AGENDA

DHCD WORKGROUP FOUR (WG4) MEETING
2015 Code Change Cycle

June 1, 2016 at 9:30 a.m.

Virginia Housing Center

1. Submitted Proposals

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USBC base document	
Available in cdpVA	--

2. Additional Discussion

3. Adjournment

C-113.4.1 cdpVA-15

Proponent : Campbell Gilmour (Campbell.Gilmour@comcast.net)

2012 Virginia Construction Code

113.4.1 Testing of Radon Systems. When Section R324.1 of the state amendments to the IRC is applicable, all systems shall be tested for existing levels of radon, once the interior envelope of the dwelling is enclosed with all windows, doors, and any other portal covers. If safe levels are found to be exceeded as defined by the current EPA standards, additional mitigation steps shall be taken to bring levels into compliance with EPA standards of safe levels of radon.

Reason: Intent: To ensure mandatory radon mitigation systems are tested for effectiveness to certify the safety of the public.

Need and Impact: Radon is a silent killer. Virginia is known to have high levels of radon, and thus requires at a minimum, a passive radon mitigation system. Requiring radon mitigations systems without testing those systems to ensure they are working properly, leaves unsuspecting homeowners exposed to potentially dangerous levels of a known cancer causing agent. All the while homeowners believe the system is protecting the health of their families. The only way to guarantee a system is working correctly is to test its function and effectiveness once it is installed, and the interior envelope is encapsulated.

Cost Impact: Cost to Construction: Negligible. Testing kits can be obtained for as little as $13 at local home improvement stores, which include the apparatus to test, professional lab testing, and documented results.

Workgroup Recommendation

Workgroup 1 Recommendation: None

Workgroup 1 Reason: None

Workgroup 3 Recommendation Recommendation: Consensus for Disapproval

Workgroup 3 Reason: Ron states this should be in the appendicies, opposes the testing because it does not say to what standard, Walter (Danville) said to open to all-builders disagree.

Workgroup 4 Recommendation: None

Workgroup 4 Reason: None

Board Decision

None

C-113.4.1 cdpVA-15

CE-R403.2.2 cdpVA-15

Proponent : Andrew Grigsby (andrew@leap-va.org)

2012 Virginia Energy Conservation Code

R403.2.2 Sealing (Mandatory).
Ducts, air handlers, and filter boxes shall be sealed. Joints and seams shall comply with either the *International Mechanical Code* or the *International Residential Code*, as applicable. Verification of compliance with this section shall be in accordance with ~~either~~ Section R403.2.2.1 ~~or R403.2.2.2.~~

- **Exceptions:**
    1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
    2. Where a duct connection is made that is partially inaccessible, three screws or rivets shall be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.
    3. Continuously welded and locking-type longitudinal joints and seams in ducts operating at static pressures less than 2 inches of water column (500 Pa) pressure classification shall not require additional closure systems.

R403.2.2.2 Visual inspection option.
~~In addition to the inspection of ducts otherwise required by this code, when the air handler and all ducts are not within conditioned space and this option is chosen to verify duct tightness, duct tightness shall be considered acceptable when the requirements of Section R403.2.2 are field verified.~~

Add new standard(s) as follows: IECC 2012, IECC 2015

Reason: There is no substitute for a pressure test of the ductwork. Any person who actually has tested ductwork knows that, unless every inch of the entire duct system is readily visible, then only a mechanical test would have a hope of finding all of the leaks. It makes no sense to ask an inspector to crawl around the entire system hunting for leaks. Usually that's physically impossible. The only evaluation that gives results that can be compared against an objective standard is an actual pressure test. Otherwise, there is no standard. I have tested many systems that failed the pressure test. Some even fail it twice. It is untenable to ask a building official to sign off on a CO - which is his statement to the buyer that reasonable effort has been made to confirm that the home and its systems meet the standards in the code - when he actually has no data on how the duct system performs - and that data is readily available. It makes the code official vulnerable to lawsuits.

