



**MECKLENBURG COUNTY**  
**Land Use and Environmental Services Agency**  
**Code Enforcement**

# Memo

Date: December 16, 2010  
To: All Customers  
From: Jim Bartl, Director of Code Enforcement  
RE: Amendment to the Permit Extension Act of 2009

The Permit Extension Act of 2009 has been extended to December 31, 2011.

**(Background on the Permit Extension Act of 2009)**

The lack of credit and dismal prospects for sales led many developers in 2008 and 2009 to delay or to postpone previously approved projects. This prompted concern in the development community that with the passage of time and no action on the developers' part, development permits would soon begin to expire causing the work and costs associated with obtaining those approvals and permits to be lost. The General Assembly addressed these concerns with enactment of a permit extension law, S.L. 2009-406 (S 831). The law was effective August 4, 2009.

The new North Carolina law extended most state and local development approvals that were valid at any time between January 1, 2008, and December 31, 2010. It provides that the running of any time period for taking action on a permit is suspended throughout this three-year period. The critical provision in this new law is as follows:

For any development approval that is current and valid at any point during the period beginning January 1, 2008, and ending December 31, 2010, the running of the period of the development approval and any associated vested right under G.S. 153A-344.1 or G.S. 160A-385.1 is suspended during the period beginning January 1, 2008, and ending December 31, 2010.

**(Amendment to the Permit Extension Act of 2009)**

The "Permit Extension Act" was scheduled to sunset December 31, 2010. In July of 2010, the North Carolina General Assembly passed SESSION LAW 2010-177 - HOUSE BILL 683 which extended the "Permit Extension Act" for another year. This new extension, when it was passed, included a provision that allowed for any local government to "Opt-Out" of the extension. In other words, any jurisdiction could decide not to allow the extension of the "Permit Extension Act" for the additional year.

**This is to inform you that all of the governmental jurisdictions within Mecklenburg County including the City of Charlotte and the six towns have decided not to opt-out of the extension. All permits that were protected by Permit Extension Act are protected for an additional year with the new sunset date of December 31, 2011.**



**MECKLENBURG COUNTY**  
**Land Use and Environmental Services Agency**  
**Code Enforcement**

# Memo

**Date:** January 18, 2011  
**TO:** all contractors  
**From:** Jim Bartl  
**RE:** Code Compliance Report

For over thirteen years, the Department has collected data on inspection failures, based on a system of defect codes, which are recorded at the time of inspection. Those reports are summarized for presentation to the Building Development Commission on a quarterly basis.

Attached is a copy of the most recent Code Compliance Report Data Summary for the period October 1, 2010 to December 31, 2010. This report highlights the most frequent code defects sighted in each of the trades.

Since July 1, 2001, detailed contractor code defect data has been available on the Department web site (go to the contractor's tool box at [www.meckpermit.com](http://www.meckpermit.com)). Questions on the data may be directed to Kathleen Batey (704-336-3545) or your project specific Code Enforcement Manager.

Prior to July 1, 2002, we also held hard copies of individual contractor defect reports at the Building Development Center front desk for contractor pickup. Given the huge amount of paper involved, and the fact that the vast majority of these reports were not picked up, this service was discontinued. However, Hal Marshal administrative support staff will provide assistance to contractors on downloading their reports over the counter or by phone (call 704-336-3830).



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October 1, 2010 through December 31, 2010  
 Mecklenburg County Code Enforcement Department

# Code Compliance Report

## Data Summary

### 1. Building Inspections Top Fifteen Code Defects

task	item #	item	# defects	% of total
mono slab	108	need soil compaction test	249	6.25%
framing	111	fire stopping/draftstopping	182	4.57%
framing	197	other defects listed on job	122	3.06%
footing	108	need soil compaction test	121	3.04%
final	197	other defects listed on job	83	208.00%
frame	105	call clerk or check meckpermit	78	1.96%
final	118	handrail construction	78	1.96%
frame	104	not ready for inspection	75	1.88%
final	105	call clerk or check meckpermit	68	1.70%
final	104	not ready for inspection	62	1.56%
frame	109	foundation anchors	60	1.50%
final	123	exterior grading	52	1.31%
final	106	no address posted	48	1.20%
frame	137	trade roughs incomplete	47	1.18%
frame	131	engineered roof design	45	1.14%
TOTAL			1370/3981	34.41%

Note 1: all 04 (incomplete not ready for inspection) total 250 or 6.28% of total bldg code defects noted

Note 2: Rough O2's = 34.44% of total; Final O2's = 26.35% of total

### 2. Electrical Inspections Top Fifteen Code Defects

task	item #	item	# defects	% of total
final	19	label panel	134	4.41%
final	30	improper wiring method	127	4.18%
final	W8	defects created by others	125	4.11%
final	25	improper overcurrent protection	115	3.79%
final	9	grounding	105	3.46%
final	65	AFCI defect	68	2.24%
final	31	cables subject to damage	66	2.18%
final	55	GFCI defect general	63	2.07%
final	5	too many defects to list	58	1.91%
final	6	defect not corrected	57	1.88%
final	4	job not ready	56	1.84%
final	11	incorrect size or type wire	55	1.81%
final	10	bonding	53	1.75%
final	22	covers missing	50	1.64%
final	X9	need ladder on job	38	1.25%
TOTAL			1170/3037	38.52%

Note 1: all 04 (incomplete not ready) total 128 or 4.2% of total electrical code defects noted

