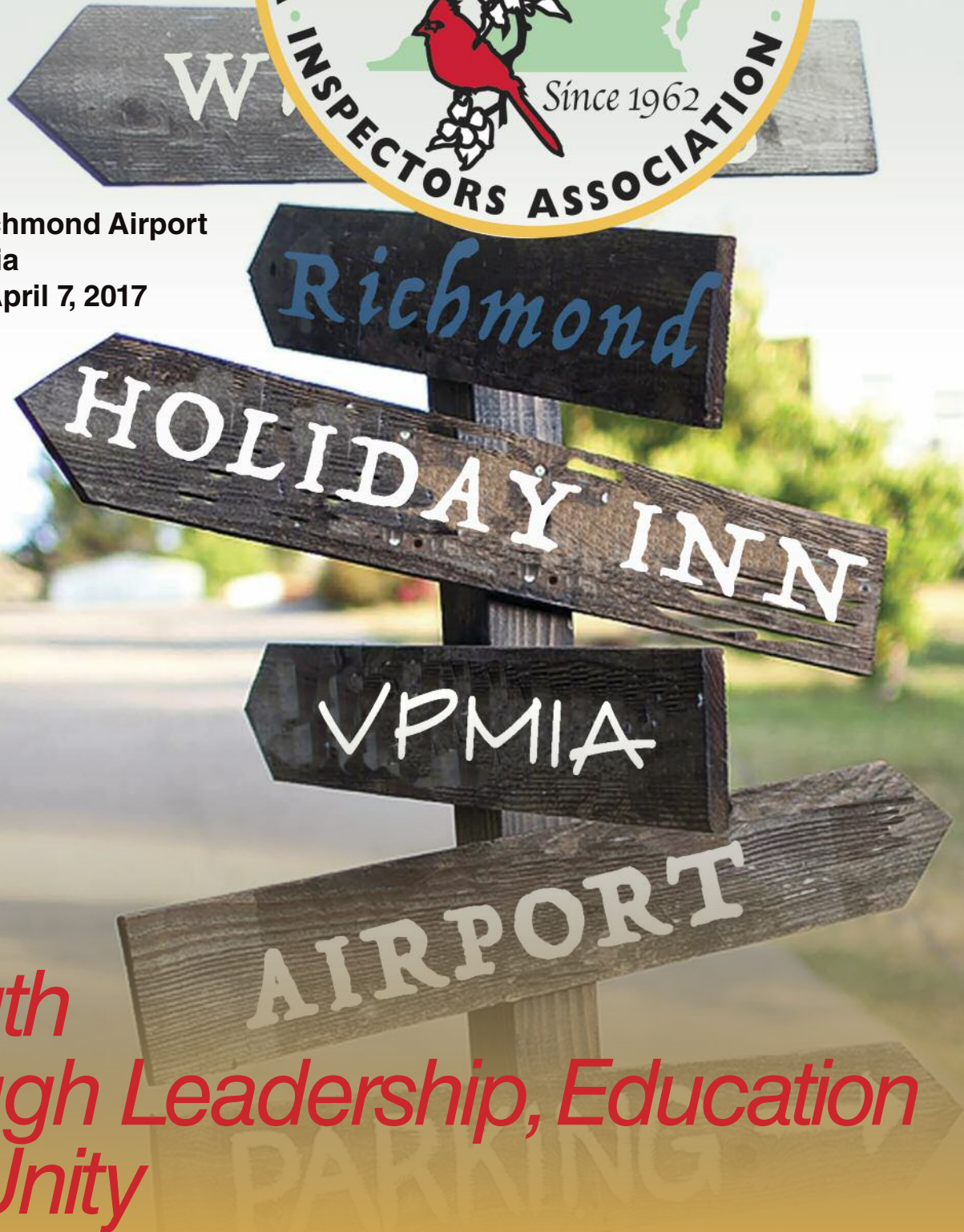


Virginia Plumbing and Mechanical  
Inspectors Association

# 54<sup>th</sup> Annual School of Instruction



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April 5 through April 7, 2017



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## From the President

# Greetings and welcome

to the

## Virginia Plumbing and Mechanical Inspectors Association's 54<sup>th</sup> Annual School of Instruction (SOI)

It has been my pleasure and honor to serve as the VPMIA president this past year. We have a fantastic group of members and gracious volunteers that provide their time and energy to the mission and goals of VPMIA. I am truly grateful for their participation.

This organization has been active in providing training and public education in Virginia communities since 1962, and active in code development since the days of the legacy codes. VPMIA has seen its share of people come and go. This year we had 23 new code professionals sign up for membership and two new contractors sign up for associate membership. In turn, we had as many retire their memberships. This trend provides VPMIA with the unique ability to honor its veterans and to move fresh minds in key committee roles to harvest new ideas for the organizational future.

**How do we continue to grow?** We each have a role in keeping VPMIA vital in the code enforcement arena. The challenge is individual and collective in a group with over 300 members to not become comfortable with the status quo, and participation is key. This past year did not see enough newer, younger members taking on organizational duties that move us forward, although these positions many times lead to personal "next steps." Our committees have not experienced the increase in members that would strengthen them, and there have only been two new Chairpersons that joined the old guard. Let's reverse this trend now for collective and personal growth. VPMIA is at its strongest when members take on opportunities that could greatly benefit the organization, and themselves as well. This proved true in my own experience and it can prove true for any member.

When I was sworn in as the VPMIA president last year, my platform was one to reach out to the code professional millennials in Virginia and present to them what this organization has to offer them. I shared my own experience with joining and participating in the PMG Code Development Committee; how, through VPMIA's mentoring support as well as their financial support, I was able to gain knowledge and experience in the codes that I read, interpret and enforce daily that would otherwise never have been available or achieved. That experience enabled me in becoming one of the top subject matter experts in my locality. This is an example of what VPMIA has to offer our members.

As I now pass the gavel to the next leader, I encourage our members, and our committees, to strengthen and grow through member participation. I want our members to receive the experience and opportunities that have been afforded to me throughout the years of my membership. I want to challenge our members to seek out opportunities within VPMIA and take advantage of the opportunities VPMIA has to offer you. I want to challenge our current committee Chairs to find and recruit members into their respective committees, and just as challenging, find and recruit a successor. Let's switch up this organization with fresh, new minds and allow our veterans to mentor these individuals that will take us into the next generation of code experts.

Please feel free to contact me if you have any questions, need information about VPMIA, or simply wish to bounce code related issues off of me. My information remains current on our website.

Thank you all.

**Richard Grace**

VPMIA President, 2016–2017



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## Agenda

# VPMIA 54<sup>th</sup> Annual School of Instruction

April 5-7, 2017

Holiday Inn Richmond Airport, 445 International Center Dr, Richmond, VA, 23150

## Wednesday April 5th

- 7:00 - 8:15 a.m. **Registration**
- 8:30 - 10:00 a.m. **Testing of combustible piping products for application in return air plenum spaces**
- 10:00 - 10:30 a.m. **Break**
- 10:30 - Noon **Rainwater Harvesting**
- Noon - 1:00 p.m. **Lunch** *(included with registration)*
- 1:00 - 2:30 p.m. **Changing the CSST Rules**
- 2:30 - 3:00 p.m. **Break**
- 3:00 - 4:30 p.m. **Hilti Firestop Systems**
- 5:00 - 6:00 p.m. **Presidents Welcome**
- 6:00 - 7:30 p.m. **Dinner** *(included with registration)*

## Thursday April 6th

- 8:30 - 10:00 a.m. **2015 IMC Design, Installation and Inspection Principles**
- 10:00 - 10:30 a.m. **Break**
- 10:30 - Noon **2015 IMC Design, Installation and Inspection Principles, cont'd.**
- Noon - 12:15 p.m. **VPMIA General Membership Meeting Part 1**
- Noon - 1:00 p.m. **Lunch** *(included with registration)*
- 1:00 - 2:30 p.m. **2015 IMC Design, Installation and Inspection Principles, cont'd.**
- 2:30 - 3:00 p.m. **Break**
- 3:00 - 4:30 p.m. **2015 IMC Design, Installation and Inspection Principles, cont'd.**
- 6:30 - 10:00 p.m. **Banquet** *(included with registration)*

## Friday April 7th

- 8:00 - 9:00 a.m. **Breakfast Buffet** *(included with registration)*
- 9:00 - Noon **General Membership Meeting Part 2**

Visit [www.vpmia.org](http://www.vpmia.org) for School of Instruction information

*Pictures contained on pages 4 and 5 are from our 2016 Annual SOI*



## VPMIA's Foundation

### 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.

### 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.



## VPMIA Officers 2016-2017

### OFFICERS

President  
Vice President  
Secretary  
Treasurer  
Executive Secretary  
Immediate Past President

Richard Grace  
Dustin McLehane  
James Anjam  
Tom Clark  
Christopher Martin  
Skip Harper

### DIRECTORS

District 1 Director  
District 2 Director  
District 3 Director  
District 4 Director

Anthony McMahan  
William "Bill" Aldridge  
Donald Mimms  
Randy Pearce

### COMMITTEE CHAIRS

Advertising/Yearbook  
Auditing/Finance  
Awards  
Bylaws  
Certification/Education  
Information Technology  
Legislative  
Membership  
Nominating  
Plumbing /Mechanical/Fuel Gas  
School of Instruction  
Time/Place

William "Bill" Aldridge  
Dustin McLehane  
Johnny Vannoy  
Dustin McLehane  
Skip Harper  
Skip Harper  
Ronald Clements  
Christopher Martin  
Skip Harper  
Tom Clark and  
Chet Reynolds  
Bob Adkins  
Bob Adkins

### AD HOC COMMITTEE CHAIRS

BCAAC  
Building Safety Month  
VCEC Conference  
VBCOA Liaison

Randy Pearce  
William "Bill" Aldridge  
Dustin McLehane  
Skip Harper





# CONNECTS

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## **www.vpmia.org**

Your resource for trade news, information on upcoming events, membership and registration forms, archives, and current membership data.