Cost Impact: $150 to $450 depending on home size

Workgroup Recommendation

Workgroup 2 Recommendation: None

Workgroup 2 Reason: None

Workgroup 3 Recommendation Recommendation: Pending

Workgroup 3 Reason: Mr Grigsby spoke on his proposal-Walter (Danville) requires WHMV-states 600 dollar additional costs-Grigsby stated inaccurate statement-Gerber asked about whole house leakage-proposal is about duct leakage.-Toalson opposes-not enough time to review-pro

Workgroup 4 Recommendation: None

Workgroup 4 Reason: None

Board Decision

None

CE-R403.2.2 cdpVA-15

CR-E3902.16 cdpVA-15

Proponent : Bryan Holland, Representing National Electrical Manufacturers Association (Bryan.Holland@NEMA.org)

2015 International Residential Code

E3902.16 Arc-fault circuit-interrupter protection. Change Section E3902.16 of the 2015 USBC Staff Base Document (Page 80) to read:

Branch circuits that supply 120-volt, single-phase, 15- and 20-ampere outlets installed in kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreations rooms, closets, hallways, laundry areas and similar rooms or areas shall be protected by any of the following: [210.12(A)]

1. A listed combination-type arc-fault circuit interrupter, installed to provide protection of the entire branch circuit. [210.12(A)(1)]
2. A listed branch/feeder-type AFCI installed at the origin of the branch-circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit. The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit. [210.12(A)(2)]
3. A listed supplemental arc protection circuit breaker installed at the origin of the branch circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit where all of the following conditions are met:
    - 3.1. The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.
    - 3.2. The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.
    - 3.3. The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit. [210.12(A)(3)]
4. A listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet on the branch circuit in combination with a listed branch-circuit overcurrent protective device where all of the following conditions are met:
    - 4.1. The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.
    - 4.2. The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed 50 feet (15.2 m) for 14 AWG conductors and 70 feet (21.3 m) for 12 AWG conductors.
    - 4.3. The first outlet box on the branch circuit shall be marked to indicate that it is the first outlet on the circuit.
    - 4.4. The combination of the branch-circuit overcurrent device and outlet branch-circuit AFCI shall be identified as meeting the requirements for a system combination-type AFCI and shall be

listed as such. [210.12(A)(4)]

5. Where metal outlet boxes and junction boxes and RMC, IMC, EMT, Type MC or steel-armored Type AC cables meeting the requirements of Section E3908.8, metal wireways or metal auxiliary gutters are installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed outlet branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit. [210.12(A)(5)]
6. Where a listed metal or nonmetallic conduit or tubing or Type MC cable is encased in not less than 2 inches (50.8 mm) of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, a listed outlet branch-circuit type AFCI installed at the first outlet shall be considered as providing protection for the remaining portion of the branch circuit. [210.12(A)(6)]
    - **Exception:** AFCI protection is not required for an individual branch circuit supplying only a fire alarm system where the branch circuit is wired with metal outlet and junction boxes and RMC, IMC, EMT or steel-sheathed armored cable Type AC or Type MC meeting the requirements of Section E3908.8.

Reason: According to the U.S. Fire Administration's National Fire Incident Reporting System, an estimated 372,900 residential building fires were reported to fire departments within the United States each year between 2011-2013 and caused an estimated 2,530 deaths, 13,125 injuries and $7 billion in property loss. The report also indicated the second leading cause of residential fire death in 2013 was electrical malfunction. 84 percent of all electrical fires occurred in 1&2 family dwellings. The leading factors contributing to the ignition of residential building fires were due to electrical malfunction (41%), unspecified short-circuit arcing (25%), and short-circuit arcing from defective or worn insulation (12%). The statistics show that more than 8.4 percent of all electrical fires occur in the kitchen and/or cooking area of a home, 4.5 percent in laundry areas, and another 7 percent involve appliances. [USFA Reports Attached]
These numbers hold true for the Commonwealth of Virginia. Between the years 2013-2015, an average of 230 residential fires each year were attributed to electrical distribution. This resulted in an average of 3 civilian deaths, 10 civilian injuries, and 9 fire service injuries. [VFIRS Annual Reports Attached]

Arc-Fault Circuit Interrupters (AFCI) were developed following an expressed need from the U.S. Consumer Products Safety Commission (CPSC) to prevent electrical fires. AFCI devices are certified to the UL 1699 product standard and are intended to mitigate the effects of arcing faults that may pose a risk of fire ignition under certain conditions if arcing persists. When unwanted arcing occurs, it generates high temperatures that can ignite nearby combustibles such as wood, paper, and carpets. Often this occurs in wiring behind walls or in places where the arcing cannot be easily detected. Typical household circuit breakers do not respond to early arcing and sparking conditions in home wiring. By the time a circuit breaker opens a circuit to defuse these conditions, a fire may already have begun. AFCI devices provide protection by detecting the presence of unwanted arcing in a wiring circuit and removing power from the circuit. The CPSC indicates AFCI protection could prevent more than 50 percent of electrical fires that occur each year.

