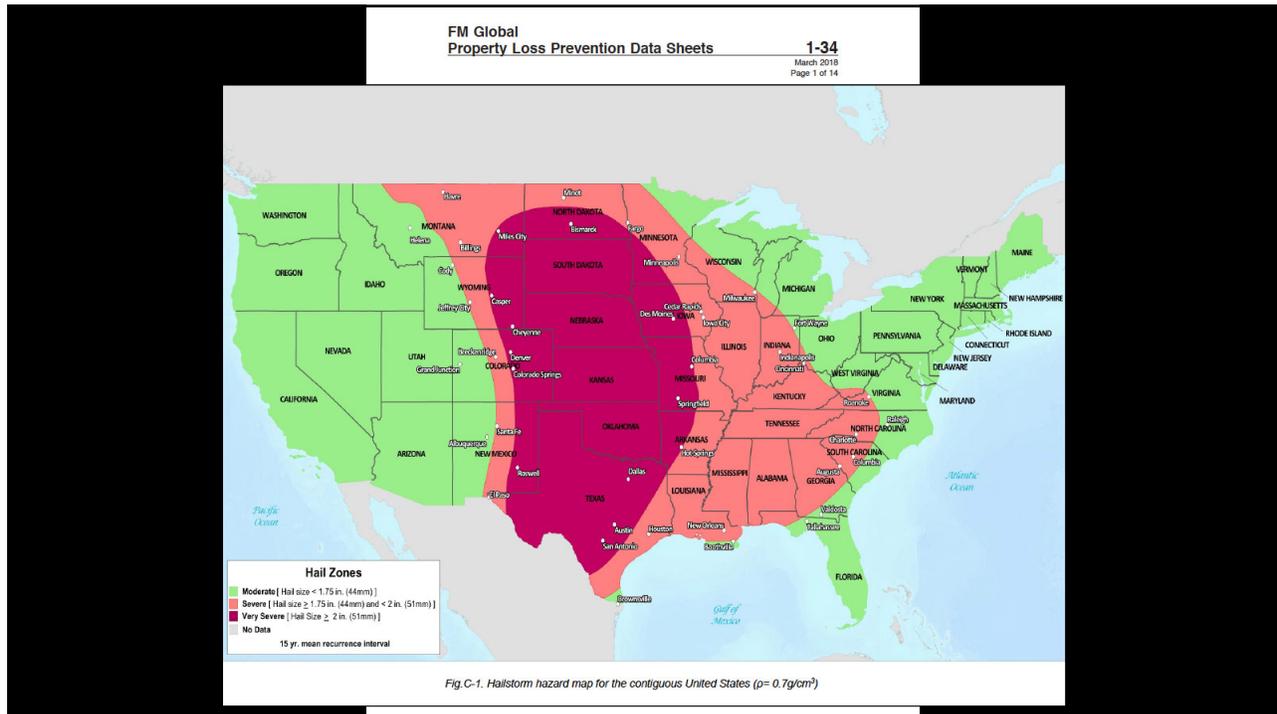
FM 1-34
FM 1-34 provides loss prevention guidelines to minimize the potential for hail damage to buildings, roof-mounted equipment and other rooftop equipment. FM Global lists FM 1-34 and its other Property Loss Prevention Data Sheets by region in its insured buildings. However, some designers use the Property Loss Prevention Data Sheets as design guidelines for buildings (and roof systems) other than those insured by FM Global.

FM Global outside facilities are a widespread hazard affecting many areas of the world that can severely damage building roof systems, roofing (EVE, vents and outlets), cooling towers and exposed glass and plastic components of outdoor equipment also can be

20 www.professionalroofing.net MAY 2018

Professional Roofing, May 2018
[Link to access this article](#)

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Of the 986,724 roof assemblies in FM's RoofNav;
only 8,053 have a VSH classification

As of Dec. 16, 2020

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Some characteristics of a VSH roof system

- From FM Approvals' RoofNav:
 - BUR: 124
 - MB: 5,244
 - Single ply: 2,685 (RoofNav claims adhered only—not true!)
- Only several manufacturers have most of the single ply VSH approvals
- Many single-ply systems require the use of wood sheathing as a coverboard

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Operational procedures for dealing with FM Global-insured buildings/owners

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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:

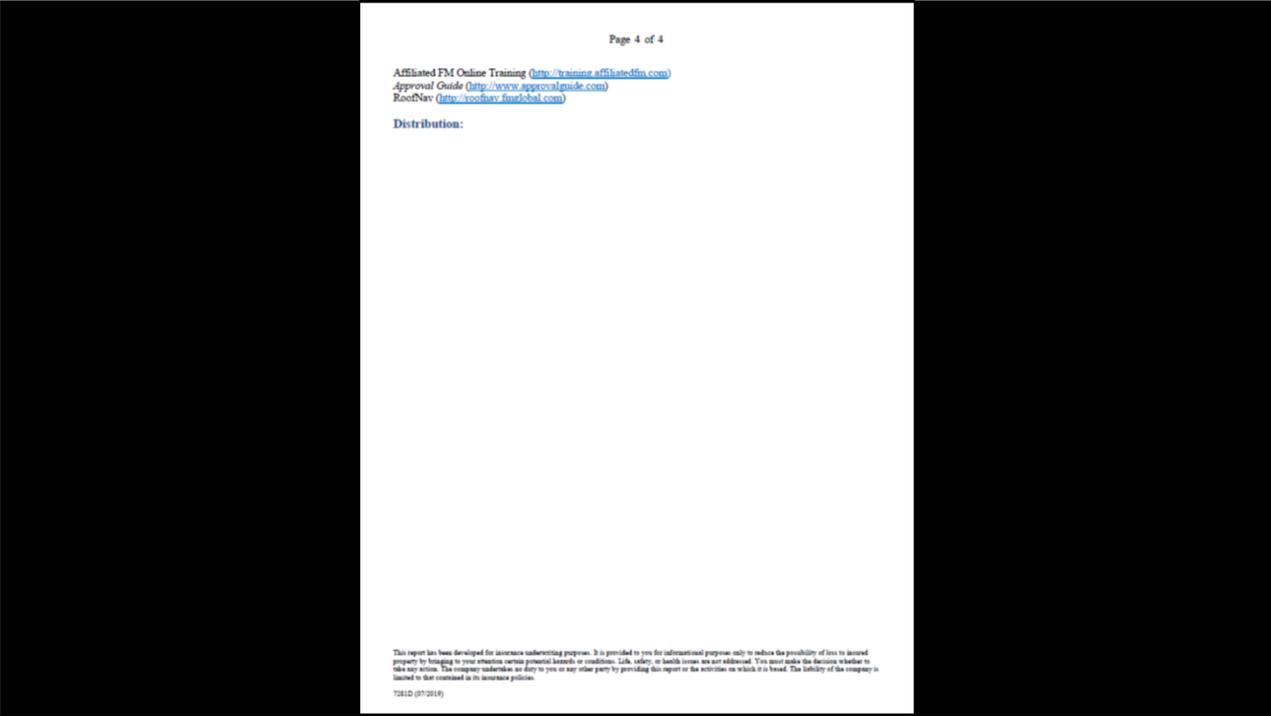
Design Wind Speed: <input type="text"/> (mph)	Ground Terrain: <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
Uplift Pressure in field: <input type="text"/> (psf)	Uplift Rating Required: <input type="checkbox"/> Yes <input type="checkbox"/> No
Adequate Uplift Rating Provided: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

(If standing seams, has collapse been reviewed?) Yes No

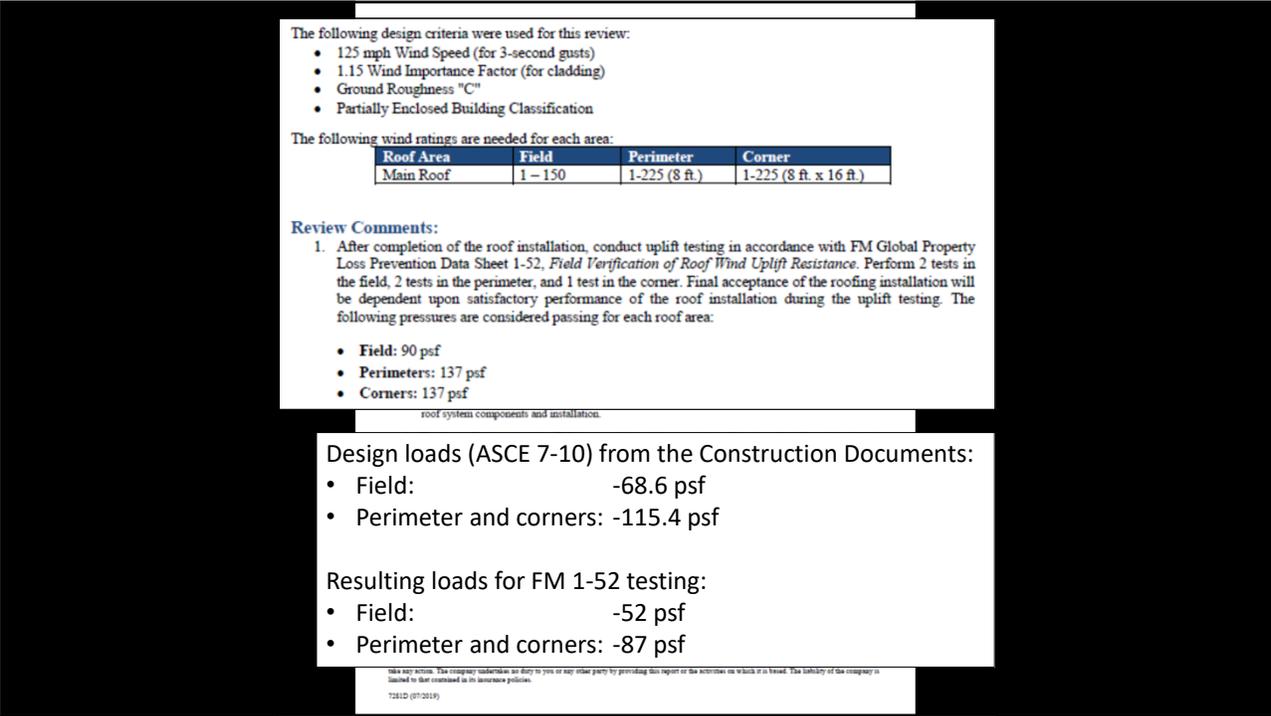
COMMENTS:

XM68 ENGINEERING (Rev. Oct 2016)

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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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Testing polymer-modified bitumen sheet products

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Previous testing

Polymer-modified bitumen sheet products

- 2011 testing
 - Six of 16 products tested complied
- 2015 testing
 - Nine of 13 product tested complied

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Polymer-modified bitumen test results		
Sample (Manufacturer and product)	Low-temperature flexibility (F) (as received)	Granule loss (g) (as received)
SBS products		
1-A	-13	0.56
3-A	-27	NA
3-B	-15	0.48
4-A	-16	1.13
5-A	-15	2.05
6-A	-13	0.34
6-B	-13	0.53
6-C	-9	0.55
8-A	-20	0.09
9-A	-8	0.53
10-A	Less than -40	1.16
ASTM specification	0 (maximum)	2.0 (maximum)
APP products		
2-A	21	0.95
2-B	10	NA
2-C	14	0.60
2-D	10	0.65
2-E	9	NA
7-A	Greater than 41	0.10
7-B	Greater than 41	0.88
ASTM specification	32 (maximum)	2.0 (maximum)

Professional Roofing
August 2020

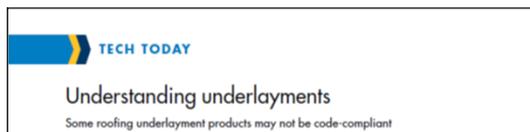
To address this concern, NRCA suggests designers, specifiers and purchasers of polymer-modified bitumen sheet products seek out manufacturers and products with third-party certifications of compliance with applicable ASTM International product standards.

[Link](#)

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Testing synthetic underlayment products

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If use of a nonasphaltic or synthetic underlayment product is being considered for a specific project, code acceptance can be sought by making a specific request to the authority having jurisdiction (AHJ). AHJs typically will request an evaluation report, such as those provided by ICC Evaluation Service or Underwriters Laboratories Inc. AHJs may grant code acceptance for alternative underlayment products on a project-by-project basis and typically not a blanket acceptance applying to all future projects in a specific jurisdiction.

[Link](#)

Professional Roofing
December 2016

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NRCA testing

Synthetic underlayment products

- 18 products tested
- Water shedding (shower) test
- Dimensional stability
- Vapor permeability (ASTM E96)

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Sample ID	ASTM D4869	
	Liquid Water Transmission	
	(Pass / Fail)	
	Specimen 1	Specimen 2
1A	Pass	Pass
2A	Pass	Pass
3A	Pass	Pass
4A	Pass	Pass
4B	Pass	Pass
4C	Pass	Pass
5A	Pass	Pass
6A	Pass	Fail
6B	Pass	Pass
6D	Pass	Pass
7A	Pass	Pass
8A	Pass	Pass
9A	Pass	Pass
9B	Pass	Pass
10A	Pass	Pass
12A	Pass	Pass
13A	Pass	Pass
13B	Pass	Pass