## **Schools of Instruction —**

DHCD-approved classes, trade-based lectures on current hot topics, opportunities to network with other code officials and industry representatives.

## **Membership benefits —**

Reduced-cost education, a voice in international plumbing, mechanical, and fuel gas code changes, and being part of a respected, Virginia group with a commitment to excellence.

## **Leadership opportunities —**

Become a certified instructor; serve on a Committee, or as an Officer or Board member.

***Connect with VPMIA today.***

**Get your tools now. You can download the membership application from [www.vpmia.org](http://www.vpmia.org).**

**Strategic Goal # 1**  
**Enhance and increase communications of VPMIA with the public**

(Communications)

**Initiative action:**

- Actively promote a positive image of code enforcement's role in the community.
- Advertisements in trade, industry, state DHCD, and community publications.
- Commitment to code development to achieve the superior level of health, safety, and welfare for our citizens.

**Strategic Goal # 2**  
**Increase and expand education**

(Training – Communications)

**Initiative action:**

- Encourage increased participation from all interested parties who interact with any and all aspects of code enforcement.
- Increase awareness of the educational benefits of the association.
- Promote credentialing programs provided by the state DHCD.

**Strategic Goal # 3**  
**Uphold the highest levels of professionalism**

(Leadership – Professionalism)

**Initiative action:**

- Instill and promote leadership values.
- Always display integrity.
- Adherence to code of ethics.
- Share knowledge at all levels.
- Maintain and promote certifications.
- Respect others.

**Strategic Goal # 4**  
**Promote relationships with industry and related professional organizations**

(Cooperation)

**Initiative action:**

- Participate in the code development process.
- Encourage cooperative working relationships with construction-industry professionals.
- Become involved as active or associate members to other professional organizations such as VBCOA, ICC, IAEI, and PMPV.
- Solicit speakers and provide speakers for these organizations to enhance communication.
- Continue to actively participate in DHCD towards uniform application and development of the model building codes and standards.

**Strategic Goal # 5**  
**Broaden and expand VPMIA Membership** (Membership)

**Initiative action:**

- Develop information package of the organization benefits.
- Provide more member services.
- Develop a more wide spread advertisement program for membership, including associate members.

**Strategic Goal # 6**  
**Continue leadership and participation in code development process**

(Leadership – Code Development)

**Initiative action:**

- Enhance and develop strategies for participation in International Code Council Code developmental process.
- Encourage participation on state and national committees.
- Provide financial support towards member participation in these activities.

**Strategic Goal # 7**  
**Promote the adoption of the International Code Council family of model codes**

(Communications – Training)

**Initiative action:**

- Provide analysis and impact of benefits for industry, where necessary.
- Provide training for code enforcement officials and industry.
- Interact with DHCD to provide uniform enforcement of model codes.

**Strategic Goal # 8**  
**Ensuring financial viability of VPMIA**

**Initiative action:**

- Align financial resources to organizational outcomes.
- Achieve goal objectives.
- Operate within budgeted plan.

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# Complying with Residential Ventilation Requirements

per ASHRAE Standard  
62.2–2016

**ANSI/ASHRAE 62.2** (*Ventilation and Acceptable Indoor Air Quality in Residential Buildings*) is on continuous maintenance with interim addendums periodically released; the whole standard is published every three years.

In the latest 2016 publication, ASHRAE made major modifications to 62.2. The title was changed to “Ventilation and Acceptable Indoor Air Quality in Residential Buildings.” This added multi-family buildings of all heights to the scope. Additionally, unvented space heaters as a source of contamination were also added to the scope. The separate section on multi-family homes was merged with the single-family home section, thus removing conflicting requirements. Seventeen interim addendums have been incorporated, to include:

- **Addendum b:** a minimum calculated ventilation rate greater than 15 CFM now requires the use of a mechanical system in an existing home.
- **Addendum c:** that separates requirements for range hoods and other kitchen ventilation methods.
- **Addendum j:** that provides a method for determining infiltration credit for horizontally attached dwellings.
- **Addendum v:** to address strategies for intermittent ventilation systems.

The 2016 updated ASHRAE Standard 62.2 is divided into eight sections. Sections 1-3 contain the Purpose, Scope, and Definitions. The actual requirements start at Section 4:

4. Dwelling-Unit Ventilation
5. Local Exhaust
6. Other Requirements
7. Air-Moving Equipment
8. Climate Data

ASHRAE 62.2–2016 requires upgrading to MERV 6 filters, sealing ducts in unoccupied space, sealing the building’s envelope, adding ventilation openings to bathrooms, and adding ventilation to utility rooms. ASHRAE 62.2–2016’s Appendix A provides some advantages and disadvantages for commonly used compliance strategies.

Appendix C (new) in ASHRAE 62.2–2016 allows for more flexibility for automated designs. This automated system design flexibility allows contractors to

vary fan operation times, air volumes, outdoor air temperatures, with occupant loads. Additionally, Table 1 values were merged and are the same for single and multi-family dwellings; the formula method has remained unchanged.

## The Table Method (See Table 1)

For estimation purposes, or for basic residential Outdoor Air (OA) requirements, Table 1 can be used to determine the CFM required for all residential applications with 5 bedrooms or less that are 5,000 ft<sup>2</sup> or smaller. Using the table method, a two-bedroom house with a 1,525 ft<sup>2</sup> conditioned floor area would require 83 CFM OA for a 3 occupant rating. As per ASHRAE 62.2, when using Table 1, the values provided are for 2 persons in a studio (or in a one-bedroom), and if the number of occupants is known, and greater than the table values, the additional occupants must be accounted for by adding 7.5 CFM per additional person to the table value.

## The Formula Method

This method may be used on any size of home with any known occupancy. Calculating the quantity of outside air needed for compliance is based on a relatively simple formula that multiplies 3% of the conditioned floor area, and adds it to the number of occupants multiplied by 7.5. When unknown, the number of occupants for residential applications used in the formula is generally the number of bedrooms plus 1 with a one-bedroom minimum allowed (or 2 people). The formula is:

$$Q_{\text{tot}} = 0.03 A_{\text{floor}} + 7.5 \times (N_{\text{br}} + 1)$$

Where:

$Q_{\text{tot}}$  = Total required ventilation rate in cubic feet per minute (CFM)

$A_{\text{floor}}$  = Floor area in square feet

$N_{\text{br}}$  = Number of bedrooms. Not to be less than one; used to estimate the number of occupants for design purposes.

Note: When AHJ rules requires a different  $Q_{\text{tot}}$  value, that value must be used.

Sample calculation:

Using the same 1,525 ft<sup>2</sup> two-bedroom house that was used in the Table Scenario above, OA would be calculated as follows:

$$OA_{\text{cfm}} = 0.03 (1525) + [7.5 \times (2 + 1)] = 68.25 \text{ CFM}$$

**Table 1: Ventilation CFM Required**

Adapted from ASHRAE Standard 62.2–2016 (for all Residences)

| Floor Area ft <sup>2</sup> | Ventilation Air Requirements in CFM |     |     |     |     |
|----------------------------|-------------------------------------|-----|-----|-----|-----|
|                            | Number of Bedrooms                  |     |     |     |     |
|                            | 1                                   | 2   | 3   | 4   | 5   |
| Less Than 500              | 30                                  | 38  | 45  | 53  | 60  |
| 501-1000                   | 45                                  | 53  | 60  | 68  | 75  |
| 1001-1500                  | 60                                  | 68  | 75  | 83  | 90  |
| 1501-2000                  | 75                                  | 83  | 90  | 98  | 105 |
| 2001-2500                  | 90                                  | 98  | 105 | 113 | 120 |
| 2501-3000                  | 105                                 | 113 | 120 | 128 | 135 |
| 3001-3500                  | 120                                 | 128 | 135 | 143 | 150 |
| 3501-4000                  | 135                                 | 143 | 150 | 158 | 165 |
| 4001-4500                  | 150                                 | 158 | 165 | 173 | 180 |
| 4501-5000                  | 165                                 | 173 | 180 | 188 | 195 |

**ACCA Members** (see *Sidebar*) can download Technical Bulletin 2016-3 at: <http://www.acca.org/members/downloads> for a more complete update; a similar technical bulletin on 62.2–2013 is also available. Or, listen to the ACCA Town Hall archived video, *ASHRAE’s Residential Ventilation Requirements* (dated: 8 Sep 2016) in the HVACR Technical Issues archives section at: <http://www.acca.org/members/videos>.