Note 2: Rough O2's = 13.07% of total; Final O2's = 69.28% of total

### 3. Mechanical Inspections Top Fifteen Code Defects

task	item #	item	# defects	% of total
final	G03	test not to code or bad gauge	105	5.88%
final	H01	damage caused by others	90	5.04%
final	Z99	other or no defect code applies	89	4.98%
final	Z96	approval withheld for other trades	82	4.59%
gas test	G03	test not to code or bad gauge	81	4.53%
final	P1	primary/secondary drain missing	62	3.47%
final	A4	not ready for inspection	51	2.84%
final	A13	need ladder	45	2.52%
rough	H01	damage caused by others	39	2.18%
rough	D6	duct damaged	36	2.01%
final	D4	duct installation incorrect	32	1.79%
final	F1	flue clearance incorrect	29	1.62%
final	F2	flue material incorrect	28	1.57%
final	D5	duct or boot not sealed	28	1.57%
final	G4	gas pipe damaged or incorrect	25	1.40%
TOTAL			793/1787	44.38%

Note 1: all 04 (not ready for inspection) total 86 or 4.8% of total mechanical code defects noted

Note 2: Rough O2's = 18.02% of total; Final O2's = 67.54% of total

### 4. Plumbing Inspections Top Fifteen Code Defects

task	item #	item	# defects	% of total
rough	B31	pipng test missing/incorrect	73	9.53%
final	H1	damage caused by others	41	5.35%
final	E71	fixture installed incorrect	37	4.83%
final	41	not ready	32	4.18%
final	D31	T&P drain missing or incorrect	28	3.65%
final	J41	ext'g cond'tn not code compliant	28	3.65%
final	E31	accessibility regs miss'g/incorrect	19	2.48%
wtr distr	B31	pipng test missing/incorrect	18	2.35%
final	J21	equipment access	16	2.09%
final	D21	wtr heater pan missing/incorrect	16	2.09%
final	D1	clearances incorrect	15	1.96%
final	D51	expansion device missing	15	1.96%
final	E81	backflow requirement	13	1.70%
rough	B51	pipng support missing/incorrect	12	1.57%
slab	B31	pipng test missing/incorrect	11	1.44%
TOTAL			374/766	48.80%

Note 1: all 04 (not ready for inspection) total 55 or 7.18% of total plumbing code defects noted

Note 2: Rough O2's = 21.93% of total; Final O2's = 47.26% of total

# **Commercial Building**

*Land Use and Environmental Service Agency  
(Code Enforcement)*

## **December Q&A 2010**

### **General:**

1. (Q) *When two means or egress are required from a space can their paths converge on the way to the exits?*
  - (A) If two or more exits are required they must be located as required by sect. 1015.2.1 and sect. 1015.2.2. care must be taken so that even if the exits are located as required from the room or space, that the paths do not converge and become closer than allowed by the above sections.
  
2. (Q) *Can EJ's be transferred from on job to the next.*
  - (A) They cannot be transferred from on job to another and must be based on an approved tested design.
  
3. (Q) *What occupancy classification are church nurseries?*
  - (A) Nurseries in churches shall be classified as an I-4 but can be classified as an E if they meet the exception under 308.5.2. However it then cannot be taken one step further under 508.3.1 and be classified as an A-3 and remove the exterior door requirement.

# **Commercial Building**

Land Use and Environmental Service Agency  
(Code Enforcement)

## **November Q&A 2010**

### **General:**

1. (Q) *Where must the accessible parking be located?*  
(A) Section 1106.6 requires that it be located on the shortest accessible route. The 200' allowance is no longer in the code. Note that shortest route is not always the shortest accessible route.
  
2. (Q) *Do fabric awnings have to be fire retardant treated?*  
(A) Yes, this requirement is found in Section 3104.5 and states that the material must meet NFPA 701.
  
3. (Q) *Is an accessible route required for the second floor of a two story restaurant if a different service is provided on the second floor.*  
(A) Per DOI no. Section 1104.4 does not require an elevator so an accessible route is not required.
  
4. (Q) *Is a 6" base required if the wall is painted with epoxy paint?*  
(A) No, if the joint at the bottom of the wall is sealed with a water proof sealant and the epoxy paint is approved by the manufacturer for that application.
  
5. (Q) *Does a cable guard have to meet the requirements of Section 1013.3?*  
(A) Yes, inspectors should use a reasonable force when testing for the passage of the 4" sphere.
  
6. (Q) *Will a special inspection report be accepted for the installation of the insulation behind tubs in condos?*  
(A) Yes

# **Commercial Building**

*Land Use and Environmental Service Agency  
(Code Enforcement)*

## **October Q&A 2010**

### **General:**

1. *(Q) Are shaft walls required to be supported on floors having the same rating as the wall?*
  - (A) Yes, shaft walls are constructed as fire barriers, Section 706.5 requires that they be supported on construction having the same rating as required for the fire barrier.
  
2. *(Q) What does the exception to Section 1405.12.2 mean?*
  - (A) Windows that are tested in accordance with ASTM 2006 for windows located more than 75' above grade and accordance with ASTM 2090 for windows located less than 75' above grade comply with this section.
  
3. *(Q) What must be on the plans for access controlled doors.*
  - (A) All six items in Section 1008.1.3.4 must be reproduced on the plans.
  
4. *(Q) What is the maximum time on delay on delayed egress?*
  - (A) 15 seconds. Mecklenburg County does not allow the 30 second delay.
  
5. *(Q) What are the egress requirements for rooms with moveable dividers?*
  - (A) Both rooms on each side of the divider must meet the requirements for door swing, number of exits, exit signs, emergency lights, remoteness ect.
  