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Sample ID	ASTM D 751				
	Modified Procedure A, Procedure 2 (1psi for 5min)				
	(Pass / Fail)				
	Specimen 1	Specimen 2	Specimen 3	Specimen 4	Specimen 5
1A	Pass	Pass	Pass	Pass	Pass
2A	Pass	Pass	Pass	Pass	Pass
3A	Pass	Pass	Pass	Pass	Pass
4A	Pass	Pass	Pass	Pass	Pass
4B	Pass	Pass	Pass	Pass	Pass
4C	Pass	Pass	Pass	Pass	Pass
5A	Pass	Pass	Pass	Pass	Pass
6A	Pass	Pass	Pass	Pass	Pass
6B	Pass	Pass	Pass	Pass	Pass
6D	Pass	Pass	Pass	Pass	Pass
7A	Pass	Pass	Pass	Pass	Pass
8A	Pass	Pass	Pass	Pass	Pass
9A	Pass	Pass	Pass	Pass	Pass
9B	Pass	Pass	Pass	Pass	Pass
10A	Pass	Pass	Pass	Pass	Pass
12A	Pass	Pass	Pass	Pass	Pass
13A	Pass	Pass	Pass	Pass	Pass
13B	Pass	Pass	Pass	Pass	Pass

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Sample ID	ASTM D 1204	
	Linear Dimensional Change (185°F for 24h)	
	(% Linear Change)	
	MD	CMD
1A	2.3	0.9
2A	2.4	2.1
3A	0.9	0.6
4A	1.2	1.1
4B	1.3	0.8
4C	0.7	0.8
5A	1.1	1.2
6A	0.4	0.1
6B	2.6	2.4
6D	0.1	0.1
7A	3.4	2.7
8A	1.1	0.9
9A	1.6	0.9
9B	2.5	1.6
10A	1.5	0.9
12A	1.7	1.0
13A	1.3	1.5
13B	1.3	0.8

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Sample ID	ASTM D 1204	
	Linear Dimensional Change (185°F for 24h)	
	(% Linear Change)	
	MD	CMD
1A	2.3	0.9
2A	2.4	2.1
3A	0.9	0.6
4A	1.2	1.1
4B	1.3	0.8
4C	0.7	0.8
5A	1.1	1.2
6A	0.4	0.1
6B	2.6	2.4
6D	0.1	0.1
7A	3.4	2.7
8A	1.1	0.9
9A	1.6	0.9
9B	2.5	1.6
10A	1.5	0.9
12A	1.7	1.0
13A	1.3	1.5
13B	1.3	0.8

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Sample ID	ASTM E 96			
	Procedure A – Desiccant Method		Procedure B – Water Method	
	Water Vapor Trans.	Water Vapor Perm.	Water Vapor Trans.	Water Vapor Perm.
	(grains/h-ft ²)	(Perms)	(grains/h-ft ²)	(Perms)
1A	0.02	0.05	0.05	0.13
2A	0.02	0.04	0.02	0.05
3A	0.01	0.03	0.02	0.04
4A	0.02	0.05	0.02	0.04
4B	0.02	0.05	0.02	0.04
4C	0.01	0.03	0.01	0.03
5A	0.02	0.04	0.02	0.06
6A	0.42	1.03	0.55	1.33
6B	0.02	0.04	0.02	0.05
6D	0.00	0.00	0.00	0.00
7A	0.06	0.13	0.04	0.11
8A	0.02	0.04	0.02	0.04
9A	0.03	0.07	0.03	0.07
9B	0.01	0.03	0.02	0.04
10A	0.02	0.04	0.02	0.05
12A	0.02	0.04	0.02	0.04
13A	0.02	0.04	0.01	0.03
13B	0.03	0.06	0.03	0.07

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Where would a “breathable” underlayment be preferred over an “non-breathable” underlayment?

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The ASTM product standard for synthetic underlayments was finalized just last week...

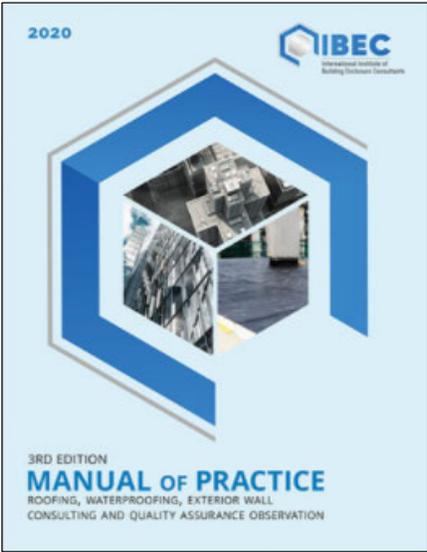
...it will be published in 2021 and it can first be adopted into IBC 2024.

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Recommendation
Synthetic underlayment products
... use synthetic underlayments with caution...