**Free Information on the ACCA Design Process:** At its website – [www.acca.org/standards/codes](http://www.acca.org/standards/codes) – ACCA makes information available to help code officials understand about HVAC code requirements. Free information includes:

- Listing of ACCA standards specifically referenced in the 2012 and 2015 building codes and the code citations.
- Brochures aimed at helping code officials verify that residential load calculations, duct design, and equipment selection are in accordance with ACCA Manuals J, D, and S.
- Free video training detailing what code

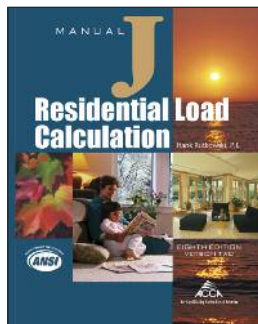
officials should be looking for when contractors submit Manual J, Manual D, and Manual S information.

- A listing of which third-party software providers have passed ACCA’s arduous testing regimen and are eligible to state that they are in compliance to specific ACCA manuals.
- Newly-released, a 2016 Technical Note on how a code maximum allowable leakage rate can be used in the design process for determining heating and cooling design loads (Computing Infiltration Loads Based on a Target Envelop Leakage Requirement).

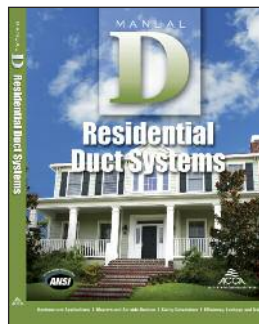
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**About the author:**

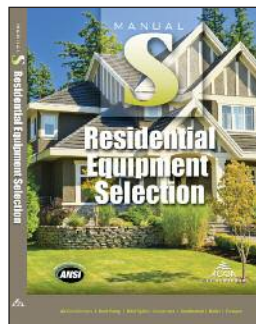
*Donald Prather serves as the Technical Services Manager with the Air Conditioning Contractors of America (ACCA). He is currently licensed as an HVAC contractor in Florida, and holds a 1st Class Stationary Engineer Certification in Maryland, and is a graduate of Thomas Edison State University with a B.S. in Mechanical Engineering Technology. Currently he is developing training materials that support continuing education requirements for technician’s, educators, and code officials.*



ANSI/ACCA 2 Manual J - 2016 (Residential Load Calculations)



ANSI/ACCA 1 Manual D - 2016 (Residential Duct Systems)



ANSI/ACCA 3 Manual S - 2014 (Residential Equipment Selection)

The latest versions of the ACCA HVAC residential design manuals have new, normative, code-intended sections added at the front of each manual. The addition of clearly identified, normative sections is to make it easier for code officials to understand and enforce the requirements of the varied manuals.

# ACCA Membership

## FREE to ICC Governmental Members

ICC Governmental Members may qualify for free access to ACCA’s online membership benefits. ACCA’s online membership access includes:

- **On demand Video Learning** on technical content from top contractors and real-world experts.
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- **Latest Technical Bulletins** that address important issues and emerging technologies to keep you ahead of the trends.
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Since ACCA recognizes the entity – and not an individual as a member – the above benefits accrue to the entire code office.

ICC Governmental Members should complete and return the application on the ICC website to apply.

More information can be found at: <http://media.iccsafe.org/news/eNews/2014v11n11/14-09657.pdf>

Application web address: [http://www.iccsafe.org/wp-content/uploads/ACCA\\_Membership\\_Application1.pdf](http://www.iccsafe.org/wp-content/uploads/ACCA_Membership_Application1.pdf)



# Constitution and Bylaws

## ARTICLE I — Name, Seal, and Address

**Section 1.** The name of this organization shall be the Virginia Plumbing and Mechanical Inspectors Association, herein referred to as the Association.

**Section 2.** The seal shall be approved by the Board of Directors, herein referred to as the Board.

**Section 3.** The address shall be that of the Executive Secretary, unless otherwise approved by the Board.

## ARTICLE II — Mission and Objectives

**Section 1.** The Association's mission shall be to promote and protect the health, safety and welfare of all Virginia citizens and of all others who may live, work, play and visit within the Commonwealth.

**Section 2.** The objectives of the Association shall be to:

- A. Promote uniform application of the Virginia Uniform Statewide Building Code.
- B. Actively participate in plumbing, mechanical and fuel gas code development at state and national levels.
- C. Provide opportunities for professional development by sponsoring or conducting training seminars.
- D. Partner with organizations that share the Association's mission and objectives.
- E. Encourage unity among code officials, governmental agencies and the private sector.
- F. Recognize members who make contributions that further the Association's mission and objectives.
- G. Maintain an organizational environment which promotes professionalism, mutual respect, mentoring, leadership and the pursuit of common goals.

## ARTICLE III — Membership

**Section 1.** Categories of Membership.

- A. Active Membership shall be open to governmental employees actively engaged in plumbing, mechanical and fuel gas code enforcement as prescribed in the Virginia Uniform Statewide Building Code.
- B. Associate Members shall be non-governmental employees interested or engaged in the building industry.
- C. Lifetime Membership is open to Active and Associate members in good standing who have made significant contributions that advanced or supported the Association's mission.
- D. Honorary Membership is open to individuals who are not currently members, but who have made significant contributions that advanced or supported the Association's mission.
- E. Retired membership is open to Active or Associate members who have retired.
- F. Student Membership is open to students actively engaged in the study of engineering, building design/construction and plumbing/mechanical apprenticeship/technical programs.

**Section 2.** Membership shall be granted as follows:

- A. Application for Active, Associate, Retired and Student membership shall be submitted to the Executive Secretary on the Association's membership application form. Each application shall be reviewed, approved or disapproved by the Executive Secretary.
- B. Honorary and special-offer type memberships shall be approved by the Board.
- C. Lifetime membership nomination forms shall be submitted to the Awards Committee Chair. The Awards Committee shall review and select the recipients.

**Section 3.** Dues.

- A. Active, Associate, Retired and Student members shall pay dues and such dues shall cover the period from January 1 through December 31 of each year. Dues remitted after December 31 shall only cover the period until December 31 of the current year. Members whose dues are current shall be considered in good standing.
- B. Lifetime and Honorary members shall not be required to remit dues.
- C. Dues shall be established by the Board and listed on the Association's membership application form.
- D. Where any Active, Associate, Retired or Student member does not remit dues for two (2) consecutive years, the membership shall have expired and the member's name shall be removed from the roster. Expired memberships may be renewed in accordance with Article III. Section 2.A.

**Section 4.** Membership Meeting Voting.

- A. Only Active members in good standing shall have the right to vote.
- B. All members shall have the right to make and second motions and to participate in discussion of any motion before the membership.

**Section 5.** Conduct.

- A. All members shall be committed to the Association's mission and shall conduct themselves in accordance with the Association's Code of Ethics.

## ARTICLE IV — Officers and Duties

**Section 1.** Officers shall be Active members in good standing and comprised of a President, Vice President, Secretary and Treasurer.

**Section 2.** Officers shall be elected and installed at the Annual School of Instruction, herein referred to as the SOI.

**Section 3.** Officer's terms shall be one year and officers shall serve no more than two (2) consecutive terms in the same office. The terms of the Officers shall begin at the close of the SOI and end at the close of the SOI the following year.

RESOLUTION OF RESPECT FOR  
**Charles Wayne Hudson**

**Whereas,** Prior to his passing on June 30th, 2016 at the age of 57, Charles Wayne Hudson was a South Hill, Virginia Native; and

**Whereas,** Charles Wayne Hudson was employed for 35 years by the Town of South Hill, Virginia serving for the last 18 years as the code compliance official; and

**Whereas,** Charles Wayne Hudson was a long time member, in good standing, of the Virginia Plumbing and Mechanical Inspectors Association, as well as the Virginia Building Code Officials Association, and the Virginia Fire Prevention Association; and

**Whereas,** Charles Wayne Hudson was a lifetime member, since 1983, of the South Hill Volunteer Fire Department; and

**Whereas,** The Virginia Plumbing and Mechanical Inspectors Association notes with great sadness the passing of Charles Wayne Hudson; 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 Charles Wayne Hudson in celebration of his life and do also offer their most heartfelt sympathy at the loss of this cherished family member; and

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

**Resolved further,** that this resolution be respectfully submitted to Charles Wayne Hudson's family as a permanent memorial to the memory of Charles W. Hudson.

