

VP MIA

Virginia Plumbing and Mechanical Inspectors Association
57th Annual Yearbook



2020 Special Edition

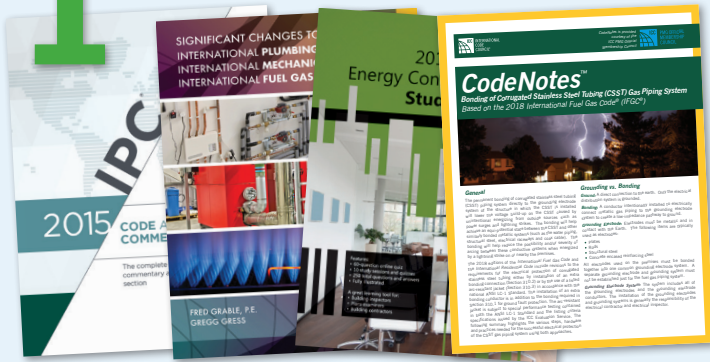


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57th Annual School of Instruction

July 1, 2020

Fellow VPMIA Members,

This year has brought us some incredibly challenging times. The COVID-19 virus has changed our personal and work lives in ways no one could have imagined. Yet, as always, this organization strives to support its members, through strength in leadership, education and unity.

VPMIA's strategy during this period remains to, "advance our mission through training..." In the early stages of the virus, your Board Members acted quickly to implement solutions to keep the VPMIA 2020 School of Instruction (SOI) on schedule, however, with the Governors Executive Order 53, the event had to be canceled. Later, the Board also canceled this year's Summer School of Instruction at Graves Mountain Lodge.

VPMIA's strategy promotes teamwork. Over the summer months, the Board — with agreement that current officers remain in place, will be meeting to formulate the next steps. We expect to fulfill our mission in 2020 and to provide our members with an event sometime this Fall, which will include training opportunities.

In the meantime, you are receiving this yearbook to share a portion of the 2020 SOI experience and as a visual symbol of our pursuits. The technical articles provide valuable information, and you should know that every SOI Advertiser and Exhibitor honored their commitments to support us.

This organization is strong thanks to our members, and your Board is here to assist where we can. We trust that you and your families stay safe during these trying times.

Thank you,

Thomas Clark
President

TABLE OF CONTENTS

From VPMIA's President	— 5
Officers	— 7
VPMIA's Foundation	— 7
Resolutions	— 9
What's New in the 2018 & 2021 International Plumbing Code	— 13
Tabletop Exhibitor List	— 14
Future Energy Code will require all ducts to be leak tested	— 16
Memories from SOI 2019	— 19
Pollution Control Units for Commercial Cooking Systems: Then and Now	— 20
2019/20 Associate Member Roster	— 25
Summer SOI 2019 Photos	— 26
Acknowledgements	— 28
VPMIA Ladies Auxiliary	— 28
Advertiser's Index	— 30



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From the President

It's been a great honor to serve as the VPMIA President this year. I want to thank all the Officers, District Director's, and the Committee Chairs for their hard work and dedication during this past year.

My three-focus areas this year were to find ways to increase membership, provide additional training at the District levels, and to update the Budget. All three areas are essential to keep VPMIA at the forefront of Code Organizations in the State and a leader in the Code Development process with the International Code Council.

As membership continues to age into retirement, we must stay focus on the recruitment of young members. During our membership renewal drive in December, VPMIA sent out a massive email to all the Building Officials in Virginia to inform them of our organization and share our Mission Statement in hopes of bringing in more members. I encourage all our members over the next year to help in the recruitment of at least one new member. During the past year, District 1 held several training classes in Chantilly, VA. on the Energy Codes and the 2015 Code Update training for our industry customers. All the events were very successful, and we hope to continue the training in other Districts. The Budget is still being updated, and we hope to turn over a clean budget for the new officers in 2020.

VPMIA was successful in moving into the world of Social Media, VPMIA now has a Facebook Page, and our followers are growing. Please Like us so you can follow us and see upcoming events, Board of Directors Meetings, news articles, and other training information.

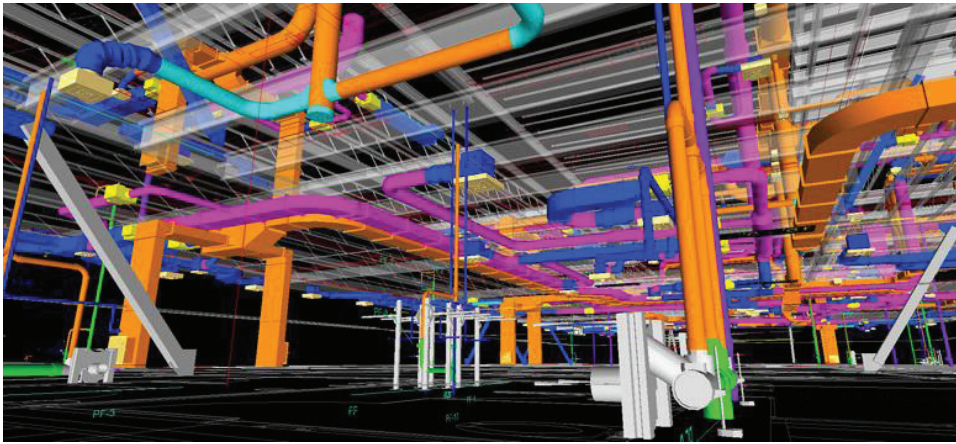
I want to thank DHCD for their continued support of our organization. Their support helps VPMIA to provide scholarships to the ICC Annual Conferences and Code Hearings, among other programs we offer our members. I would like to recognize Cindy Davis, who was voted in this year as ICC Vice Present in Las Vegas, NV.