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New IIBEC Manual of Practice



2020 IIBEC International Institute of Building Technicians
3RD EDITION
MANUAL OF PRACTICE
ROOFING, WATERPROOFING, EXTERIOR WALL
CONSULTING AND QUALITY ASSURANCE OBSERVATION

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RESEARCH+TECH

2020

IIBEC

3RD EDITION

MANUAL OF PRACTICE

ROOFING, WEATHERPROOFING, EXTERIOR WALL CONSULTING AND QUALITY ASSURANCE OBSERVATION

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 Envelope Consultants updated its 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 assessors.

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 2009. IIBEC indicates the manual is intended to be a general guide for its members and its use is entirely 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 responsibility, fundamental values, rules of practice and best practices. Information also is provided about IIBEC's registration programs, including

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June 2020

[Link](#)

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NRCA NATIONAL ROOFING CONTRACTORS ASSOCIATION

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Contract provision addresses working with roof consultants and observers

February 25, 2019

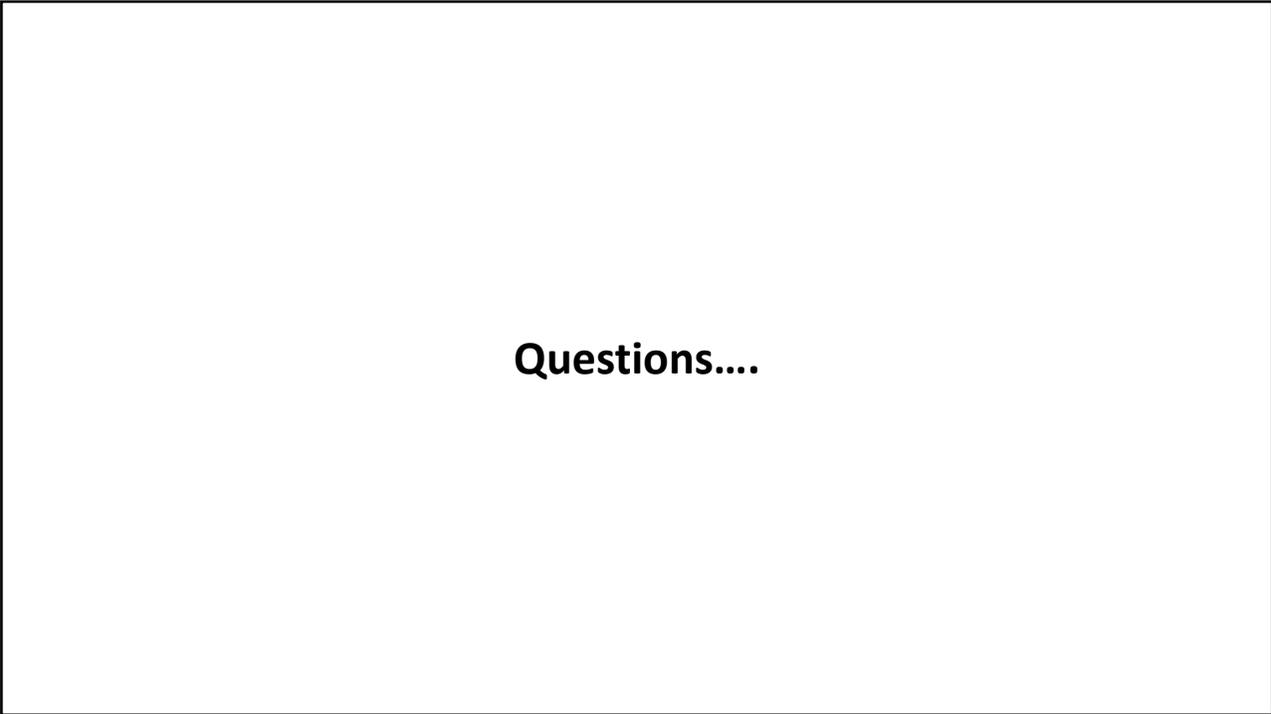
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When pricing a job, some roofing contractors want to know whether there will be a full- or part-time roof inspector on the job monitoring the contractor's work. In addition to asking whether a roof monitor is going to be retained, a roofing contractor 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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Questions....

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Final comments:



- ★ Thank you Mark!
- ★ Presentation slides are available at:
<https://www.coloradoroofing.org/member/education>
- ★ A survey will be sent after the seminar, please take the time to respond. Your feedback helps us plan future webinars and seminars.
- ★ Thank you for staying on the webinar the full time. **Please answer this final poll question to earn your CIUs.** Then, you are free to hop off and end your session.



*Thank you for your membership!
Have a wonderful Holiday Season!*

THANK YOU FOR ATTENDING

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