Every AFCI device must meet the rigorous performance tests of the UL 1699 standard. This includes not less than (50) different tests to ensure safety from shock, electrocution, and fire. The standard also includes operational performance tests with not less than (4) different arc-fault simulations and not less than (8) unwanted tripping tests. The UL 1699 standard is fully harmonized with every lighting and appliance product standard. There is no operational conflict between AFCI devices and other electrical products. USFA statistics show overall trends for residential building electrical malfunction fires for the five-year period between 2007 and 2011

indicate a 14% decrease in fires, a 16% decrease in deaths, and a 13% decrease in dollar loss. This reduction in fire trends correlates with the requirement and expansion of AFCI protection in dwellings.

The homeowner's insurance industry supports and recommends the installation of AFCI protection at insured properties. The largest fire and casualty insurance carrier in the nation, State Farm Insurance, issued a letter in 2015 to the Governor of Michigan opposing proposed AFCI amendments to the state's electrical code. AFCI protection in accordance with the 2014 NEC / 2015 IRC is in effect in not less than (25) states across the nation. AFCI protection is supported and endorsed by the CPSC, USFA, IAEI, NFPA, NEMA, IBEW, IEC, NECA, IBHS, and FLASH.

Attachments:

https://va.cdpaccess.com/proposal/fileupload/get/82

https://va.cdpaccess.com/proposal/fileupload/get/83

https://va.cdpaccess.com/proposal/fileupload/get/84

https://va.cdpaccess.com/proposal/fileupload/get/85

https://va.cdpaccess.com/proposal/fileupload/get/86

Cost Impact: This proposal will increase the cost of construction. Under these provisions, a typical 2,500 sq.ft. dwelling would be required to have approximately 10-12 AFCI devices installed to protect the branch-circuits supplying the named rooms and spaces. This is an increase of 5-7 AFCI devices as compared to the current requirement for AFCI protection of bedroom circuits alone. The increased cost is the difference between a standard circuit breaker and an AFCI circuit breaker. The average cost of an AFCI circuit breaker in Virginia is approximately $45.00 each. The average cost of a standard circuit breaker in Virginia is approximately $15.00 each. This is a difference of $30 per device. A increase of 5-7 AFCI devices would result in an increase of $150.00 to $210.00 per dwelling. There is no increased cost of time or labor to install AFCI devices. The increased cost is minimal as compared to the loss from fires that could be prevented by AFCI protection.

Workgroup Recommendation

Workgroup 3 Recommendation: None

Workgroup 3 Reason: None

Workgroup 4 Recommendation: None

Workgroup 4 Reason: None

Board Decision

None

CR-E3902.16 cdpVA-15

CTG-310.1 cdpVA-15

Proponent : Bob Torbin (bob.torbin@omegaflex.net)

2015 International Fuel Gas Code

310.1 Pipe and tubing ~~other than CSST.~~ Each aboveground portion of a gas *piping* system ~~other than corrugated stainless steel tubing (CSST)~~ that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. Gas *piping* ~~other than CSST~~ shall be considered to be bonded where it is connected to appliances that are connected to the *equipment* grounding conductor of the circuit supplying that *appliance*. Corrugated Stainless steel tubing (CSST) piping systems listed with an arc resistant jacket or coating system in accordance with ANSI LC-1 shall comply with this section. Where any CSST segments of a piping system are not listed with an arc resistant jacket or coating system in accordance with ANSI LC-1, Section 310.1.1 shall apply.

310.1.1 CSST~~.~~ without arc resistant jacket or coating system ~~Corrugated stainless steel tubing (~~
CSST~~)~~ gas *piping* systems and piping systems containing one or more segments of CSST not listed with an arc resistant jacket or coating system in accordance with ANSI LC-1 shall be bonded to the electrical service grounding electrode system or, where provided, the lightning protection grounding electrode system and shall comply with Sections 310.1.1.1 through 310.1.1.5.

2015 International Residential Code

G2411.1 (310.1) Pipe and tubing ~~other than CSST.~~ Each above-ground portion of a *gas piping system* ~~other than corrugated stainless steel tubing (CSST)~~ that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. *Gas piping* ~~other than CSST~~ shall be considered to be bonded where it is connected to *appliances* that are connected to the equipment grounding conductor of the circuit supplying that *appliance*. Corrugated stainless steel tubing (CSST) piping systems listed with an arc resistant jacket or coating system in accordance with ANSI LC-1 shall comply with this section. Where any CSST segments of a piping system are not listed with an arc resistant jacket or coating system in accordance with ANSI LC-1, Section G2411.1.1 shall apply.