Over the past year, we lost some key positions in our committees, and I encourage you to volunteer on a committee to help the organization continue to grow and prosper.

As I pass on the gavel to the next President, my wish is that he and the new Officers have a great and successful year and continue to focus on membership and District training. Thank you all for the encouragement and guidance throughout this past year.

Tom Clark
President, VPMIA 2019-2020





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Building Safety Month	Tom Clark
VCEC Conference	Dustin McLehane
VBCOA Liaison	David Beahm

Presidential “Passing of the Gavel” 2019



VPMIA’s Foundation

Mission

VPMIA is an association of code professionals dedicated to promotion of uniform enforcement and development of the codes throughout the Commonwealth to assure the health, safety, and welfare of its citizens and any one who may live, work, or visit the state of Virginia. The pursuit of this endeavor is achieved through close, open, and equal working relationships with

design professionals, builders, contractors, material manufacturer’s and others involved in the construction industry. VPMIA supports the ICC, its goals and mission.



Strategic Plan Mission

VPMIA’s strategic plan is to advance our mission through training in order to promote better understanding of the benefits and efficiency of using model codes. The association promotes teamwork, while embracing fairness and respect to all involved parties, always maintaining open communications in every aspect to those who participate in the process.

Vision Statement

VPMIA members are committed to providing code development leadership and continuous training that results in uniform application of the codes. We look for opportunities to partner with all who are impacted and strive to develop and deliver codes and standards that result in health, safety, and welfare protection for the public.

Gasket Compression, Wall Outlet Sealing System

Full Code Compliant Install

Energy, Mechanical, Building & Residential Codes

2012, 2015, 2018 IECC
C402.5 Air leakage—thermal envelope (Mandatory).

C402.5.1.1 Air barrier construction
Penetrations of the air barrier shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. **Sealing shall allow for expansion and contraction of materials and mechanical vibration.**

R402.4 Air leakage (Mandatory).
The building thermal envelope shall be constructed to limit air leakage.

C402.5.1.2.1 Materials.
Materials with an air permeability not greater than 0.004 cfm/ft²(0.02 L/s·m²)... **when tested in accordance with ASTM E2178 shall comply with this section.**

C402.5.1.2.2 Assemblies.
Assemblies of materials and components with an average air leakage not greater than 0.04 cfm/ft²(0.2 L/s · m²)...**when tested in accordance with ASTM E283 shall comply with this section.**

IMC
305 Piping Support
Supports shall be of approved materials that are compatible with the piping and that will not promote galvanic action.
305.3 Structural attachment.

Removable for Visual Inspection
IMC 1107.7
Visual Inspection Refrigerant pipe joints erected on the premises shall be exposed for visual inspection **prior to being covered or enclosed.**

Removable for Equipment Maintenance



No Tape!

IECC C403.2.10.1, R403.4.1 (2012, 2015, 2018)
Protection of Piping Insulation:
Piping insulation exposed to weather shall be protected from damage, including that due to sunlight, moisture, **EQUIPMENT MAINTENANCE**, wind and shall provide shielding from **SOLAR RADIATION** that can cause degradation of the material.
ADHESIVE TAPE SHALL NOT BE PERMITTED.

Building Code F101.3
Appendix X
Rodent Proofing



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ASTM E283 Air Leakage
ASTM E331 Water Penetration

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ASTM G153 UV, Weatherability
ASTM E96 Vapor Permeability
ASTM E84-UL723 Fire Smoke Performance



Strausbaugh Family:

At times we find ourselves in an impossible situation where there seem to be no right answers.

You try to reason why such a thing has come to pass, however nothing makes sense. Keep your heads to the sky and press on you must.

JH
Memoria



Gage M.
Strausbaugh

Know that in your time of need we are here.
VPMIA offers its' deepest condolences for your loss. Shavn you are a brother among us and we stand ready to offer any support you or your family may need.



Resolution of Respect for Randy Bowman

Whereas, Before his death on May 15, 2020 at the age of 61, Randy Bowman was an Active Member of the Virginia Plumbing and Mechanical Inspectors Association; and

Whereas, Mr. Bowman was the Chairman of the Virginia Plumbing and Mechanical Inspectors Association Awards Committee since 2018; and

Whereas, Mr. Bowman enjoyed a successful career with the County of Fairfax, Virginia as a Residential Combination Inspector then a Cross-Connections Control Inspector; and

Whereas, Mr. Bowman was known by his family and friends to be an honest, compassionate, and generous man; and

Whereas, The Virginia Plumbing and Mechanical Inspectors Association notes with great sadness the passing of Randy Bowman; now, therefore, be it

Resolved, That the Officers, Board of Directors, and the entire membership of the Virginia Plumbing and Mechanical Inspectors Association join the family of Randy Bowman in celebration of his life and offer their heartfelt sympathy for the loss of this cherished family member; and

Resolved Further, That this resolution be published in the 57th Annual Virginia Plumbing and Mechanical Inspectors Association's Yearbook; and

Resolved further, That the Virginia Plumbing and Mechanical Inspectors Association stands in readiness to assist the family of Randy Bowman in any manner desired or requested; and

Resolved further, That this resolution be presented to the family of Randy Bowman in respect and recognition of the many contributions Randy has made to his family, friends, and the code enforcement community.