6. *(Q) Do all rated walls need to be shown on the plans even if they are existing?*
  - (A) Yes, if rated walls are found in the field that are not shown on the plan this needs to be brought to the attention of the Plan Examiner.
  
7. *(Q) Does a tenant space need access to all the required exits off a floor even if the space only requires one means of egress.*
  - (A) Yes, once you leave a tenant space that requires only one exit you must have access to all the required exits from that floor. If a building requires two exits, then all floors in that building must have two exits.
  
8. *(Q) IS locked access allowed to restrooms.*
  - (A) Per the Plumbing CA. In business occupancies access to the restrooms can be controlled by card readers provided free egress is provided. This does not apply to small eating establishments on transportation facilities.





# Fuel Gas 2010

Attention: ✓ Denotes a new question!

★ Denotes a revised/revisited question.

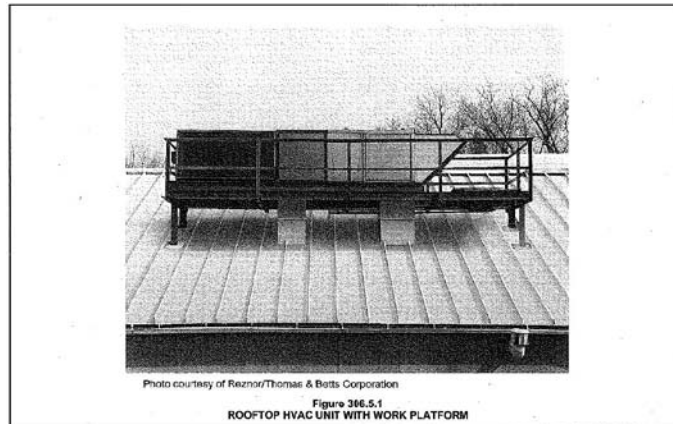
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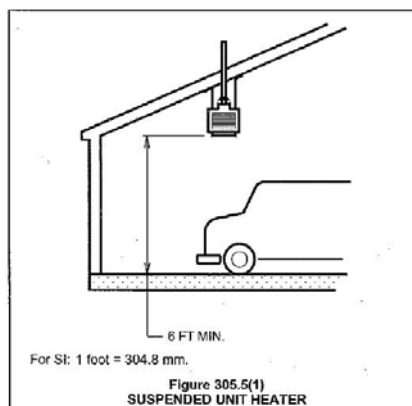
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## Chapter 3 General Regulations:

- 1) (Q) How would you access an appliance installed on a mansard roof where there was inadequate room to place the equipment below the roof?  
(A) Section 306.5 would require a platform not less than 30" with rails (guards) not less than 42" high.



- 2) (Q) Do "fire rings" have to be listed and labeled?  
(A) Yes
- 3) (Q) How much clearance is required for a unit heater installed in a residential garage?  
(A) Section 305.5 requires 6' clearance unless properly protected.





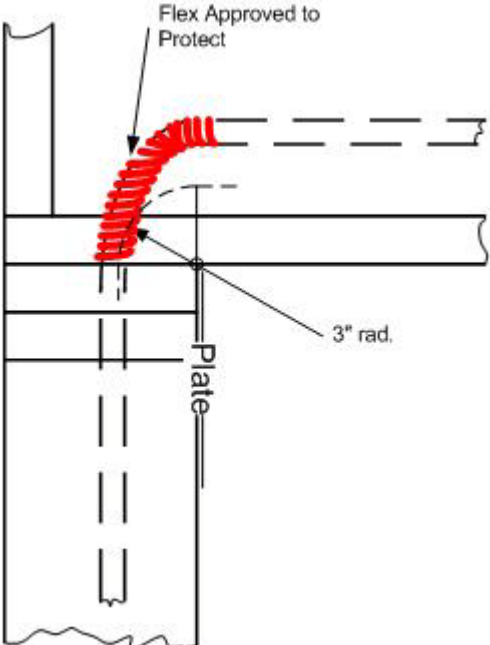
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## Chapter 4 Gas Piping Installations:

- 1) (Q) Does ALL CSST gas piping require an electrical bond?  
(A) Yes
- 2) (Q) What measurement range should be on a pressure gauge used for gas tests?  
(A) A system using 7" water column (low pressure) or 2 lb shall use gauges with a maximum pressure range of 30 psi. A system using pressure exceeding 2 lb shall use a gauge with a maximum pressure of 100 psi.
- 3) (Q) How much protection is required when running CSST vertically inside a stud wall and then turning horizontally into a floor/ceiling assembly?  
(A) Trackpipe, Wardflex and Gastite require protection anytime piping is restricted and within 3" of the surface. ALL recommend the use of flex pipe in turns such as the one described.  

- 4) (Q) Can CSST be run through the equipment housing?  
(A) Yes if supported by the CSST manufacturer. CSST connectors that are designed to be tightened only once shall be connected to a union.
- 5) (Q) Are listed connectors allowed to pass through kitchen cabinet partitions?  
(A) Yes.



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- 6) (Q) *May a contractor use Viega ProPress gas pipe system?*  
(A) Yes. Viega ProPress has achieved an ICC Evaluation approval (PMG-1036) and can be used as an alternative method.
- 7)✓ (Q) *Is there a requirement for how close an LP storage tank may be placed to a structure?*  
(A) Section 401.2 refers you to the Department of Agriculture.
- 8)✓ (Q) *Where does the shut off valve for a gas yard light have to be placed?*  
(A) Section 409.5 Equipment Shutoff valve.