G2411.1.1 (310.1.1) CSST without arc resistant jacket or coating system. ~~Corrugated stainless steel tubing (~~
CSST~~)~~ gas *piping* systems and piping systems containing one or more segments of CSST not listed with an arc resistant jacket or coating system in accordance with ANSI LC-1 shall be bonded to the electrical service grounding electrode system or, where provided, the lightning protection electrode system and shall comply with Sections G2411.1.1.1 through G2411.1.1.5.

Add new standard(s) as follows: ANSI LC-1-2014/CSA 6.26-2014 Fuel gas piping systems using corrugated stainless steel tubing

Reason:
The use of a CSST product with a protective, arc resistant jacket is an equivalent method of protection against electrical arcing damage caused by high voltage transient events such as lightning strikes. The protective jacket is designed to locally absorb and dissipate the arcing energy or conduct it away. The jacket, in essence, disrupts the focus of the arc and reduces the energy level below the threshold value that can cause a perforation of the tubing wall. This dynamic action is equally effective compared to the current CSST bonding method as confirmed by ICC ES PMG 1058. The protection against arcing is provided uniformly throughout the piping system, and is not affected by close proximity to other metallic systems that may not be similarly bonded.

The CSA Technical Sub-Committee for national consensus standard ANSI LC-1 (2014) added performance criteria for arc resistant jackets in 2014 which is why this standard reference was updated. These criteria provide the ability to determine if the CSST jacket can resist damage from transient arcing currents under conditions associated with lightning strikes. The ANSI LC-1 Standard defines the experimental means to determine whether the protective jacket provides resistance to damage from lightning strikes without the need for additional bonding as prescribed currently in G2411.1.1 of the 2015 edition of the International Residential Code and Section 310.1.1 of the International Fuel Gas Code. In addition, the ANSI LC-1 standard includes performance criteria for jacket wear/tear resistance, resistance to low temperature embrittlement, and resistance (of metallic components) to corrosion (when applicable). The ICC Evaluation Service has also performed an assessment of the arc resistant jacket technology, and has issued PMG listings for all three commercially available "black" CSST products.

In support of the 2015 edition of the NFPA 54 Code, extensive testing was performed under the management of the Gas Technology Institute to demonstrate the effectiveness of the prescribed method of bonding for CSST. That report was submitted and accepted by the NFGC Technical Committee in support of modifications made to the 2012 CSST bonding requirements. That same report (and test conditions) was used as the basis for a new study (performed by PowerCET) to examine the ability of the arc resistant jacket to provide the equivalent level of protection (or better) against arcing damage. That report is included with this proposal, and demonstrates that arc-resistant jackets will provide equal or better protection against lighting induced arcing as the bonding of standard CSST.

CSST with arc-resistant jacket has been commercially installed since 2004, and at the present time, three different (black-jacketed) products are commercially available. Field experience has been very favorable with over 125 million feet installed and only two confirmed cases of indirect or direct lightning damage to CSST piping systems using these black jackets. Currently, at least 15 states (as shown below) permit the installation of the arc resistant CSST without the need for additional bonding. Both conventional (yellow) and advanced (black) CSST products will continue to be commercially available and installed in new and existing buildings. Given that both methods of electrical protection of CSST systems have been demonstrated to be effective, they should be recognized and permitted in the Commonwealth of Virginia. The 2018 IFGC will include arc resistant CSST without the need for additional bonding when that language is extracted from the 2018 NFPA 54. We are asking that Virginia recognize those changes with the adoption of the 2015 IFGC.

States currently permitting black jacket CSST without additional bonding per Section 7.13.2:

Massachusetts	Oklahoma	Nebraska
Connecticut	Colorado	Montana
Rhode Island	New Jersey	Georgia
Wisconsin	North Dakota	Indiana
Michigan	Oregon	Maryland

Supporting Documentation:

http://media.iccsafe.org/cdpva/CSST_doc.pdf

Cost Impact: While arc-resistant CSST may cost 5-8 percent more per foot compared to conventional (yellow) CSST, there will be no negative cost impact to either the builder or the home owner. The additional cost of arc resistant CSST is offset by the savings associated with the cost of CSST bonding which includes two bonding clamps, 75-ft of #6 AWG copper conductor and the associated installation labor.