Adopted this Twenty-sixth day of May, 2020.

Tom Clark, President
Virginia Plumbing and Mechanical Inspectors Association



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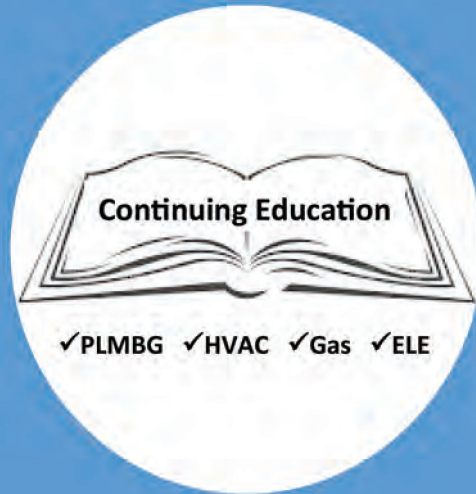
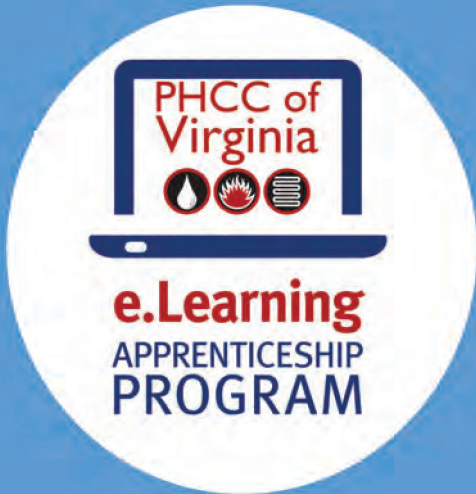
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What's New

in the 2018 & 2021 International Plumbing Code™ (IPC)

By Shawn Strausbaugh
International Code Council (ICC)

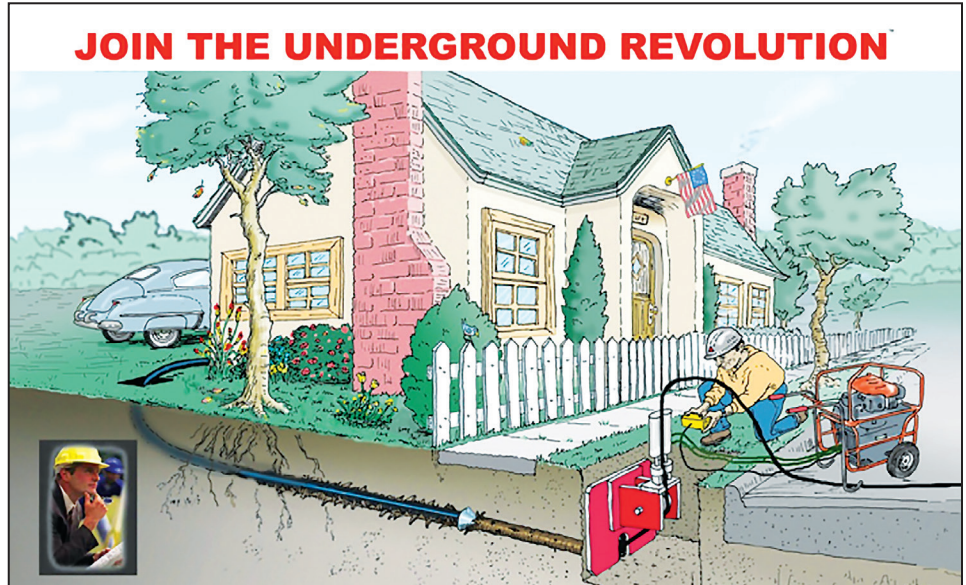
The 2018 International Plumbing Code (IPC) continues to show its “GREEN” as it expands Trenchless Technology coverage to include the replacement of underground building drains. Pipe bursting, as it is commonly referred to, involves the replacement of an old pipeline with a same or larger diameter pipe in a process that destroys the original pipe as the new one is installed. The pipe bursting tool, which is pulled through the sewer by a winch or rod, is located at an upstream opening, forces its way through existing pipe materials by fragmenting the old pipe and compressing the broken pieces into the soil as it progresses from one end to the other.

In developed countries, many post WWII utility lines are at the end of their service life, while at the same time a large percentage of the world's population, between one and two billion people, have substandard sanitation and no regular source of clean drinking water.

In the United States, the topic of failing infrastructure has become a regular theme in the media. The problem is sanitary sewer overflows, caused by inflow and infiltration, which occurs when ground water and other surface drainage enter and inundate sanitary sewer systems. These terms and what they imply are steadily gaining awareness across America and around the world.

The rehabilitation and replacement of an aging sewer infrastructure with the least amount of impact on the consumer is a good thing. This pipe replacement process utilizes HDPE (High Density Polyethylene) seamless piping which is joint-free and prevents root intrusion. A sewer camera is used to do a video inspection to insure that the pipe replacement was done correctly and that the proper grade (slope) of the pipe is obtained.