Adopted this Third day of July, 2016



Richard Grace, VPMIA President



ATTEST: *Randy Pearce*  
 Randy Pearce, VPMIA District 4 Director

RESOLUTION OF RESPECT FOR  
**Jane H. Rimel**

**Whereas,** Prior to her passing on October 3rd, 2016 at the age of 79, Jane H. Rimel was a Staunton, Virginia Native; and

**Whereas,** Jane H. Rimel is the mother of Paul Marion Rimel III, a VPMIA Past President and Lifetime Member; and

**Whereas,** Jane H. Rimel was employed as a bookkeeper for Atkins Automotive Corporation until her retirement; and

**Whereas,** Jane H. Rimel is survived by Paul Marion Rimel III and wife Sherry of Staunton; two grandchildren, Alicia Nicole Rimel and Matthew DeWitt Rimel; and three great-grandchildren, Bree Mae Rimel, Brooke Lynn Rimel, and Matthey DeWitt Rimel; and

**Whereas,** The Virginia Plumbing and Mechanical Inspectors Association notes with great sadness the passing of Jane H. Rimel; 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 Jane H. Rimel in celebration of her life and do also offer their most heartfelt sympathy at the loss of this cherished family member; and

**Resolved further,** That the Virginia Plumbing and Mechanical Inspectors Association stands in readiness to assist the family of Jane H. Rimel in any manner desired or requested; and

**Resolved further,** That this resolution be respectfully submitted to Jane H. Rimel's family as a permanent memorial to the memory of Jane H. Rimel.

Adopted this Twenty-fourth day of February, 2017



Richard Grace, VPMIA President



ATTEST: *Dusti McLehane*  
 Dustin McLehaney, VPMIA Vice President



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## ARTICLE V — Districts and Directors

**Section 1.** District Directors shall be Active members in good standing and shall be comprised of one (1) director from each of the Association's four (4) districts as follows:

**District I:** Shall be the area, including all cities and towns that lie therein, created by the counties of Augusta, Arlington, Clark, Culpeper, Fairfax, Fauquier, Frederick, Greene, Highland, Loudoun, Madison, Orange, Page, Prince William, Rappahannock, Rockingham, Shenandoah, Spotsylvania, Stafford, and Warren.

**District II:** Shall be the area, including all cities and towns that lie therein, created by the counties of Alleghany, Amherst, Appomattox, Bath, Bedford, Bland, Botetourt, Buchanan, Campbell, Carroll, Craig, Dickenson, Floyd, Franklin, Giles, Grayson, Henry, Lee, Montgomery, Patrick, Pittsylvania, Pulaski, Roanoke, Rockbridge, Russell, Scott, Smyth, Tazewell, Washington, Wise, and Wythe.

**District III:** Shall be the area, including all cities and towns that lie therein, created by the counties of Albemarle, Amelia, Brunswick, Buckingham, Caroline, Charlotte, Chesterfield, Cumberland, Dinwiddie, Fluvanna, Goochland, Greensville, Halifax, Hanover, Henrico, King George, Louisa, Lunenburg, Mecklenburg, Nelson, Nottoway, Powhatan, Prince Edward, Prince George, Surry and Sussex.

**District IV:** Shall be the area, including all cities and towns that lie therein, created by the counties of Accomack, Charles City, Essex, Gloucester, Isle of Wight, James City, King and Queen, King William, Lancaster, Mathews, Middlesex, New Kent, Northampton, Northumberland, Richmond, Southampton, Suffolk, Westmoreland, and York.

**Section 2.** District Directors shall be elected and installed at the SOI. The terms of District Directors shall begin at the close of the SOI and end at the close of the SOI the following year.

## ARTICLE VI — Board of Directors and Duties

**Section 1.** A Board of Directors is hereby established to manage the policies, business, property and affairs of the Association.

**Section 2.** Voting members of the Board shall be Active members in good standing and comprised of the Officers, District Directors, Immediate Past President, Executive Secretary and Chair of each standing committee.

**Section 3.** Non-voting, ex-officio members of the Board shall be as follows:

A. Any Association member from Virginia serving on the International Code Council Board of Directors.

B. The VPMIA representative currently serving on the Executive Council of the International Code Council Region VII.

C. The Deputy Director or his or her representative of the Division of Building and Fire Regulation at the Virginia Department of Housing and Community Development.

D. The President, or his or her representative of the Virginia Building and Code Officials Association, Virginia Fire Prevention Association, and Virginia Chapter of the International Association of Electrical Inspectors.

E. Any member of the Association, or of the Virginia Building and Code Officials Association serving as a Representative on the Board for Contractors of the Virginia Department of Professional and Occupational Regulation.

**Section 4.** The Board shall appoint an Executive Secretary for a maximum term of five (5) years, or as otherwise approved by the Board.

**Section 5.** The Board shall require the Treasurer to be bonded. The amount, timeframe and terms of the bond shall be approved by the Board. The Association shall pay the bond premium and any other costs associated with the bond.

**Section 6.** The Board shall appoint members to fill unexpired terms or vacancies on the Board within forty-five days.

**Section 7.** An executive session of the Board shall be conducted at the request of any member of the board, when approved by a two-thirds majority of the Board's voting members present. Only voting members of the Board and those individuals deemed necessary by the President to the purpose of the meeting are permitted to attend the executive session.

**Section 8.** The Board is hereby authorized to conduct business through electronic messaging, teleconference or other remote participation methods provided the quorum and voting requirements specified herein are observed.

A minimum of three (3) business days notice shall be provided by the President or their designated representative prior to the meeting.

**Section 9.** Board members shall, upon receipt of draft Board and Membership meeting minutes, review such minutes and advise the Secretary of any suggested modifications within five (5) business days.

**Section 10.** Duties and responsibilities of each Board member shall be as described in the Board of Directors Job Description Policy, approved by the Board.

## ARTICLE VII — Committees

**Section 1.** The standing committees are: Advertising/Yearbook, Auditing, Awards, Bylaws, Certification/Education, Finance, Legislative, Nominating, Plumbing /Mechanical/Fuel Gas, SOI, Time/Place, Membership and Information Technology.

**Section 2.** Standing Committee chairs shall be appointed by the President, unless otherwise specified in this article, within 30 days following the close of the SOI. Members of the committees shall be appointed by the chair unless otherwise specified in this article.

(continued on page 16)

**IT'S EASY TO PARTICIPATE:**

Attend  
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3 Board  
of Directors  
meetings  
+  
**THREE**  
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Membership  
meetings  
throughout  
the year.

Check the  
VPMIA website,  
[www.vpmia.org](http://www.vpmia.org)  
for the most  
current meeting  
information.



Participate

**Section 3.** The following standing committees shall be comprised of a minimum of three (3) members including the chair:

- A. Advertising and Yearbook
- B. Auditing
  - 1. The Treasurer shall not serve on this committee.
- C. Awards
- D. By-Laws
- E. Certification and Education
- F. Finance
  - 1. The Treasurer shall serve as the chair.
- G. Information Technology
  - 1. The webmaster shall serve as the chair.
- H. Membership
  - 1. The Executive Secretary shall serve as the chair.
- I. Nominating
  - 1. The Immediate Past President shall serve as the chair.
- J. Plumbing/Mechanical/Fuel Gas.
- K. Time and Place.
- L. School of Instruction
  - 1. The Executive Secretary shall serve on this committee.
  - 2. The chair of the time and place committee shall serve on this committee.

**Section 4.** Legislative Committee shall be comprised of the committee chair and any member willing to serve.

**Section 5.** Special Ad Hoc committees shall be appointed by the President when deemed necessary by the President or the Board. The committee shall be comprised of a minimum of three (3) members and shall operate at the discretion of the Board. The committee chair will not have Board voting rights.

## ARTICLE VIII — Meetings

**Section 1.** A minimum of two (2) membership meetings shall be held per year.

**Section 2.** First Membership Meeting shall be held at a time, Date and location approved by the Board. The meeting shall be for the purpose of receiving reports from the Officers, District Directors, committees and for any other business that may arise. A minimum of fifteen (15) Active members present shall constitute a quorum.

**Section 3.** The SOI shall be held at a time, Date and location approved by the Board. The date and location shall be approved a minimum of one (1) year in advance of the SOI. The SOI shall be for the purpose of conducting the Second Membership Meeting, providing educational programs, electing Officers, District Directors, receiving reports from Officers, District Directors, committees and for any other business that may arise. A minimum of fifteen (15) Active members present shall constitute a quorum.