Workgroup Recommendation

Workgroup 4 Recommendation: None

Workgroup 4 Reason: None

Workgroup 3 Recommendation Recommendation: Pending

Workgroup 3 Reason: Torbin not present-Dave Edler spoke for omegaflex-NFPA 54 committee has passed this up the ladder for approval for 2018 IFGC-LC1 should be followed by CSA6.6-Bartell asking why move forward until finalized with NFPA54-Gerber-field applied jacket? (No)

Board Decision

None

CTG-310.1 cdpVA-15

CTM-506.5.2 cdpVA-15

Proponent : Shawn Strausbaugh, Representing VPMIA & VBCOA PMG code change committee (sstrausbaugh@arlingtonva.us)

2012 Virginia Mechanical Code

SECTION 202 DEFINITIONS

Pollution Control Unit **POLLUTION CONTROL UNIT** Manufactured equipment that is installed in a grease exhaust duct system for the purpose of extracting smoke, grease particles, and odors from the exhaust flow by means of a series of filters.

506.5.2 **Pollution Control Unit** **506.5.2 Pollution Control Units.** The installation of pollution control units shall be in accordance with the manufacturer's installation instructions and all of the following:

1. Pollution control units shall be listed and labeled in accordance with UL 1978.
2. Fans serving pollution control units shall be listed and labeled in accordance with with UL 762.
3. Pollution control units shall be mounted and secured in accordance with the manufacturer's installation instructions and the International Building Code.
4. Pollution control units located indoors shall be listed and labeled for such use. Where enclosed duct systems, as required by Section 506.3.11, are connected to a pollution control unit, such unit shall be located in a room or space having the same fire-resistance rating as the duct enclosure. Access shall be provided for servicing and cleaning of the unit. The space or enclosure shall be ventilated in accordance with the manufacturer's installation instructions.
5. A clearance of not less than 18 inches (457 mm) shall be maintained between the pollution control unit and combustible material.
6. Roof mounted pollution control units shall be listed for exterior installation and shall be mounted not less than 18 inches (457 mm) above the roof.
7. Exhaust outlets for pollution control units shall be in accordance with Section 506.3.13.
8. An airflow differential pressure control shall be provided to monitor the pressure drop across the filter sections of a pollution control unit. When the airflow is reduced below the design velocity, the airflow differential pressure control shall activate a visual alarm located in the area where cooking operations occur.
9. Pollution control units shall be provided with a factory installed fire suppression

system.
10. Service space shall be provided in accordance with the manufacturer's instructions for
the pollution control unit and the requirements of Section 306.
11. Wash down drains shall discharge through a grease interceptor and shall be sized for the flow. Drains, shall be sealed with a trap or other approved means to prevent air bypass. Where a trap is utilized it shall have a seal depth that accounts for the system pressurization and evaporation between cleanings.
12. Protection from freezing shall be provided for the water supply and fire suppression systems where such systems are subject to freezing.
13. Duct connections to pollution control units shall be in accordance with Section 506.3.2.3. Where water splash or carryover can occur in the transition duct as a result of a washing operation, the transition duct shall slope downward toward the cabinet drain pan for a length not less than 18 inches (457 mm). Ducts shall transition to the full size of the units inlet and outlet openings.
14. Extra heavy duty appliance exhaust systems shall not be connected to pollution control units except where such units are specifically designed and listed for use with solid fuels.
15. Pollution control units shall be maintained in accordance with the manufacturer's instructions.

Reason: Pollution Control Units have been manufactured by numerous companies for several years. The desire to limit the amount of smoke, grease, and other particulate at the exhaust outlets of commercial cooking appliances has driven the use of these units as numerous entities are requiring these types of units to be installed. These unit and there minimum construction and installation standards need to be addressed in the mechanical code.

Cost Impact: Will increase the cost of construction
The cost of construction of these specific units may be increased by manufacturers if their current unit did not meet the minimum requirements per this new section. As we do not represent manufacturers it is difficult to substantiate if this proposed change will have such a cost increase or not.

Workgroup Recommendation

Workgroup 4 Recommendation: None

Workgroup 4 Reason: None

Board Decision

None

CTM-506.5.2 cdpVA-15

CTP-603.3 cdpVA-15

Proponent : Carl Dale (carl.dale@scc.virginia.gov)

2015 International Plumbing Code

603.3 Tracer Wire 603.3 Tracer wire. Nonmetallic water piping shall be locatable. An insulated copper tracer wire, 18 AWG minimum in size and suitable for direct burial or an equivalent product shall be utilized. The wire shall be installed in the same trench as the water piping and with-in 12 inches (305 mm) of the pipe and shall be installed to within five feet (1524 mm) of the building wall to the point where the building water intersects with the public water supply. At a minimum, one end of the wire shall terminate above grade in an accessible location that is resistant to physical damage, such as with a meter vault or at the building wall.