Let's take a closer look at Section 716 and its requirements. Section 716.2 allows the replacement of building drain and



building sewer pipe by pipe bursting methods to a maximum of six inches and must be no less than the same size as the existing piping. Section 716.3 requires the existing piping sections that are to be replaced to be inspected internally by a recorded video camera survey. The survey shall include notations of the position of the cleanouts and the depth of the connections to the existing piping. Section 716.4 requires the replacement piping to be of HDPE and must have a standard diameter ratio of 17, in compliance with ASTM F 714. The pipe fittings to be connected to the replacement piping must be of HDPE and be in compliance with ASTM D2683. Where the existing building sewer or building drain did not previously have cleanouts, the requirements of this code will require cleanout fittings be installed. The completed replacement piping section must be inspected internally by a recorded video camera survey and then be reviewed and approved by the

code official prior to pressure testing of the replacement piping system. The pressure test must be in accordance with Section 312 of the IPC.

Now let's fast forward to the 2021 IPC that is currently available for "pre-order" and will be shipped out in March 2020.

New provisions for additional forms



of Trenchless Technology have also been incorporated into new Sections 717 & 718 of the IPC. These new Trenchless Technologies are the relining of building sewers and building drains, or sectional cured-in-place rehabilitation systems.

Continued on page 14

2020 Exhibitors

- AB&I Foundry
- Airex Manufacturing
- Charlotte Pipe & Foundry Company
- Daikin
- Gastite
- Harry Eklof & Associates
- ICC
- NSF International
- Otto Sales
- RMI
- The Joyce Agency



What's new, continued from page 13

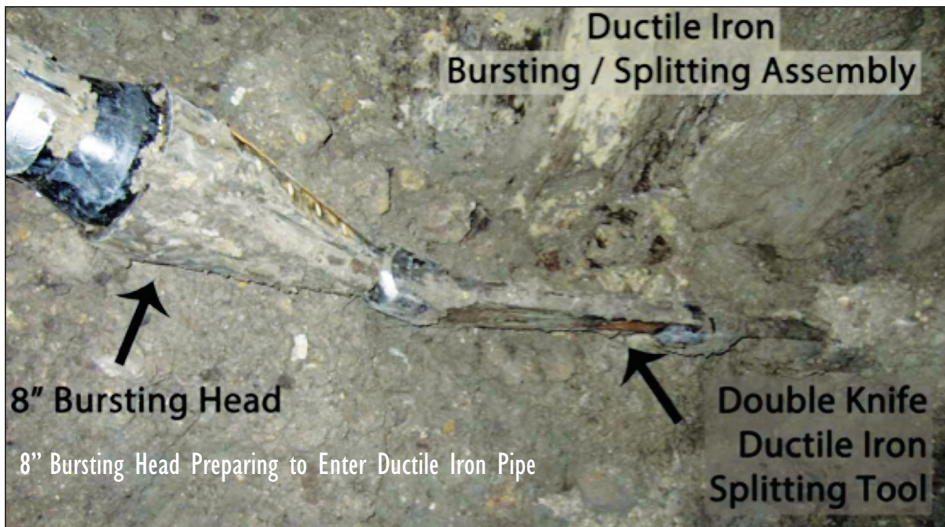
You will find many of the same requirements for the pipe relining or sectional cured-in-place systems as you found for pipe bursting. A pre-installation video inspection and a post-installation video inspection is required along with a certification by the permit holder that the materials have been installed in confor-

in-place systems and their connection to the main sewer pipe must be in accordance with ASTM F2561. Further, hydrophilic rings or gaskets used for cured-in-place rehabilitation systems must conform to ASTM F3240, so that water tightness is verified to eliminate the infiltration of ground water.

and more. The environmental benefits of Trenchless Technology will be attractive to those jurisdictions that will be adopting the International Plumbing Code. Current research shows that CO2 emissions are reduced when trenchless methods are used versus open-cut. This translates to a direct-cost benefit for cities that are facing carbon taxation.

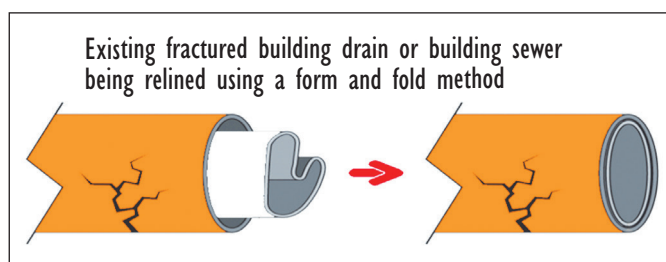
Yes, Trenchless Technology saves time, money, and minimizes restoration cost. The IPC again leads the way with new innovative technology.

VPMIA continues to be a leading ICC PMG Chapter in the ICC code development process. A special thanks goes out to the VPMIA code change committee that played a key role in advancing the highlighted building drain and building sewer relining and rehabilitation systems into the 2021 IPC. With that, I say THANK YOU to the VPMIA membership on behalf of the International Code Council and we look forward to VPMIA's continued work to make the International Codes stronger and more resilient.



mance with the manufacturer's installation instructions, the applicable standard, and this code. Relining systems are only applicable to gravity drainage building drains or building sewers of 4" diameter and larger and the relined piping must be of the same nominal size as the existing piping. Fold and form relining systems must comply with ASTM F1504 or ASTM F1871. Sectional cured-in-place rehabilitation systems are to be installed in accordance with ASTM F2599. Main and lateral cured-

These expanded requirements will give contractors and engineers the necessary tools to do the job while still being environmentally friendly, and "GREEN" by reducing negative impacts to property and infrastructures. They will eliminate cost associated with the replacement of landscaping, trees, driveways, sidewalks, patios



About the author:

Shawn Strausbaugh, Director of PMG Technical Resources for the International Code Council's Government Relation Department, joined the ICC team in March of 2018 however brings over 23 years of experience as a Code Official with municipalities in both Virginia and Pennsylvania which included inspections, plan review, and administrative duties. Shawn holds numerous ICC Certifications in not only PMG related disciplines, but also building, energy, and accessibility. Shawn is also a Master Plumber which was gained when completing his apprenticeship and journeyman status while being employed in PA.