**Section 4.** Meetings of the Board shall be held on the call of the President, but not less than three (3) times each year. A majority of the Board's voting members shall constitute a quorum.

**Section 5.** Special membership or Board meetings may be called by the President or the Board of Directors. Official notice of the meeting shall be sent by mail or electronically to the members a minimum of fourteen (14) days prior to the date thereof. The purpose of the meeting is to conduct business of the Association. A minimum of fifteen (15) active members present constitute a quorum for a special membership meeting or a majority of the Boards voting members for a Board meeting. Special meetings may be conducted using electronic messaging or teleconference.

### ARTICLE IX — Parliamentary Authority

*The current edition of Robert's Rules of Order Newly Revised* is the Associations final Authority on all questions of procedure and parliamentary law not covered by the Constitution and By-laws nor by any special rules of order adopted by the Association.

### ARTICLE X — Amendment of Bylaws

*These bylaws may be amended* during any membership meeting by a two-thirds majority of Active members present and voting, provided such amendment has been submitted in writing by any member to the Bylaws Chair not less than thirty (30) days in advance of a Board meeting for review and recommendation; and further provided such amendment has been posted on the Association's website not less than thirty (30) days prior to the membership meeting.

### ARTICLE XI — Code of Ethics

*We the members of the Association* acknowledge that our profession has a direct and vital impact on the quality of life of all Virginia citizens and of all others who may live, work, play, and visit within the Commonwealth. We the members are therefore dedicated to the highest standards of professionalism, integrity, and competence, and we do pledge to adhere to the following principles of ethical behavior:

- **Recognize that the health, safety, and welfare of the public are our top priorities and acknowledge that the primary function of government is to serve the best interests of the people.**
- **Consider our profession a distinct opportunity to serve society.**
- **Demonstrate honesty, integrity, and uniformity in the discharge of our duties.**
- **Treat all persons with courtesy and respect.**
- **Conduct ourselves in a manner which creates and maintains respect for the Association and the industry it represents.**
- **Refuse to leverage our positions to secure advantage or favor for ourselves, our family, or friends.**
- **Refrain from representing private interests in any business or affairs of the Association.**
- **Remain loyal to the Virginia Plumbing and Mechanical Inspectors Association and pursue its mission and objectives in a manner consistent with the public good.**

*According to History, these Bylaws were adopted November 1962. Amended April 1988, December 1990, December 1994, April 2006, April 2007, April 2008, October 2010, July 29, 2011, and July 30, 2014.*



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# VPMIA Board of Directors Job Duty and Committee Description Policy

## **Purpose:**

**In accordance with the Association's Constitution and Bylaws, individual duties and responsibilities of the officers, District Directors, Immediate Past President, Executive Secretary, standing committee Chairperson and each committee shall be in accordance with this policy as approved by the Board of Directors.**

## **Policy amendments:**

**The policy may be amended at any Board meeting by a majority vote of the Board.**

### **The President:**

Conduct all Board and Membership meetings in accordance with the Association's Bylaws and Constitution.

Submit the ICC Annual Report online.

Appoint each standing committee chairperson, not otherwise established by the By-laws, and forward the names to the Information/Technology committee chair (IT) within thirty (30) days following the School of Instruction (SOI). Standing committee chairpersons shall not serve as chairperson of more than two (2) committees.

Appoint a special adhoc committee chairperson when needed to perform a specific task. Adhoc committees shall operate at the discretion of the board.

Establish the time and location of Board meetings. The time and location of all Board meetings shall be forwarded to the IT chair and Board. Board meetings shall be equally distributed throughout the year as much as possible.

Notify the Board's voting members not less than three (3) business days prior to conducting a vote by electronic means.

Prepare all Board and Membership meeting agendas and forward these agendas to the IT chair not less than seven (7) business days prior to each meeting. The President shall list on the agenda any business of the Association specified by the policy or the Constitution and Bylaws.

Submit the Association's ICC Chapter of the Year Report and provide a copy of the most recent report to the next President on or about the beginning of their term.(when applicable)

Serve as a non-voting, ex-officio member of all committees except the Nominations Committee

### **The Vice President:**

Conduct Board and Membership meetings in accordance with the Association's Constitution and Bylaws in the absence of the President.

Record the meeting minutes in the absence of the Secretary.

Serve as the Audit Committee chairperson.

### **The Secretary:**

Assist the presiding officer with the orders of business during each Board and Membership Meeting and report any official correspondence.

Record the minutes of each Board and Membership Meeting to include motions and resulting votes.

The draft minutes of each Board and Membership meeting shall be forwarded to the Board for review within ten (10) business days following such meeting, unless otherwise stated herein. After a five (5) day review period, any necessary changes shall be forwarded to the Secretary. Secretary shall forward the draft minutes to the IT chair ten (10) business days prior to approval.

The Secretary shall have available at each Board and Membership meeting any draft minutes submitted for approval.

The Secretary shall provide a copy of the meeting minutes to the newly elected Treasurer within fifteen (15) business days following the SOI.

Upon approval, minutes shall be marked APPROVED. The Secretary shall sign and date the minutes and affix the secretary's title of office thereto. The Secretary shall have available during each Board and Membership meeting the Association's Official Book of Minutes and all approved minutes shall be retained therein. A digital copy of all approved minutes shall be forwarded to the IT chair not less than ten (10) business days following approval.

Draft memorial resolutions in remembrance of past and present members and any immediate family members or resolutions approved by the Board thereof. The Secretary shall forward each resolution to the Advertising/Yearbook Committee Chairperson.

Draft correspondence as requested by the Board or officers.

### **The Treasurer:**

The Treasurer shall ensure their signature is assigned to the Association's financial account on or about May 1<sup>st</sup> and shall administer the account until on or about May 1<sup>st</sup> of the following year.

The Treasurer shall sign and date any written contract which monetarily binds the Association and shall place the Association's copy of such contract in the Association's financial records.

Serve as a member of the School of Instruction Committee.

Place the original of each bank statement in the Association's financial records and accurately maintain a written financial ledger.

Collect all revenue generated by the Association, including any contributions provided, and deposit such funds into the Association's account in a timely manner. Each deposit receipt shall be placed in the Association's financial records.

Fund all expenditures approved by the Board and all expenses listed in the budget.

Submit a written report of the Association's finances at each Board and Membership Meeting and submit any additional reports requested by the Board.

Provide all financial records requested by the Audit and Budget Committee chairperson.

Unless the Treasurer is serving a second term, the past Treasurer shall transfer the Association's financial account, financial records and any electronic devices, storage media or financial software on or about May 1<sup>st</sup> to the newly elected Treasurer.

Maintain the organizations budget.

*Continued on page 20*



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## VPMIA Board of Directors Job Duty and Committee Description Policy

Continued from page 18

### **The District Directors:**

Direct and organize activities within their district and report suggestions or concerns of district members to the Board.  
Contact each member within their district to visit the membership roster on the website and confirm their information, including email address is current.  
A District Director shall be a member of the School of Instruction Committee when the SOI is to be held within their district.  
Serve on the Membership Committee.  
Serve on the Training and Certification Committee.  
Attend each Board and Membership meeting or appoint a representative from the district to report the district's activities.

### **The Executive Secretary:**

File tax exempt status in January electronically on the IRS website.  
File State Corporation Commission dues in January.  
Renew the ICC Preferred Provider membership every November.  
Serve as chairperson of the Membership Committee.  
Approve all memberships except Active Lifetime, Associate Lifetime, and Honorary. The Executive Secretary shall notify each new member.  
Send membership renewal notices not later than December 1st.  
Send a second notice to members whose dues are not received by May 1<sup>st</sup>.  
Maintain the Association's official membership roster.  
Forward all dues, invoices, and financial documents received to the Treasurer within thirty (30) days of their receipt.  
Forward new member contact information and any expired memberships to the IT chair within thirty (30) days of approval or expiration.  
Accept any letter of resignation submitted by a Board member, and present it during the next Board meeting.  
Shall be the secondary signature on the organization's bank accounts for emergency purposes only.

### **The Immediate Past President:**

Serve as chairperson of the Nominations Committee.

### **The Committee Chairperson:**

Appoint those committee members not established by the Constitution and By-Laws or Job Duty and Committee Description Policy and forward the names of all committee members to the IT chair prior to adjournment of the first Board of Director's Meeting following the SOI.  
Schedule and preside over committee meetings and advise the committee of any action recommended by the Board.  
Report any committee findings, recommendations or activities at each Board and Membership meeting.

### **Advertising and Yearbook:**

The committee shall consist of not less than three (3) members.  
Publish the VPMIA Annual Yearbook and provide one (1) yearbook to each member attending the SOI, advertising customers, tabletop contributors and to the Executive Secretary for new membership packets.  
The SOI program shall be published in the yearbook.  
Publish the associations Constitution and Bylaws in each edition of the yearbook.  
Publish the names of the Charter Members, Past Presidents, serving Board members and previous awards recipients in the yearbook.