**Exception:** Shutoff valves for vented decorative appliances and decorative appliances for installation in vented fireplaces shall not be prohibited from being installed **in an area remote from the appliance** where such valves are provided with ready access. Such valves shall be permanently identified and shall serve no other equipment. Piping from the shutoff valve to within 3 feet (914 mm) of the appliance connection shall be sized in accordance with Section 402.

**409.5.1 Shutoff valve in fireplace.** Equipment shutoff valves located in the firebox of a fireplace shall be installed in accordance with the appliance manufacturer's instructions.

## Chapter 5 Chimneys & Vents:

- 1) (Q) *Is it true that you can run a vertical equipment flue through a ceiling that is a common return?*  
(A) Yes. Section 503.3.6 of the NCFG allows for three different scenarios of flue vent installations;

**503.3.6 Above-ceiling air-handling spaces.** Where a venting system passes through an above-ceiling air-handling space or other nonducted portion of an air-handling system, the venting system shall conform to one of the following requirements:

1. The venting system shall be a listed special gas vent; other venting system serving a Category III or Category IV appliance; or other positive pressure vent, with joints sealed in accordance with the appliance or vent manufacturer's instructions.
2. The venting system shall be installed such that fittings and joints between sections are not installed in the above-ceiling space.
3. The venting system shall be installed in a conduit or enclosure with sealed joints separating the interior of the conduit or enclosure from the ceiling space.

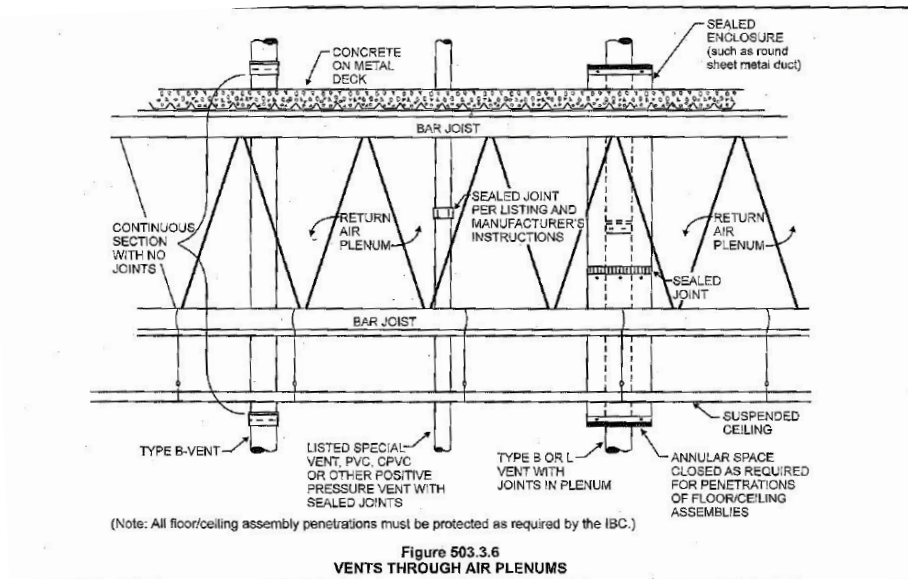


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## OTHER

- 1) ✓ (Q) *Is a mechanical license required to vent a water heater flue?*  
(A) No. A plumbing contractor may obtain a mechanical permit to install any water heater flue.
- 2) ✓ (Q) *General Contractors are purchasing gas insert fireplaces and having the carpenters install them. Is this legal?*  
(A) In Mecklenburg County we require that the installer have a valid contractor's license of a decorative appliance contractor's license, obtain the proper mechanical permit and call for regular inspections.



# Mechanical 2010

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## Chapter 2 Definitions:

- (Q) (Would a room housing an air handler whose return is open to the room, be considered a return plenum?)*  
**(A) Yes, the definition of a plenum states: PLENUM. An enclosed portion of the building structure, other than an occupiable space being conditioned, that is designed to allow air movement, and thereby serve as part of an air distribution system.**

## Chapter 3 General Regulations:

- (Q) Do contractors have to perform load calculations on HVAC exact equipment replacement?*  
**(A) We as a department would not require a load calculation on exact equipment replacement provided we didn't see anything that looked out of place. However, the Licensing Board has recently ruled that they will be requiring the calculation on ALL jobs including exact equipment replacement.**
- (Q) Do contractors have to install zone systems on new structures?*  
**(A) The Mechanical Code, section 312 points to ASHRAE (ACCA for residential) for calculating a structures heating and cooling loads. The State Board of Examiners rules state: (newsletter)  
 21 NCAC 50 .0505 GENERAL SUPERVISION AND STANDARD OF COMPETENCE  
 (d) Every newly installed residential heating system, air conditioning system or both shall be designed and installed to maintain a maximum temperature differential of 4 degrees Fahrenheit room-to-room and floor to floor. On multilevel structures, contractors are required to either provide a separate HVAC system for each floor or**



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to install automatically controlled zoning equipment for each level with individual thermostats on each level to control the temperature for that level. The seasonal adjustment needed to maintain the **4 degree** Fahrenheit room-to-room and floor-to-floor maximum temperature differential shall not be accomplished through the use of manual dampers.

(e) All licensed HVAC contractors are required to perform a thorough room-by-room load calculation for all new residential structures prior to installing heating systems, air conditioning systems, or both which calculations shall be specific to the location and orientation where the HVAC system or equipment is to be installed. A written record of the system and equipment sizing information shall be provided to the owner

or general contractor upon request and a copy shall be maintained in the job file of the licensee for a minimum of six (6) years.