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FUTURE ENERGY CODE WILL REQUIRE ALL DUCTS TO BE LEAK TESTED

BACKGROUND

During recent code change hearings for the 2021 edition of the International Energy Conservation Code (IECC), a proposal was approved by the ICC membership that will require leak testing for ducts located within the thermal envelope. Previous editions, including the current 2018 edition, have exempted such testing for those locations. The new requirement is shown below as underlined.

R403.3.4 (IRC N1103.3.4) Duct leakage (Prescriptive).

The total leakage of the ducts, where measured in accordance with Section R403.3.3, shall be as follows:

1. Rough-in test: The total leakage shall be less than or equal to 4 cfm per 100 square feet of conditioned floor area where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3 cfm per 100 square feet of conditioned floor area.

2. Post-construction test: Total leakage shall be less than or equal to 4 cfm per 100 square feet of conditioned floor area.

3. Test for ducts within thermal envelope: Where all ducts and air handlers are located entirely within the building thermal envelope, total leakage shall be less than or equal to 8 cfm per 100 square feet of conditioned floor area.

The above proposal was submitted by a variety of energy advocacy groups, such as Energy-Efficient Codes Coalition, The Alliance to Save Energy, and the American Council for an Energy Efficient Economy. The proponents pointed out that duct leakage rates can be extremely high when ducts are not tested.

TESTING METHODS

In order to meet the above criteria for leakage, the IECC specifies pressure testing by one of the following methods:

Rough-in test: Total leakage is measured with a pressure differential of 0.10 inches water column (iw) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. Registers are taped or otherwise sealed during the test.

Post-construction test: Total leakage is measured with a pressure differential of 0.10 iw across the entire system, including the manufacturer's air handler enclosure. Registers are also taped or otherwise sealed during the test.

A basic duct leakage testing system includes three components: a calibrated fan, a register sealing system, and a device to measure fan flow and building pressure. Supply registers and return air grilles are sealed using adhesive tapes, non-adhesive reusable seals, or other approved materials (Figure 1). Typically, the primary return is left unsealed, and the calibrated fan is connected to it. Alternatively, all return grille(s) and supply outlets can be sealed, and the fan can be connected to the indoor

unit cabinet (furnace or fan coil), (Figure 2).

After the system is set up, the calibrated fan delivers air into the system and the pressure is monitored in one of the branches of the ductwork. As air is delivered into the ductwork, pressure builds and forces air out of all of the openings in the various ductwork connections, or through the seams and joints of the furnace or air-conditioner. The tighter the ductwork system (e.g. fewer holes), the less air is needed from the fan to create a change in the ductwork pressure. Ducts are pressurized to 25 pascals of pressure, which is equivalent to 0.10 iw.



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A duct leakage test can be performed by either pressurizing or depressurizing the ductwork. Duct tester airtightness measurements are usually shown as air flow, cubic feet per minute (CFM), while the system is pressurized to 25 pascals; it is expressed as CFM25. CFM25 has been broadly accepted as the common metric, and is the measurement used in code references.

HOW IS IT VERIFIED?

The IECC requires a written report of the test results and the report shall be signed by the party conducting the test and provided to the code official. For more information, the following link will direct you to the U.S. DOE webpage on “Duct Testing in New Residential Construction - Code Notes.”

<https://www.energycodes.gov/duct-testing-new-residential-construction-code-notes>

A NEW BURDEN?

Previously, the IECC had an exemption for ducts in the thermal envelope, so it would seem that the new requirement would create a heavy burden for homebuilders. However, many homes that seek to demonstrate compliance to the IECC follow the Energy Rating Index (ERI) compliance path. They employ a HERS Rater to calculate the ERI score. For duct systems in the thermal envelope, a duct leakage to the

outside was performed. This test used the blower door and the duct leakage testing equipment. Since the blower door is already set up to measure envelope leakage, and the duct leakage testing equipment was used to measure leakage to the outside, testing total duct leakage testing adds only a few minutes to the job.

It should be noted that the new requirement described earlier will appear in the IECC and Chapter 11, Energy Efficiency, of the 2021 Edition of the International Residential Code (IRC). The purpose of Chapter 11 is to provide minimum design requirements that will promote efficient use of energy in buildings. **Duct leakage testing is not a requirement in IRC Chapter 16, Duct Systems**, which covers materials, construction, installation, insulation, sealing, and other duct system components.

About the author:

David C. Bixby serves as ACCA's Codes Manager; he monitors code development activities and interacts with ICC and other code bodies. He is secretary for the ACCA Codes Subcommittee and provides support in the development of ACCA standards. David has over 30 years' experience in the HVAC industry, working for various trade associations and manufacturers where he participated in development of ICC codes, ASHRAE standards, and DOE regulations.