Publish any correspondence submitted by the President.  
Publish received resolutions.  
Seek to publish a code or trade related article in each yearbook.  
No such article shall be published without written consent of the author(s).  
Seek out sponsors to advertise in the yearbook.  
The committee chairperson shall collect all revenue for yearbook advertising and shall forward such revenue to the Treasurer within thirty (30) days of receipt.

### **Audit/Budget:**

The committee shall consist of not less than three (3) members.  
The past or current Treasurer shall not be members of the committee.  
The Vice President shall be chairperson of the committee.  
Audit the Association's financial account prior to May 30<sup>th</sup> and report the committee's findings at the Board of Directors Meeting.  
Submit a budget proposal at the Board of Directors Meeting following the SOI. The proposal may be amended as necessary and the Board shall approve the budget.  
The chairperson shall maintain the budget and shall forward a copy to the Treasurer not less than three (3) business days following its approval or amendment.  
The chairperson shall submit any financial forms or documents required by law to the appropriate institution or government agency.  
The chairperson shall be authorized to seek professional services to assist the committee with its duties. Any compensation rendered by the Association for such services shall require prior approval by the Board.  
The chairperson shall ensure their signature is not assigned to the Association's financial account prior to the first committee meeting.

### **Awards:**

The committee shall consist of not less than three (3) members.  
Following the review of all nominations received, the committee shall select the award recipients.

#### **Award categories:**

Gordon I. Dameron — Active Outstanding Service Award  
D. Paul Jack — Active Lifetime Membership Award  
Jack A. Proctor Sr. — Active Code Development Leadership Award  
David L. Carr — Associate Outstanding Service Award  
John A. Otto — Associate Lifetime Membership Award

Any award not listed shall be approved by the Board.  
Awards shall be presented during the SOI by the Awards Committee chairperson or designated representative.  
An Awards Committee member shall not be eligible to receive an award while serving on the committee.

### **By-laws:**

The committee shall consist of not less than three (3) members.  
Draft proposed amendment(s) of the Association's Bylaws and Constitution as recommended by the Board, and submit a draft of such amendment(s) to the Board for review.  
After review and a recommendation determined by the Board, all proposed By-Law amendments shall be submitted to the Membership in accordance with Article X of the Bylaws and Constitution.

Continued on page 22



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## VPMA Board of Directors Job Duty and Committee Description Policy

Continued from page 20

The committee chairperson shall maintain the Association's official copy of the Bylaws and Constitution and all official policies approved or amended by the Board.

The chairperson shall serve as the Association's Parliamentarian and be provided a recent edition of "Roberts Rules of Order" to resolve any questions not addressed by the organization's By-Laws.

### **Information/Technology:**

The committee shall consist of not less than three (3) members. The Webmaster shall be chairperson of the committee and the website shall be the Association's official source of information. The time and location of all meetings shall be posted on the homepage not less than thirty (30) days prior to each meeting except that special meetings shall be posted upon notification by the President.

An agenda and any minutes to be approved shall be posted on the homepage not less than five (5) business days prior to each meeting.

The Association's membership roster, all official documents and forms, and minutes approved during the past two years shall be posted. Information pertaining to upcoming ICC events and any information forwarded by DHCD and DPOR shall be available on the website.

The chairperson shall maintain a distribution list of all members who provide an email account.

### **Legislative:**

Attend meetings of the Virginia General Assembly as necessary and Represent the interests of the Association.

Report to the Board and Membership, proposed legislation that may impact the Association.

### **Membership:**

The committee shall consist of not less than three (3) members.

The Executive Secretary shall be chairperson.

The District Directors shall be members of the committee.

and oversee activities focused on recruiting and retaining members.

### **Nominating:**

The committee shall consist of not less than three (3) members.

The Immediate Past President shall be the chairperson.

The four next most immediate past presidents willing to serve shall be the committee members.

Following the review of all nominations received, the committee shall select a nominee for President, Vice President, Secretary, Treasurer and a Director from each district of the Association.

The chairperson shall report at the SOI the recommendations of the committee to the membership.

### **PMG Code Development:**

The committee shall consist of the members in attendance and the chairperson shall preside over all committee meetings.

Review and discuss any proposed changes that effect Plumbing, Mechanical or Fuel Gas Code provisions.

The chairperson may assign any code change recommended by the committee to a committee member and such member shall prepare and submit the proposal. No proposal shall be submitted on the Association's behalf which has not been discussed and recommended by the committee.

The chairperson shall forward to the IT chair the code change positions of the committee.

### **Time and Place/School of Instruction:**

The committee shall consist of not less than three (3) members. The Training/Certification chair, Treasurer and the District Director, within whose district the upcoming SOI and summer conference is planned to be held, shall serve on the committee.

Seek out a venue to host the SOI or other conference following the upcoming SOI and negotiate a preliminary agreement with the venue's responsible party at the least possible cost to the Association.

Conference proposals shall include sleeping room rates, costs for meeting rooms, all meals, A/V equipment, parking fees and any such items necessary to conduct the conference. The chairperson shall report the details of such agreement during the Second Board of Directors Meeting and where approved by the Board, the chairperson, Treasurer and the District Director shall visit the venue and, upon verification that the Association's needs will be met, execute a written contract with the venue's responsible party. The written contract shall include sleeping room rates, costs for meeting rooms, all meals, A/V equipment, parking fees and any such items necessary to conduct the conference.

Develop the SOI and summer conference registration forms and forward a digital copy to the IT chair not less than forty-five (45) days prior to the event. The name and mailing address of the chairperson shall appear on the form and the chairperson shall receive and process the registrations.

Seek out vendors to sponsor code or trade related displays during the upcoming SOI and summer conferences.

The chairperson shall collect all revenue collected from the registrations and associated sponsorships and forward to the Treasurer not less than thirty (30) days following either the SOI and summer conferences.

### **Training/Certification:**

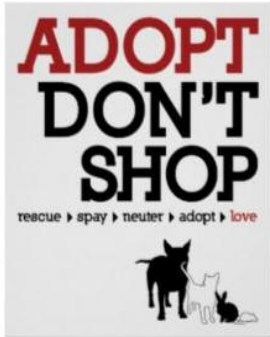
Facilitate the presentation of code and trade related training during the SOI and during the summer conferences. The committee shall seek out subject matter experts to provide the training.

Stay apprised of DHCD's and DPOR's continuing education requirements and provides training opportunities which meet those requirements.

Facilitate the presentation of code related training to tradesmen for the purpose of educating the contracting community and producing revenue for the Association. Stay apprised of DPOR's continuing education requirements and submit attendance records in accordance with those requirements. The chairperson shall verify yearly and maintain the Association's status as an approved continuing education provider prior to offering code update training to tradesmen.

The chairperson shall forward to DHCD and DPOR the attendance record of any training provided such training is approved by DHCD and DPOR as continuing education. ●

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# Participation



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| 1982-1983 | Jesse R. Hurt                | 1999-2000 | Michael D. Thuot  |
| 1983-1984 | George H. Williams, Jr.      | 2000-2001 | Guy Tomberlin     |
| 1984-1985 | Robert M. Broome             | 2001-2002 | John B. Seay, Jr. |
| 1985-1986 | -----                        | 2002-2003 | Dennis Martinelli |
| 1986-1987 | Paul M. Adams                | 2003-2004 | Geary Showman     |
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| 1989-1990 | Dennis W. McNaughton         | 2005-2006 | Wayne Kushner     |
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- Thursday, April 6 Shopping or tour & lunch with short business meeting (place TBD)
- Friday, April 7 Bingo (morning)