Reason: In February 2014, a home exploded in Stafford County Virginia. The explosion was caused by damage to a nonmetallic water service utility line ("water lateral") that had not been installed with a tracer wire and had not been located prior to excavation. This excavation damaged the water lateral in the process of installing the natural gas utility service line. When the water was turned on for final occupancy permitting, the escaping water created an abrasive spray on the gas utility service line. The gas utility service line then ruptured due to the abrasive spray. Natural gas migrated into the home and found an ignition source which destroyed the home just days prior to occupancy.
The addition of a tracer wire requirement to non-metallic water piping in the Uniform Statewide Building Code ("USBC") will bring another layer of public safety inspection to construction sites across the Commonwealth. Local building inspectors would be empowered to inspect non-metallic water laterals for locatability as it pertains to the USBC at time of installation. These inspections would be similar to the inspection of non-metallic sewer utilities that are currently covered by the USBC.

Local building inspectors are regularly onsite at or near the time of installation of these water laterals during their construction. The building inspectors' ability to inspect/enforce this proposed requirement will minimize the chances of similar circumstances such as the Stafford explosion from occurring again by ensuring all non-metallic water laterals have tracer wires to facilitate excavators locating the water lateral for safe excavation around the water lateral.

This proposed change will also mirror the other requirements set forth in the Commonwealth under; § 56-257.1. "*Means of locating nonmetallic underground conduits*" and § 56-265.20:1. "*Locating nonmetallic underground utility lines*". It should also be noted that at least three municipalities, the Counties of Halifax[1], Loudoun[2], and the City of Charlottesville[3] in the Commonwealth, require non-metallic water laterals to have tracer wires on them.

[1] Halifax County Service Authority, "Minimum Requirements for Contractors performing work in relation to the Authority's Potable Water and Sanitary Sewer System", http://www.hcsa.us/files/HCSA-Tracer-Wire---General-Construction-Requirements.pdf (accessed December 16, 2014)

[2] Loudoun Water, "Letter to the Industry, February 10, 2011" Loudoun County http://www.loudounwater.org/uploadedFiles/Loudoun_Water/Developers_and_New_Construction/trace *(accessed December 16, 2014).*

[3] City of Charlottesville, *Potable Water and Sanitary Sewer Standard Specifications and Details*, (City of Charlottesville, January 2012) 24.

Cost Impact: The impact on both construction cost and time, along with the impact to the inspection process, would be minimal. Two large homebuilders in the Commonwealth have estimated total construction costs for installing tracer wire on water utility lines at .45 cents a foot for an estimated $25-30 per water service line installed. Currently during the new home construction process, sanitary sewer and water utilities are inspected at or near the same time for other USBC requirements. This inspection would only require a nominal amount of time for inspecting for the presence and type of a tracer wire on a water lateral that is already being inspected under other USBC requirements.

Workgroup Recommendation

Workgroup 3 Recommendation Recommendation: Non-Consensus Final

Workgroup 3 Reason: Gerber stated won't really help the issue-Emory stated talk to local water authority

Workgroup 4 Recommendation: None

Workgroup 4 Reason: None

Board Decision

None

CTP-603.3 cdpVA-15

CR-P2602.3 cdpVA-15

2602.3 (New)

Proponent : Carl Dale (carl.dale@scc.virginia.gov)

2015 International Residential Code

2602.3 **Tracer Wire** P2602.3 Tracer Wire. Nonmetallic water piping shall be locatable. An insulated copper tracer wire, 18 AWG minimum in size and suitable for direct burial or an equivalent product shall be utilized. The wire shall be installed in the same trench as the water piping and within 12 inches (305 mm) of the pipe and shall be installed to within five feet (1524 mm) of the building wall to the point where the building water intersects with the public water supply. At a minimum, one end of the wire shall terminate above grade in an accessible location that is resistant to physical damage, such as with a meter vault or at the building wall.