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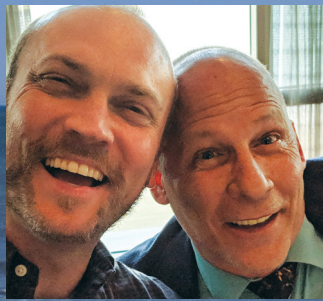
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Memories from SOI 2019



Pollution Control Units for Commercial Cooking Systems: Then and Now

Pollution control units (PCUs) have an interesting history in the commercial cooking industry. They were developed many years ago to help meet the needs of challenging termination locations for commercial kitchen exhaust and to help improve environmental air quality.

PCUs are installed directly into a commercial kitchen exhaust system. Their primary functions are to reduce emission impurities such as grease and smoke and to control odors associated with commercial cooking operations. PCU design is based on both the appliances it will serve and the desired air quality for the final exhaust. Over the years, PCUs have been referred to as exhaust filtration systems, air filtration systems and air purification systems for commercial cooking operations.

PCUs typically consist of a filter bank that can perform varying functions to reduce unwanted emissions. The filters may be electrostatic precipitators, metal mesh, media types and may include disposable filters. The units typically have built-in static pressure sensors with monitoring to identify when airflow has been compromised because of filter loading or other system malfunction.

Depending on location and climate, PCUs can be factory fitted with internal fire suppression and cleaning or wash sys-

tems. The kitchen exhaust fans can be located completely independent of the PCU or incorporated directly into a PCU housing. When incorporated outside of the PCU housing, the fans are evaluated and certified separately. PCUs can be installed indoors or outdoors, depending on their design and certification.

Originally, manufacturers worked with UL to establish certification requirements for PCU operations and performance to deliver at least the same level of safety as the kitchen exhaust systems in which they are installed. The applicable requirements from UL 710, the Standard for Safety of Exhaust Hoods for Commercial Cooking Equipment, and UL 1978, Standard for Safety of Grease Ducts, were applied to enable listed units to become available in the marketplace.

PCU plan review and inspection

As this industry evolved over time, there has been widespread demand for improved air quality. Previously, PCUs and their components were evaluated and certified to several different standards, leading to the realization that a single standard dedicated to this specialized technology was needed. In response, UL

developed UL 8782, the Outline of Investigation for Pollution Control Units for Commercial Cooking, to more effectively meet user needs as well as address the diversity of PCU installation and use.

The 2018 edition of the International Mechanical Code (IMC) has incorporated requirements for PCUs that include comprehensive installation criteria. The 2018 Uniform Mechanical Code (UMC) also permits the installation of listed PCUs. Finally, 2017 NFPA 96 contains PCU provisions.

With the popularity of town center-type construction (co-mingled residential and commercial occupancies in the same structure and building footprint), the options for kitchen exhaust terminations are often limited. In addition, many cities and localities are enacting more stringent air quality control measures. If a jurisdiction has not yet adopted a current edition of model mechanical regulations, they may be of great value when evaluating a code modification request for alternate materials and methods to enable use of a PCU.

The model codes and standards, along with UL certification criteria, reference the use of the manufacturer's installation instructions. In addition, the 2018 IMC has prescribed 15 specific installation re-

Continued on page 22

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quirements pertaining to PCUs. Below is a suggested checklist for code officials performing plan reviews and inspections

for commercial cooking systems that include a PCU. The checklist includes items that have been updated for the

2021 IMC (noted with the designation **2021 IMC**); specific UMC and NFPA 96 provisions are mentioned as well.

Inspection and plan review PCU checklist

- **2021 IMC** replaces the reference to UL 1978 with UL 8782.
- The exhaust fan serving the system must be listed to UL 762.
- Refer to the building code for structural mounting guidance.
 - **2021 IMC** includes more specificity on the mounting requirements including seismic provisions.
- Where an extra-heavy-duty appliance is intended to be exhausted through a PCU, the PCU shall be listed and designed specifically for use with solid fuel burning appliances. Indoor and outdoor PCUs must be listed for the intended location.
- Outdoor units installed on a roof must be at least 18 inches above the roof surface. A challenging aspect of an indoor PCU installation is to ensure availability of a code compliant installation location. If the grease duct system is required to be located in a fire-resistant rated enclosure, the PCU must also be located in a space that meets the same rating. Bear in mind that the unit requires access and service space for cleaning and maintenance and the space must have ventilation for the PCU.
 - **2021 IMC** has added requirements for listing to UL 2221 and ASTM E2336 to determine that an enclosure's fire resistance rating and through-penetration methods are consistent with the grease duct requirements.

- A clearance of 18 inches from combustible material to the PCU is required.
 - **2021 IMC** requires that clearances be maintained in accordance with the PCU listing.
- Exhaust terminations are required to meet the same requirements as traditional commercial kitchen exhaust.
- An airflow pressure differential sensor must be installed in the filter space to indicate pressure loss across the filters. An alarm located in the cooking area served by the PCU must be activated when inadequate airflow is detected.
- PCUs must have a fire suppression system and the water supply protected from freezing.
 - The **UMC and NFPA 96** require that the ductwork downstream of the PCU include an approved automatic fire-extinguishing system.
- Duct-to-PCU connections must be made with bolt-on flanges with gaskets rated for not less than 1500°F (816°C).
- If a wash down system is provided:
 - It must discharge through a grease interceptor. There are additional requirements for the drain to prevent air emission during unit operation and evaporation between cleanings.
 - The water supply serving the wash down system must be protected from freezing.