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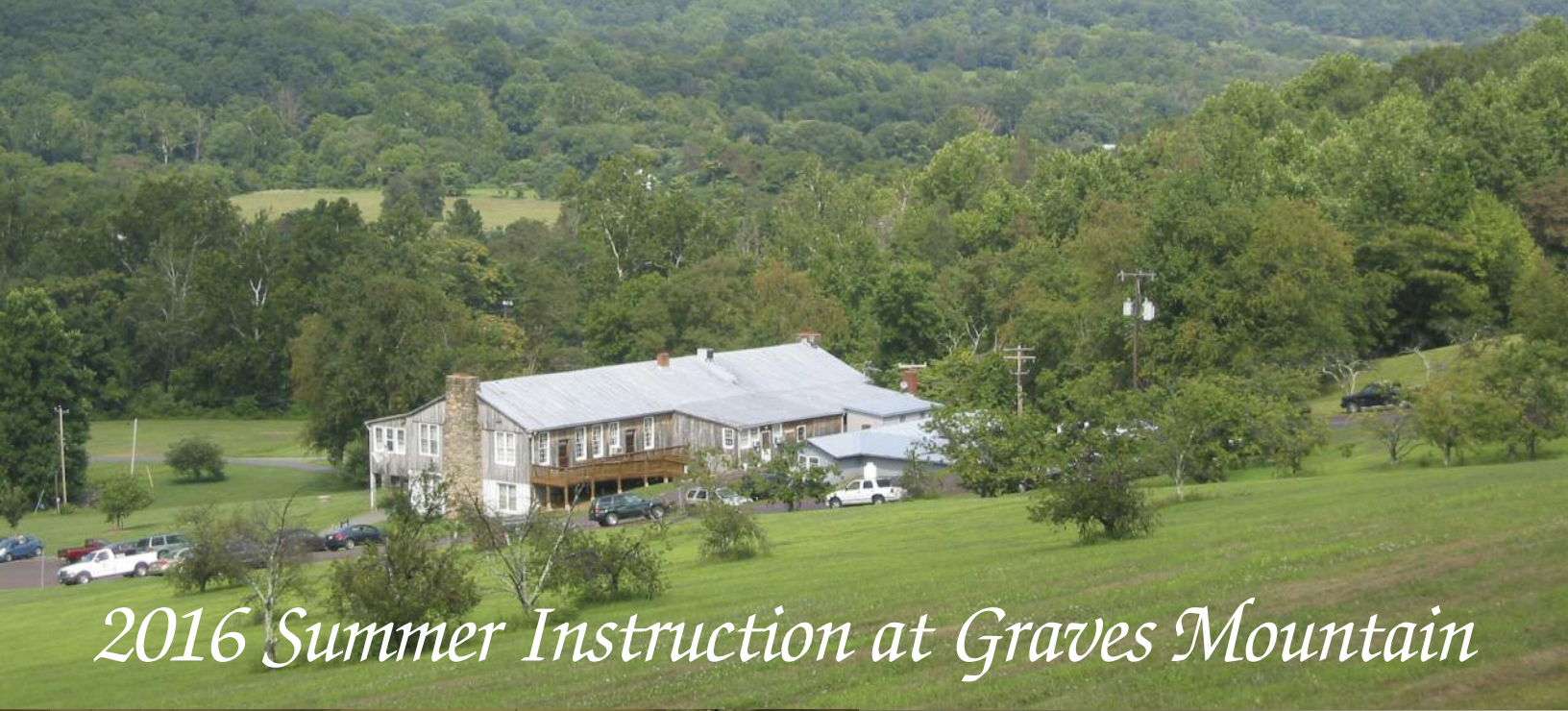
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*2016 Summer Instruction at Graves Mountain*



# Horizontal Wet Venting



## Can Provide Many Additional Design Options

### Wet Venting

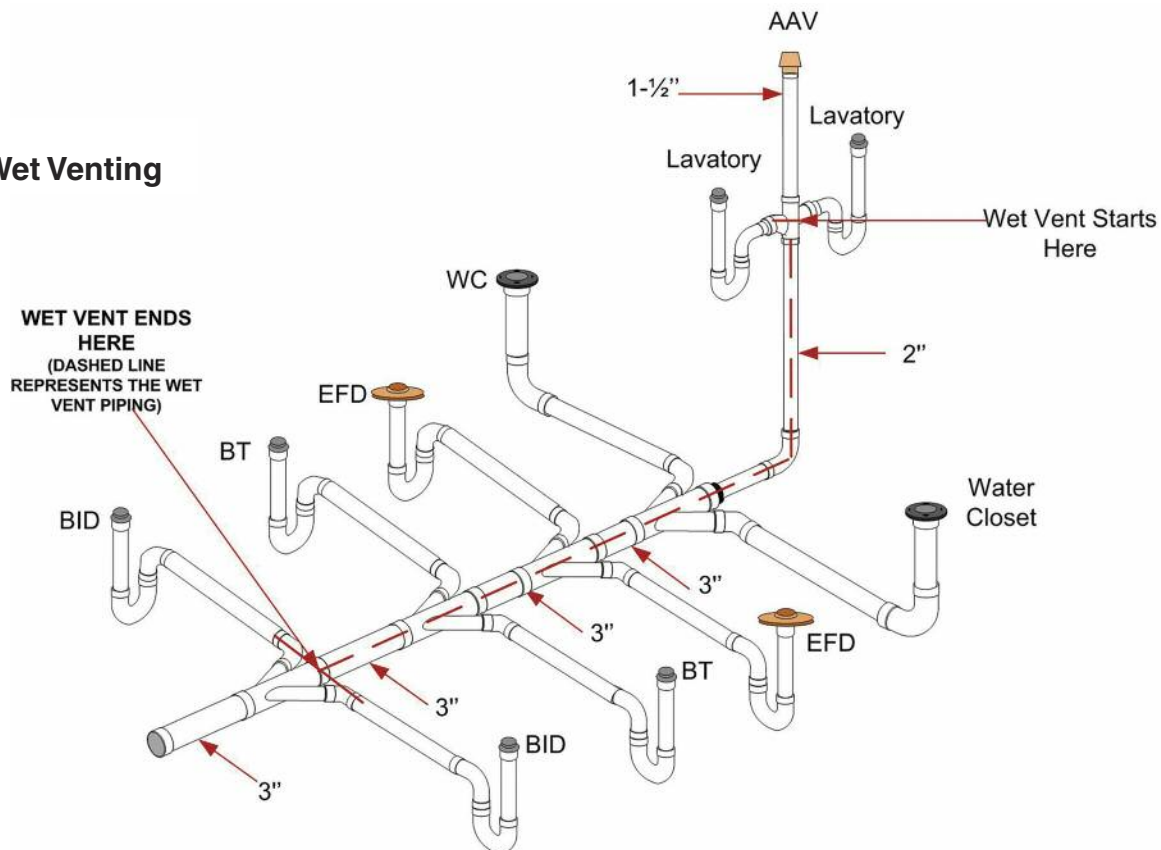
A fixture is said to be wet vented when it serves also to carry the discharge from fixtures connecting into the drainage system at a higher level. The use of wet venting reduces the number of individual vent pipes required by a plumbing drainage system as contrasted with the number required by a conven-

tional system and hence reducing the cost of the venting system. There are many types of venting schemes and methods allowed in the 2015 *International Plumbing Code* (IPC). The Horizontal Wet Venting method located in Section 912.1 of the IPC is one that we will discuss here.

What is a horizontal wet vent? A

horizontal wet vent is a horizontal branch drain pipe that has been increased in size larger than what is normally required by Section 710. This increase in pipe size allows for a large air space above the maximum probable waste flow level in the pipe so as to provide for adequate venting airflow in the same pipe as the waste flow. Wet Venting as shown in Figure 1 can be used

Figure 1: Wet Venting





**Table 909.1 Maximum Distance of Fixture Trap from Vent**

| Size of Trap (inches) | Slope (inch per foot) | Distance From Trap (feet) |
|-----------------------|-----------------------|---------------------------|
| 1 1/4                 | 1/4                   | 5                         |
| 1 1/2                 | 1/4                   | 6                         |
| 2                     | 1/4                   | 8                         |
| 3                     | 1/8                   | 12                        |
| 4                     | 1/8                   | 16                        |

For SI: 1 inch=25.4 mm, 1 foot=304.8 mm, 1 inch per foot=83.3 mm/m.

**Table 912.3 Wet Vent Size**

| Wet Vent Pipe Size (inches) | Drainage Fixture Load (dfu) |
|-----------------------------|-----------------------------|
| 1-1/2                       | 1                           |
| 2                           | 4                           |
| 2-1/2                       | 6                           |
| 3                           | 12                          |

For SI: 1 inch=25.4 mm.

in both vertical and horizontal applications.

The vertical method may be more common to plumbing installers in certain regions. However, don't be alarmed by what you see. The horizontal wet venting method is an effective way to provide a safe, sanitary system that can save the contractor and owner time and materials.

The fixture drain length from the wet vent is limited to the distances shown in Table 909.1. There may be a situation where the fixture location is at a distance that exceeds the maximum trap-to-vent distance. The code allows for any number of individually vented fixtures of the types allowed for a bathroom group to connect to the horizontal wet vent as long the total number of fixtures allowed for the bathroom groups is not exceeded.

Section 202, Definitions, is the key to the maximum number and type of fixtures that can be accommodated by a horizontal wet vent. The definition of Bathroom Group is a group of fixtures consisting of a water closet, lavatory, bathtub or shower, including or excluding a bidet, an emergency floor drain or both. Such fixtures are located together on the same floor level. This is done to avoid high flow velocities which could cause exces-

sive turbulence that might block the air space above the waste flow level. Section 912.1 allows any combination of fixtures within two bathroom groups to be vented by a horizontal wet vent. A horizontal wet vent could have as few as two fixtures or as many as ten fixtures, but not more than two fixtures of any type can be connected to the system. Each wet vented fixture drain shall connect independently to the horizontal wet vent. This is done to protect the function of each fixture, assuring that one fixture will not influence another's operation.