(f) When either a furnace, condenser, or air handler in an existing residential heating or air conditioning system is replaced, the licensed HVAC contractor is required to perform a minimum of a whole house block load calculation. When a furnace, condenser or air handler in a residential heating or air conditioning system is replaced, it is the responsibility of the licensee to ensure that all systems and equipment are properly sized. The licensee may utilize industry standards, reference materials, evaluation of the structure, and load calculations. A written record of the system and equipment sizing information shall be provided to the homeowner, owner or general contractor upon request and a copy shall be maintained in the job file of the licensee for a minimum of six (6) years. If a load calculation was not performed or if a load calculation was performed and it is later determined by the Board that the unit installed was undersized or oversized, the installation will be considered as evidence of incompetence.

- 3) *(Q) Do the installation of zone systems require an electrical permit?*  
**(A) The installation of low and line voltage wiring and components typically found in HVAC systems are required to be permitted by an electrical contractor and inspected.**
- 4) *(Q) Where does the zone damper motor have to be placed?*  
**(A) Wherever the manufacturer requires. It still must be accessible.**
- 5) *(Q) May a single hvac system supply conditioned air to more than one tenant space?*  
**(A) Yes provided that the system is zoned such that each space may controlled from within the tenant space or the spaces are controlled by a energy management system by the building owner.**
- 6) *(Q) Does a products listing mark have to appear on the product or can the installer provide a letter?*  
**(A) The listing mark must be on the product.**





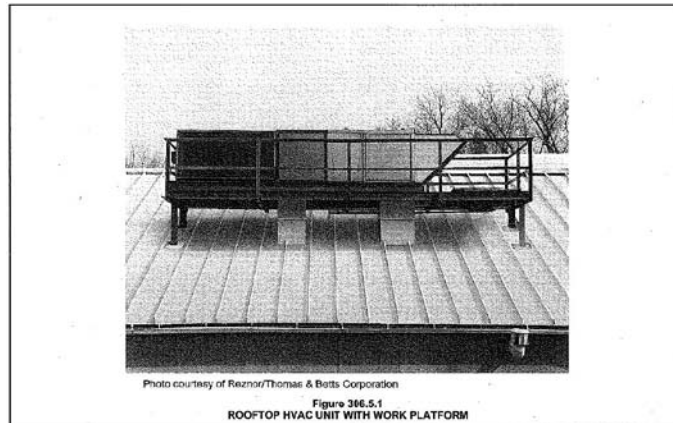
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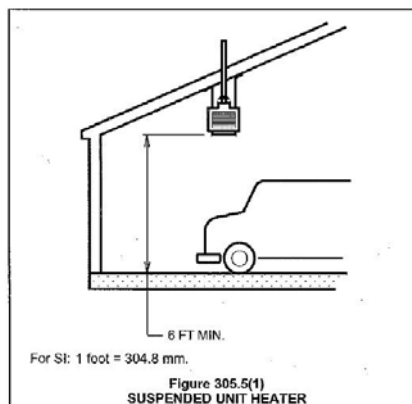
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November 2010

- 7) (Q) How would you access an appliance installed on a mansard roof where there was inadequate room to place the equipment below the roof?  
(A) Section 306.5 would require a platform not less than 30" with rails (guards) not less than 42" high.



- 8) (Q) What is required when a room addition covers an existing home's crawl space opening?  
(A) You may not create a violation by the installation of new work. The requirements of section 306.4 of the NCMC.NCFG would have to be met.
- 9) (Q) How does a designer take advantage of the R3 exemption provided in 306.5 of the NCMC and/or NCFG?  
(A) The design shall meet all of the aspects and limitations found in the R3 definition found in the NCBC.
- 10) (Q) How much clearance is required for a unit heater installed in a residential garage?  
(A) Section 304.6 requires 6' clearance unless properly protected.





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- 11) ✓ (Q) *May instantaneous water heater flu's condensate discharge to the primary condensate drain?*  
(A) Yes, per manufacturer's instructions. (307.1)

## Chapter 4 Ventilation:

- 1) (Q) *May you use CO<sup>2</sup> detectors to reduce the ventilation air requirements found in Chapter 4?*  
(A) The rates established in table 403.3 shall be provided unless statistical data supports alternate anticipated occupant density. However, the use of CO<sup>2</sup> detectors, placed 5 to 6 feet above the finish floor in the return air path may be used to operate a variable speed system. The designer shall submit his/her proposal for consideration. The Code Official will determine the acceptable minimum ventilation rate taking into consideration the building equipment makeup air requirements.
- 2) (Q) *Are there any ventilation requirements on lead acid battery backup systems of less than 50 gallon capacity?*  
(A) Yes, section 502.4.1 of the NCMC requires that the concentration of hydrogen be limited to less than 1% of the room volume. If the designer can show that the capacity of the batteries is less than 50 gallons and the hydrogen generated WILL NOT reach the listed threshold, then the normal ventilation required by table 403.3 will be sufficient.

## Chapter 5 Exhaust Systems:

- 1) (Q) *May a designer connect exhausts from restrooms and other uses such as a darkroom?*  
(A) No. Section 502.18 tells us that Chapter 4 contains the requirements for toilet rooms. Table 403.3, Category "Public Spaces", Section "Toilet Rooms"; state that you must exhaust 75 cfm per water closet or urinal. You also may use transfer air for make-up air up to 10%. There is no Code supporting the connection of toilet exhaust and other non related exhausts.
- 2) (Q) *Can a developer omit the makeup air requirements in 504.5 of the NCMC by claiming they have found a dryer that exhausts less than 200 CFM of air?*  
(A) The appliance industry overwhelmingly produces more





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appliances that exhaust more than 200 CFM of air to facilitate longer dryer exhaust vents. To take advantage of less CFM's would require "Permanent" signage (specific dryer) which also means shorted dryer vent installations.