Reason: In February 2014, a home exploded in Stafford County Virginia. The explosion was caused by damage to a nonmetallic water service utility line ("water lateral") that had not been installed with a tracer wire and had not been located prior to excavation. This excavation damaged the water lateral in the process of installing the natural gas utility service line. When the water was turned on for final occupancy permitting, the escaping water created an abrasive spray on the gas utility service line. The gas utility service line then ruptured due to the abrasive spray. Natural gas migrated into the home and found an ignition source which destroyed the home just days prior to occupancy.
The addition of a tracer wire requirement to non-metallic water piping in the Uniform Statewide Building Code ("USBC") will bring another layer of public safety inspection to construction sites across the Commonwealth. Local building inspectors would be empowered to inspect non-metallic water laterals for locatability as it pertains to the USBC at time of installation. These inspections would be similar to the inspection of non-metallic sewer utilities that are currently covered by the USBC.

Local building inspectors are regularly on-site at or near the time of installation of these water laterals during their construction. The building inspectors' ability to inspect/enforce this proposed requirement will minimize the chances of similar circumstances such as the Stafford explosion from occurring again by ensuring all non-metallic water laterals have tracer wires to facilitate excavators locating the water lateral for safe excavation around the water lateral.

This proposed change will also mirror the other requirements set forth in the Commonwealth under; § 56-257.1. "*Means of locating nonmetallic underground conduits*" and § 56-265.20:1. "*Locating nonmetallic underground utility lines*". It should also be noted that at least three municipalities, the Counties of Halifax[1], Loudoun[2], and the City of Charlottesville[3] in the Commonwealth, require non-metallic water laterals to have tracer wires on them.

[1] Halifax County Service Authority, "Minimum Requirements for Contractors performing work in relation to the Authority's Potable Water and Sanitary Sewer System", http://www.hcsa.us/files/HCSA-Tracer-Wire---General-Construction-Requirements.pdf (accessed December 16, 2014)

[2] Loudoun Water, "Letter to the Industry, February 10, 2011" Loudoun County http://www.loudounwater.org/uploadedFiles/Loudoun_Water/Developers_and_New_Construction/trace *(accessed December 16, 2014).*

[3] City of Charlottesville, *Potable Water and Sanitary Sewer Standard Specifications and Details*, (City of Charlottesville, January 2012) 24.

Cost Impact: The impact on both construction cost and time, along with the impact to the inspection process, would be minimal. Two large homebuilders in the Commonwealth have estimated total construction costs for installing tracer wire on water utility lines at .45 cents a foot for an estimated $25-30 per water service line installed. Currently during the new home construction process, sanitary sewer and water utilities are inspected at or near the same time for other USBC requirements. This inspection would only require a nominal amount of time for inspecting for the presence and type of a tracer wire on a water lateral that is already being inspected under other USBC requirements.

Workgroup Recommendation

Workgroup 3 Recommendation Recommendation: Non-Consensus Final

Workgroup 3 Reason: Proponent not present-Vernon explained the proposal-

Workgroup 4 Recommendation: None

Workgroup 4 Reason: None

Board Decision

None

CR-P2602.3 cdpVA-15

CT-S305.2.10 cdpVA-15

Proponent : Michael Redifer (mredifer@nnva.gov)

2015 International Swimming Pool and Spa Code

305.2.10 ~~Poolside~~B~~b~~arrier setbacks. The pool or spa side of the required barrier shall be not less than 20 inches (508 mm) from the water's edge. The required barrier shall be not less than 36 inches (914 mm) from any lot line.

Reason: Establishing a setback from lot lines equal to the clear zone dimension of 36 inches (305.2.9) will ensure future activity by adjacent property owner will not require relocation of the barrier in order to maintain the established level of safety.

Cost Impact: This will increase the cost of construction in cases where using an existing fence on an adjacent property is preferable to installing a barrier located entirely on the property where the pool is located.

Workgroup Recommendation

Workgroup 3 Recommendation Recommendation: Consensus for Disapproval

Workgroup 3 Reason: Danville B/O-see's no issue with shared fences-Clements-if barrier removed cite thru property maint. code

Workgroup 4 Recommendation: None

Workgroup 4 Reason: None

Board Decision

None

CT-S305.2.10 cdpVA-15

SECTION M1506
EXHAUST DUCTS AND EXHAUST OPENINGS

M1506.1 Duct construction. Where exhaust duct construction is not specified in this chapter, construction shall comply with Chapter 16.

M1506.2 Duct length. The length of exhaust and supply ducts used with ventilating equipment shall not exceed the lengths determined in accordance with Table M1506.2.

Exception: Duct length shall not be limited where the duct system complies with the manufacturer's design criteria or where the flow rate of the installed ventilating equipment is verified by the installer or approved third party using a flow hood, flow grid or other airflow measuring device.