The dry vent, the vent that continues upward from the wet vent to the point of termination of connection to another vent, shall be either an individual vent or a common vent for any bathroom group fixture, except an emergency floor drain. Where the dry vent connects to a water closet fixture drain, the drain shall connect horizontally to the horizontal wet vent system. Not more than one wet vented fixture drain shall discharge upstream of the dry vented fixture drain connection. Vertical wet vented systems are required to have the water closets as the most downstream fixture. This is not the case in horizontal wet venting.

The dry vent must be sized in accordance with Section 906.2. Remem-

ber, though, that in this case, the drain served is going to be the entire wet vented section. It will need to be at least one-half the diameter of the largest section of pipe in the system. The wet-vented section itself is sized per Table 912.3. Keep in mind that any additional fixtures outside of the wet vent that are to be drained into the same branch must be connected to the branch downstream of the wet vent. Because the wet vent serves as a drain, the type of fittings used must be in accordance with the drainage pattern shown in Table 706.3.

The IPC offers more opportunities for design professionals and contractors to implement cost saving design features than any other model plumbing code in the world.

**About the author:**  
*Lee Clifton, Director of Plumbing, Mechanical, Fuel Gas Resources (PMG) for the International Code Council (ICC) has 40 years of experience in the Plumbing, Mechanical, and Fuel Gas Industry. His career began as a second generation plumber, working for his father at Clifton Plumbing Inc. in Tampa, Florida. He retired from the City of Los Angeles in 2007 as a Principal Inspector after 21 years of service.*

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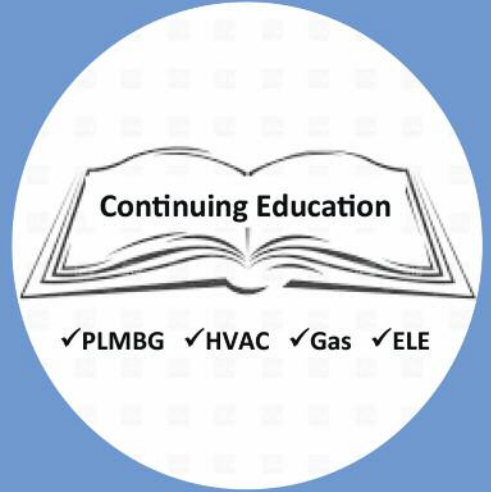
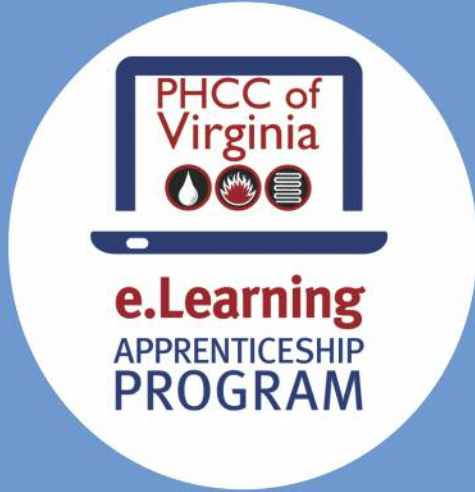
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## Residential Plans Examiner Review Form for HVAC System Design (Loads, Equipment, Ducts)

Form  
RPER 1.01  
8 Mar 10

County, Town, Municipality, Jurisdiction  
Header Information

|   |   |  |
|---|---|--|
| Contractor _____  | REQUIRED ATTACHMENTS <sup>1</sup>                       | ATTACHED   |
| Mechanical License # _____                              | Manual J1 Form (and supporting worksheets):             | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Building Plan # _____                                   | or MJ/IE Form <sup>2</sup> (and supporting worksheets): | Yes <input type="checkbox"/> No <input type="checkbox"/> |
| Home Address (Street or Lot#, Block, Subdivision) _____ | GEM performance data (heating, cooling, blower):        | Yes <input type="checkbox"/> No <input type="checkbox"/> |
|   | Manual D Friction Rate Worksheet:                       | Yes <input type="checkbox"/> No <input type="checkbox"/> |
|   | Duct distribution system sketch:                        | Yes <input type="checkbox"/> No <input type="checkbox"/> |

### HVAC LOAD CALCULATION (IRC M1401.3)

|   |  |  |  |
|---|--|--|--|
| <b>Design Conditions</b>                  |  | <b>Building Construction Information</b>                             |  |
| <b>Winter Design Conditions</b>           |  | <b>Building</b>  |  |
| Outdoor temperature _____ °F              |  | Orientation (Front door faces) _____                                 |  |
| Indoor temperature _____ °F               |  | North, East, West, South, Northeast, Northwest, Southeast, Southwest |  |
| Total heat loss _____ Btu/h               |  | Number of bedrooms _____   |  |
|   |  | Conditioned floor area _____ Sq Ft                                   |  |
| <b>Summer Design Conditions</b>           |  | Number of occupants _____  |  |
| Outdoor temperature _____ °F              |  | <b>Windows</b>   |  |
| Indoor temperature _____ °F               |  | Eave overhang depth _____ Ft   |  |
| Grains difference _____ Δ Gr @ _____ % Rh |  | Internal shade _____   |  |
| Sensible heat gain _____ Btu/h            |  | Blinds, drapes, etc. _____   |  |
| Latent heat gain _____ Btu/h              |  | Number of skylights _____  |  |
| Total heat gain _____ Btu/h               |  |  |  |



### HVAC EQUIPMENT SELECTION (IRC M1401.3)

|   |  |                                       |  |                       |  |
|---|--|---------------------------------------|--|-----------------------|--|
| <b>Heating Equipment Data</b>                             |  | <b>Cooling Equipment Data</b>         |  | <b>Blower Data</b>    |  |
| Equipment type _____                                      |  | Equipment type _____                  |  | Heating CFM _____ CFM |  |
| Furnace, Heat pump, Boiler, etc.                          |  | Air Conditioner, Heat pump, etc.      |  | Cooling CFM _____ CFM |  |
| Model _____   |  | Model _____                           |  |                       |  |
| Heating output capacity _____ Btu/h                       |  | Sensible cooling capacity _____ Btu/h |  |                       |  |
| Heat pumps - capacity at winter design outdoor conditions |  | Latent cooling capacity _____ Btu/h   |  |                       |  |
| Auxiliary heat output capacity _____ Btu/h                |  | Total cooling capacity _____ Btu/h    |  |                       |  |

### HVAC DUCT DISTRIBUTION SYSTEM DESIGN (IRC M1601.1)

|   |                                       |  |
|---|---------------------------------------|--|
| Design airflow _____ CFM                  | Longest supply duct: _____ Ft         | Duct Materials Used (circle)   |
| External Static Pressure (ESP) _____ IWC  | Longest return duct: _____ Ft         | Trunk Duct: Duct board, Flex, Sheet metal, Lined sheet metal, Other (specify)  |
| Component Pressure Losses (CPL) _____ IWC | Total Effective Length (TEL) _____ Ft | Branch Duct: Duct board, Flex, Sheet metal, Lined sheet metal, Other (specify) |
| Available Static Pressure (ASP) _____ IWC | Friction Rate: _____ IWC              |  |
| ASP = ESP - CPL                           | Friction Rate = (ASP x 100) ÷ TEL     |  |

I declare the load calculation, equipment selection, and duct system design were rigorously performed based on the building plan listed above. I understand the claims made on these forms will be subject to review and verification.

Contractor's Printed Name \_\_\_\_\_ Date \_\_\_\_\_  
Contractor's Signature \_\_\_\_\_

Reserved for use by County, Town, Municipality, or Authority having jurisdiction.

<sup>1</sup> The AHJ shall have the discretion to accept Required Attachments printed from approved ACCA software vendors, see list on page 2 of instructions.  
<sup>2</sup> If abridged version of Manual J is used for load calculation, then verify residence meets requirements, see Abridged Edition Checklist on page 13 of instructions.

## Residential Plans Examiner's HVAC Review Form

The information you need for a quick and simple evaluation of the HVAC system's design, all in one place.

ACCA developed this form to facilitate the enforcement of the Virginia Residential Code by VPMIA members. The form can be customized with your department's logo and is available for free download at [www.acca.org/codes](http://www.acca.org/codes)

**For free ACCA membership, please complete and submit the application form found at:**

<http://media.iccsafe.org/news/eNews/2014v11n11/14-09657.pdf>

**Check out these other ACCA resources for code officials at [www.acca.org/codes](http://www.acca.org/codes):**

- Brochures addressing the verification of ACCA Manuals J (load calculations), D (duct sizing), and S (equipment selection)
- Three part video series, *What Code Officials Need to Know About HVAC System Design*
- *Bob's House*, a residential HVAC design case study