3) (Q) *Does a gas fired steam warmer require a hood?*

(A) Yes, a minimum type II hood is required.

4) (Q) *What are the requirements for utilizing natural ventilation options to meet the Code?*

(A) You may use readily operable windows, doors and louvers to ventilate a space provided the ventilation opening/s area is a minimum of 4% of the floor area of the space being served.

5) (Q) *May a designer simply declare the quantity of people to meet the "statistical Data" exemption in section 403.3 for ventilation air?*

(A) No. To meet the statistical data exemption the designer would need to provide proof of the occupant loads, peak times, etc.

6) (Q) *Which category should a designer use in table 403.3 (Ventilation) for a church sanctuary?*

(A) The designer should use "Theaters/Auditoriums" at 150 people per 1000 sq./ft. at 15 cubic feet per person.

7) (Q) *May a contractor use fire wrap material to protect an grease exhaust duct from a tenant space to a shaft located in another tenant space?*

(A) Wraps are allowed in section 506.3.10, exception #1. They SHALL wrap the entire exhaust duct system from the back of the hood to the exhaust duct termination outside.

8) (Q) *May an approved grease duct shaft contain multiple grease ducts or piping from several tenant spaces?*

(A) Section 506.3.10 states that a single enclosure shall serve single grease exhaust duct. However, the exhaust duct can be separated from the other contents by wrapping the grease exhaust duct (from the hood to termination) with an approved wrap.

10) (Q) *May a contractor install flex piping to the makeup air connections on a grease exhaust hood?*

(A) The contractor is required to maintain 18" clearance from the grease exhaust hood/duct and combustible materials. At that point they may change to flex duct for the makeup air.

11) (Q) *Does the horizontal flue of a water heater have to be placed in a shaft when crossing an adjacent tenant space on its way to a vertical shaft?*

(A) Yes

12) (Q) *May a contractor pull combustion air through a louvered door?*

(A) Janie Sutton with DOI states: Section 304.1 of the Fuel Gas Code



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and Section 504.5 of the Mechanical Code allows combustion air for clothes dryers to be supplied through a louvered door, provided that the louvered area has a free area of 100 sq. in.

For other appliance, the adjoining room shall have (doorway) openings without doors that meets the requirements of Section 304.5.3, or openings 12" from the ceiling and 12" from the floor as described in 304.5.3.1. If a louvered door is used, it must meet the location and free area requirements.

13) (Q) *May a grease duct discharge into a parking deck or a loading dock access tunnel?*

(A) Exhaust ducts shall discharge to the exterior (as viewed from above) of a structure. (section 506.3.12 NCMC). We do allow you to discharge to a parking deck or access tunnel as an alternative method provided:

1. All electric appliances, NO fossil fuels.
2. Must provide a filtration system whose level of filtration conforms to;
  - a. UL Standard 710B, Standard for Recirculation Systems (latest edition) (incorporates EPA 202)
  - b. Chapter 13 of NFPA 96-2008 (or the latest edition)
  - c. ANSI-NSF International Standard No.2 for food Equipment (latest edition)
  - d. ANSI-NSF International Standard No. 4 for Commercial Cooking, Rethermalization, and Powered Hot Food Holding and Transport Equipment (latest edition)

## Chapter 6 duct Systems:

- 1) (Q) *How close may an HVAC return be placed to a fireplace?*  
(A) The information found in Mechanical Code, Section 918.6 is not clear and seems to contradict itself. We have taken the stance that the return cannot be placed within 10 feet of a fireplace.
- 2) (Q) *Is manufactured grease duct exempt from the slope requirements of section 506.3.7?*  
(A) No.
- 3) (Q) *When may radiation dampers be exempted per section 607.6.2.1 of the NCMC?*



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- (A) When field testing by an approved testing lab show the fire resistance rating of the assembly installed, meet ASTM E119.
- 4) (Q) *With the enforcement of the max 4 degree differential between rooms and the requirement for load calculations on existing equipment replacement by the NC Board of Examiners, do contractors have to bring existing duct insulation up to Code when replacing equipment?*  
(A) Janie Sutton, Chief Mechanical Code Consultant for DOI states: "Existing ductwork is not required to be insulated when replacing HVAC equipment. Only the new supply and return ductwork is required to be insulated in accordance with the current energy code. The mechanical code requires only new ductwork to be kept from forming condensation."
- 5) (Q) *May a contractor replace the liner of Code approved flex duct with galvanized duct?*  
(A) The contractor would have to supply documentation from the flex duct manufacturer that their insulation blanket would still provide the required R-value when the liner was replaced with hard pipe.
- 6) (Q) *Who dictates the minimum size of ducts installed in a residence?*  
(A) ACCA manual D (see 603.2)
- 7) (Q) *What is the minimum gage of duct used to penetrate a residential garage wall?*  
(A) 26 gage (see 603.1.2)
- 8) (Q) *Are all ducts installed in a residence required to be sealed?*  
(A) No. Exposed duct installed in conditioned space is exempt. (see 403.2.2/Energy & 603.9/Mechanical)
- 9) (Q) *May a contractor place a sleeve through duct piping that has routing interference with other flues, piping or wiring?*  
(A) No. You may not install a sleeve through a duct supply or return because its installation interferes with other building components. You may use duct offsets instead or reroute the duct, piping or wiring.
- 10) (Q) *Can you pan a ceiling or floor joist for a return duct in a residence? How would you fabricate this to meet the code?*  
(A) A wall covered by gypsum (both sides) or a ceiling/floor joist panned with 1" nominal wood (min) having proper fire blocking and penetrations per the NCBC is approved per section 602.3 of the NVMC.
- 11) (Q) *Would this panned area require insulation?*  
(A) Not if it was located within the building envelope.