M1506.3 Exhaust openings. Air exhaust openings shall terminate not less than 3 feet (914 mm) from property lines; 3 feet (914 mm) from operable and nonoperable openings into the building and 10 feet (3048 mm) from mechanical air intakes except where the opening is located 3 feet (914 mm) above the air intake. Openings shall comply with Sections R303.5.2 and R303.6.

SECTION M1507
MECHANICAL VENTILATION

M1507.1 General. Where local exhaust or whole-house mechanical ventilation is provided, the equipment shall be designed in accordance with this section.

M1507.2 Recirculation of air. Exhaust air from bathrooms and toilet rooms shall not be recirculated within a residence or to another *dwelling unit* and shall be exhausted directly to the outdoors. Exhaust air from bathrooms and toilet rooms shall not discharge into an *attic*, crawl space or other areas inside the building.

M1507.3 Whole-house mechanical ventilation system. Whole-house mechanical ventilation systems shall be designed in accordance with Sections M1507.3.1 through M1507.3.3.

M1507.3.1 System design. The whole-house ventilation system shall consist of one or more supply or exhaust fans, or a combination of such, and associated ducts and controls. Local exhaust or supply fans are permitted to serve as such a system. Outdoor air ducts connected to the return side of an air handler shall be considered as providing supply ventilation.

M1507.3.2 System controls. The whole-house mechanical ventilation system shall be provided with controls that enable manual override.

M1507.3.3 Mechanical ventilation rate. The whole-house mechanical ventilation system shall provide outdoor air at a continuous rate of not less than that determined in accordance with Table M1507.3.3(1).

Exception: The whole-house mechanical ventilation system is permitted to operate intermittently where the system has controls that enable operation for not less than 25-percent of each 4-hour segment and the ventilation rate prescribed in Table M1507.3.3(1) is multiplied by the factor determined in accordance with Table M1507.3.3(2).

TABLE M1506.2
DUCT LENTH

DUCT TYPE	FLEX DUCT								SMOOTH-WALL DUCT							
Fan airflow rating (CFM @ 0.25 inch wc[a])	50	80	100	125	150	200	250	300	50	80	100	125	150	200	250	300
Diameter[b] (inches)	Maximum length[c, d, e] (feet)															
3	X	X	X	X	X	X	X	X	5	X	X	X	X	X	X	X
4	56	4	X	X	X	X	X	X	114	31	10	X	X	X	X	X
5	NL	81	42	16	2	X	X	X	NL	152	91	51	28	4	X	X
6	NL	NL	158	91	55	18	1	X	NL	NL	NL	168	112	53	25	9
7	NL	NL	NL	NL	161	78	40	19	NL	NL	NL	NL	NL	148	88	54
8 and above	NL	NL	NL	NL	NL	189	111	69	NL	NL	NL	NL	NL	NL	198	133

For SI: 1 foot = 304.8 mm.

a. Fan airflow rating shall be in acordance with ANSI/AMCA 210-ANSI/ASHRAE 51.

b. For noncircular ducts, calculate the diameter as four times the cross-sectional area divided by the perimeter.

c. This table assumes that elbows are not used. Fifteen feet of allowable duct length shall be deducted for each elbow installed in the duct run.

d. NL = no limit on duct length of this size.

e. X = not allowed. Any length of duct of this size with assumed turns and fittings will exceed the rated pressure drop.

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TABLE M1507.3.3(1)
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

For SI: 1 square foot = 0.0929 m^2, 1 cubic foot per minute = 0.0004719 m^3/s.

TABLE M1507.3.3(2)
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS[a, b]

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
Factor[a]	4	3	2	1.5	1.3	1.0

a. For ventilation system run time values between those given, the factors are permitted to be determined by interpolation.
b. Extrapolation beyond the table is prohibited.

M1507.4 Local exhaust rates. *Local exhaust* systems shall be designed to have the capacity to exhaust the minimum air flow rate determined in accordance with Table M1507.4.

TABLE M1507.4
MINIMUM REQUIRED LOCAL EXHAUST RATES FOR ONE- AND TWO-FAMILY DWELLINGS

AREA TO BE EXHAUSTED	EXHAUST RATES
Kitchens	100 cfm intermittent or 25 cfm continuous
Bathrooms-Toilet Rooms	Mechanical exhaust capacity of 50 cfm intermittent or 20 cfm continuous

For SI: 1 cubic foot per minute = 0.0004719 m^3/s.

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