- Where water from the wash down system can enter the connecting duct(s), the duct(s) must be installed to slope towards the PCU drain provided in the housing.

UL certification requirements and certified PCUs can be found in the UL product category for Pollution Control Units for Commercial Cooking (YZHK). Additional guide Information about this category can be found by using our **Product iQ™ search tool**. Product iQ™ is free, but a one-time registration is required.

UL is currently working with manufacturers to determine that their products will comply with these new requirements by April 30, 2020. UL Listed products manufactured after this date will be assessed for compliance to the UL Outline of Investigation for Pollution Control Units, UL 8782.

For more information, please contact ULRegulatoryServices@ul.com.

About the author:

Guy Tomberlin is currently a Sr. Regulatory Engineer with Underwriters Laboratories (UL). He is a retired code official from Fairfax County, VA, where he served within the building Department for more than 34 years. He started as a plumbing inspector in 1985 and his last position was Chief of the Commercial and Residential Inspections Branch. He has instructed code courses in VA and across the country for the International Code Council for more than 30 years. He holds several ICC certifications in plan review and inspections, including Certified Building Official. Guy is also a past president and honorary member of the International Code Council, and past president and Lifetime Member of VPMIA.

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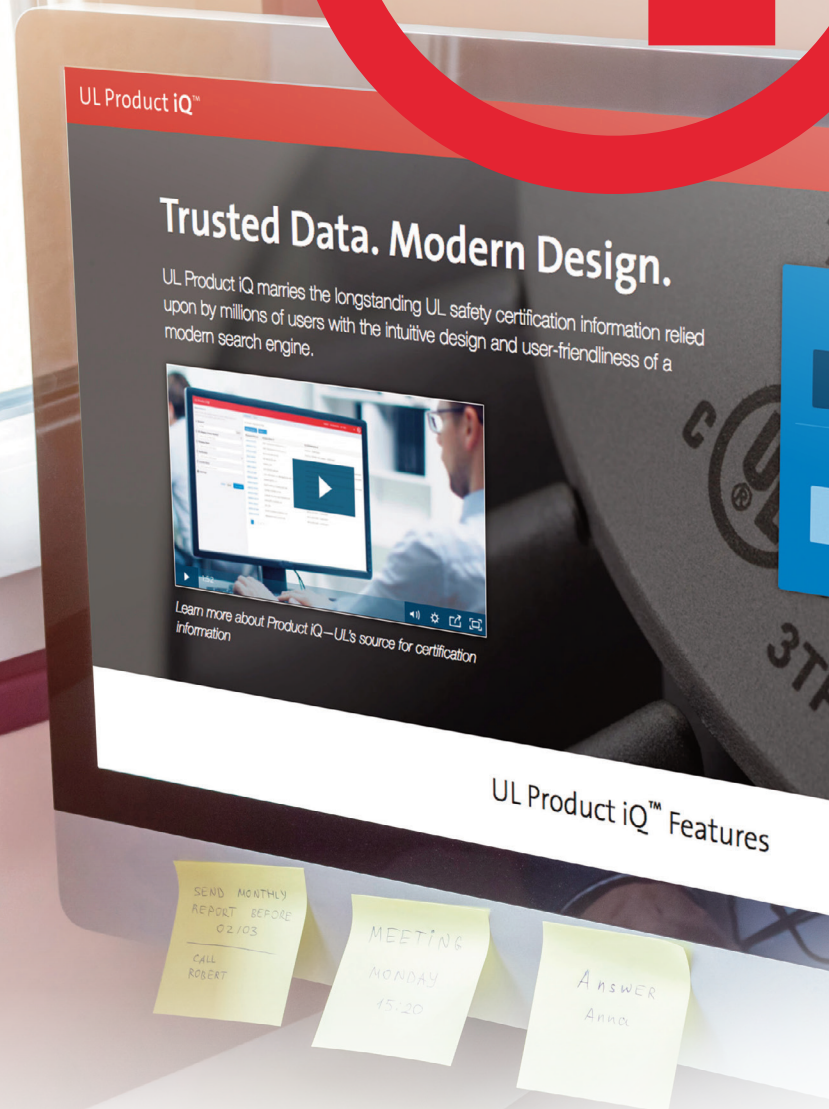