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- 12) ✓ (Q) *Is internal cross bracing allowed in grease exhaust duct?*  
(A) Cross bracing is allowed in per SMACNA standards in very large duct. It is doubtful that grease exhaust duct would ever reach those proportions.

## Chapter 9 Specific Equipment:

- 1) (Q) *A room in a commercial structure has been designated a “class 1, division 1” environment by the Fire Marshal. A designer would like to comfort condition the space. Does the hvac equipment have to meet the “class 1, division 1” requirements?*

(A) **Yes. ALL equipment (i.e., exhaust fans, air handlers, etc.) shall meet the requirement and the hvac equipment may not serve any other space.**

Electrical Code Reference:

500.5 Classifications of Locations.

(A) Classifications of Locations. Locations shall be classified depending on the properties of the flammable gas, flammable liquid-produced vapor, combustible-liquid produced vapors, combustible dusts, or fibers/flyings that may be present, and the likelihood that a flammable or combustible concentration or quantity is present. Where pyrophoric materials are the only materials used or handled, these locations shall not be classified. Each room, section, or area shall be considered individually in determining its classification.

FPN: Through the exercise of ingenuity in the layout of electrical installations for hazardous (classified) locations, it is frequently possible to locate much of the equipment in a reduced level of classification or in an unclassified location and, thus, to reduce the amount of special equipment required.

Rooms and areas containing ammonia refrigeration systems that are equipped with adequate mechanical ventilation may be classified as “unclassified” locations.

FPN: For further information regarding classification and ventilation of areas involving ammonia, see ANSI/ASHRAE 15-1994, Safety Code for Mechanical Refrigeration, and ANSI/CGA G2.1-1989, Safety Requirements for the Storage and Handling of Anhydrous Ammonia.

(B) Class I Locations. Class I locations are those in which flammable gases, flammable liquid-produced vapors, or combustible liquid-produced vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures. Class I locations shall include

those specified in 500.5(B)(1) and (B)(2).

(1) Class I, Division 1. A Class I, Division 1 location is a location

(1) In which ignitable concentrations of flammable gases, flammable liquid-produced vapors, or combustible liquid-produced vapors can exist under normal operating conditions, or

(2) In which ignitable concentrations of such flammable gases, flammable liquid-produced vapors, or combustible liquids above their flash points may exist frequently because of repair or maintenance operations or because of leakage, or

(3) In which breakdown or faulty operation of equipment or processes might release ignitable concentrations of flammable gases, flammable liquid-produced vapors, or combustible liquid-



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produced vapors and might also cause simultaneous failure of electrical equipment in such a way as to directly cause the electrical equipment to become a source of ignition.

FPN No. 1: This classification usually includes the following locations:

- (1) Where volatile flammable liquids or liquefied flammable gases are transferred from one container to another
- (2) Interiors of spray booths and areas in the vicinity of spraying and painting operations where volatile flammable solvents are used

- (3) Locations containing open tanks or vats of volatile flammable liquids
- (4) Drying rooms or compartments for the evaporation of flammable solvents
- (5) Locations containing fat- and oil-extraction equipment using volatile flammable solvents

- (6) Portions of cleaning and dyeing plants where flammable liquids are used
- (7) Gas generator rooms and other portions of gas manufacturing plants where flammable gas may escape
- (8) Inadequately ventilated pump rooms for flammable gas or for volatile flammable liquids
- (9) The interiors of refrigerators and freezers in which volatile flammable materials are stored in open, lightly stoppered, or easily ruptured containers
- (10) All other locations where ignitable concentrations of flammable vapors or gases are likely to occur in the course of normal operations

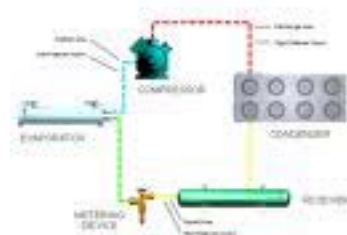
FPN No. 2: In some Division 1 locations, ignitable concentrations of flammable gases or vapors may be present continuously or for long periods of time. Examples include the following:

- (1) The inside of inadequately vented enclosures containing instruments normally venting flammable gases or vapors to the interior of the enclosure
- (2) The inside of vented tanks containing volatile flammable liquids
- (3) The area between the inner and outer roof sections of a floating roof tank containing volatile flammable fluids
- (4) Inadequately ventilated areas within spraying or coating operations using volatile flammable fluids
- (5) The interior of an exhaust duct that is used to vent ignitable concentrations of gases or vapors

Experience has demonstrated the prudence of avoiding the installation of instrumentation or other electrical equipment in these particular areas altogether or where it cannot be avoided because it is essential to the process and other locations are not feasible [see 500.5(A), FPN] using electrical equipment or instrumentation approved for the specific application or consisting of intrinsically safe systems as described in Article 504.