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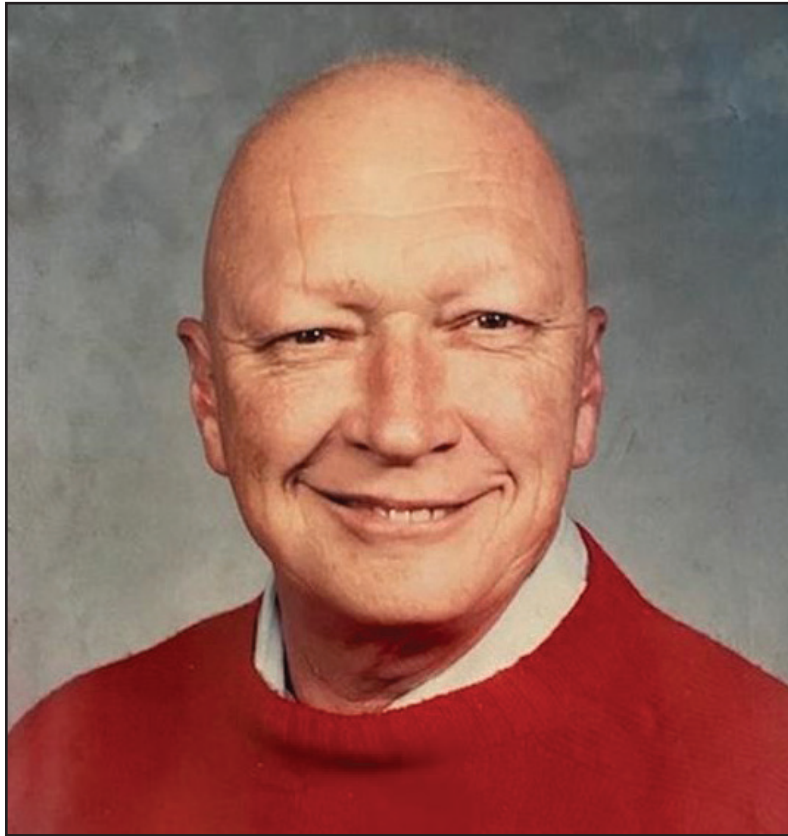
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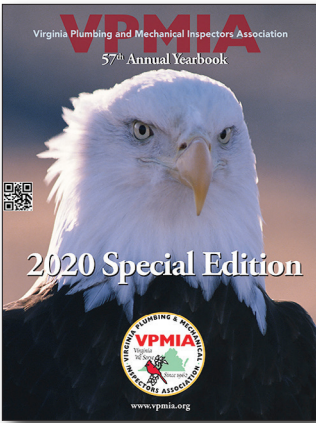


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Acknowledgments

Many of us could probably offer a good caption for the photo on this year's cover; it has been quite a year so far. This Yearbook comes to you without the benefit of a physical meeting, but it does present what VPMIA is all about in promoting strength through leadership, education and unity. Please join us in acknowledging the advertisers listed on page 30 for their contributions. Also, please recognize the exhibitors' contributions in spite of our cancelled event (listed on page 14).

The Advertising and Yearbook Committee gratefully acknowledges the technical article contributions of David C. Bixby of ACCA, Shawn Strausbaugh of ICC, and of Guy Tomberlin of Underwriters Laboratories LLC. Thank you to Vic Hines, Ron Bladen, Jane Fitzgerald, and Doyle Printing for your work on this 2020 Yearbook.

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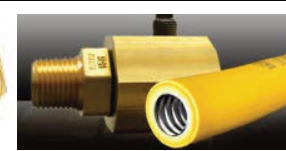
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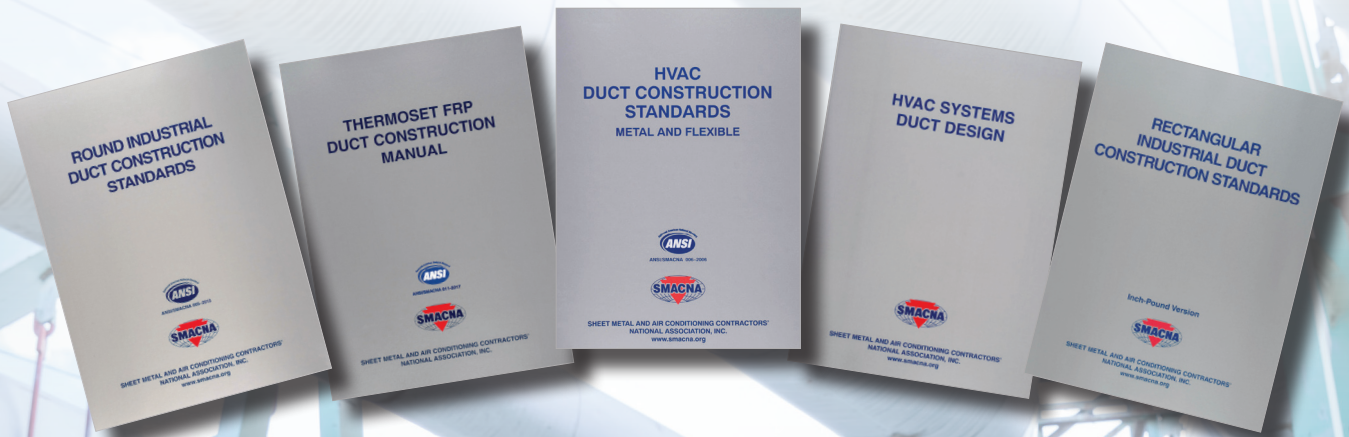
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The image shows a detailed HVAC review form from ACCA. The form is titled 'Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)'. It includes sections for 'Header Information' (Contractor, Mechanical License #, Building Plan #, Home Address), 'REQUIRED ATTACHMENTS' (Manual J, Manual D, Manual S, Friction Rate Worksheet, Duct distribution system sketch), and 'Design Conditions' (Winter and Summer design conditions). Other sections include 'Building Construction Information' (Orientation, Bedrooms, Floor Area, Occupants, Windows), 'HVAC EQUIPMENT SELECTION' (Heating and Cooling equipment data), and 'HVAC DUCT DISTRIBUTION SYSTEM DESIGN' (Design airflow, Static Pressures, Friction Rate). The form also has a signature line for the contractor and a date field.



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