- 2) *(Q) Is it permissible for an licensed refrigeration contractor to mix and match evaporator and condenser packages to achieve the refrigeration results called for by the customer?*

**(A) Yes as long as the packages and components are listed and labeled.**





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- 3) *(Q) What is the purpose for requiring safety pans whose dimensions are 3" larger than the coil/housing?*  
**(A) DOI (Janie Sutton) says the required size for pans is based on two things:**
1. Provide volume for condensate.
  2. Provide splash protection.
- 4) *(Q) Some 90 + equipment manufacturers state that their 90+ flues must be insulated in areas subject to freezing. Which areas are subject to freezing?*  
**(A) Areas inside a structure would be unheated garages or storage rooms and attics.**
- 5) *A contractor has chosen to run out both the primary and secondary condensate drains as prescribed by the Code. If the contractor chooses to place a pan under the unit as an extra precaution, does the pan have to meet the size requirements listed in the Code?*  
**(A) Yes. DOI states that they do not want to create the illusion that some level of safety is there when it is not.**
- 6) *(Q) May a customer require a contractor to oversize a building's HVAC system?*  
**(A) No (see 503.2/Energy) Sometimes it is necessary to upsize a heating system to adjust for SER ratings and cooling capacity. These types of adjustments are exempted.**

## ***Policy for the Mechanical Code:***

- 1) *(Q) Do fire logs have to be complete on a final inspection?*  
**(A) Everything but the ceramic logs must be complete.**
- 2) *(Q) Do condensate lines installed in unconditioned space require insulation?*  
**(A) The traps would require insulation of R6.5 but not the pipe.**
- 3) *(Q) May a contractor discharge HVAC condensate to a lavatory?*  
**(A) Yes, provided the following criteria is met:**
- Lavatory tail pieces ONLY.
  - 1 ½" minimum trap size.
  - Must use ¾" (branch) dishwasher tee.
  - Tubing from tee to the wall connection shall be clear acrylic tubing.
  - Unit size limited to 3 tons or less.





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- 4) *(Q) May a contractor use zip ties to secure loose insulation on HVAC line sets?*  
**(A) Yes, provided that only black zip ties are used outside. These are listed for ultraviolet applications.**
- 5) *(Q) May you encase fossil fuel HVAC equipment installed in an attic to separate it from and Icynene sealed attic systems?*  
**(A) Yes provided you build a room adequate to house and service the equipment.**
- 6)✓ *(Q) Does the intent of the Code's text tell you what you cannot do or is the intent of the Code to provide guidance on how to achieve code compliance?*  
**(A) The intent of the Code is to provide guidance to achieve code compliance.**
- 7)✓ *(Q) What would be required of a food service business that leases and existing space previously occupied by a food service business?*  
**(A) The plumbing facilities should be the same however; the cooking processes may be quite different. If hoods are involved, then the cooking process of the previous tenant may have been such that a type II hood was acceptable where the new tenant's process would require a type I hood. You will also have to verify the capacity of the grease interceptor.**

## *Other for the Mechanical Code:*

- 1) *(Q) May flue condensate discharge indirectly into a water heater safety pan drain?*  
**(A) No**
- 2) *(Q) Is equipment installed outside a structure subject to Zoning set back requirements?*  
**(A) Yes**
- 3) *(Q) Does the equipment (i.e. coil /condensing unit) have to match when replacing one part of the system?*  
**(A) The replacement of one of the components with a unit having a higher sear rating has to be supported by the equipment manufacturer. The older component cannot cause the replacement to operate at a reduced efficiency.**
- 4) *(Q) Can a contractor call in and have the department create an RQ (request for service) to investigate work performed without permits?*  
**(A) We will create RQ's and investigate complaints where**



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perpetrators are still on the site installing equipment. Complaints of work done long past will be routed to the NC Board of Examiners. A homeowner may still file a complaint about work performed in their home.

- 5) *(Q) May you pan a solid joist system and use the void as a supply duct?*  
**(A) No. (403.2.3/Energy)**
- 6)✓ *(Q) Is a mechanical license required to vent a water heater flue?*  
**(A) No. A plumbing contractor may obtain a mechanical permit to install any water heater flue.**
- 7)✓ *(Q) General Contractors are purchasing gas insert fireplaces and having the carpenters install them. Is this legal?*  
**(A) In Mecklenburg County we require that the installer have a valid contractor's license of a decorative appliance contractor's license, obtain the proper mechanical permit and call for regular inspections.**





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## Chapter 4: Fixtures, Faucets & Fittings:

- 1) *(Q) Is the excel fixture calculation spreadsheet provided on the DOI website approved for use by a designer?*  
**(A) The spreadsheet was developed by the DOI plumbing reviewers for state owned buildings. Designers may use it as a preliminary design tool but they will still be required to provide calculations and explain their design on the submitted drawings.**
- 2) *(Q) May an unlicensed tile contractor install a shower pan in structure?*  
**(A) No. NCDOT states that a permit is required for the installation or replacement of a manufactured shower or the shower pan liner. The State Board of Examiners state that a license is required for anything requiring a permit. The tile contractor would have to be a licensed plumbing contractor.**
- 3) *(Q) May a restaurant's toilet facilities be those located in a "core" arrangement, utilized by the tenants of the whole floor?*  
**(A) No. The NC Health Code requires that a restaurant's toilet facilities be under the control of the restaurant management. Core facilities would be under the management of the building owner or leasing agent.**
- 4) *(Q) How do you calculate the facilities on a restaurant when a deck is added to the establishment?*  
**(A) You shall add the seating load from the deck to the restaurant egress load to get a total demand load (per footnote D).**
- 5) *(Q) Would a hole drilled as high as possible, through the cabinet partition separating the kitchen sink and the dishwasher, meet the anchoring requirements of section 802.1.6?*



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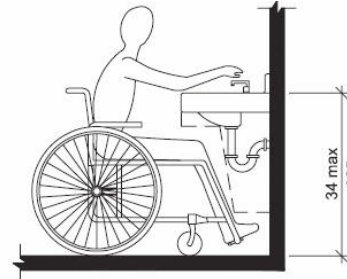
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## Chapter 4 continued:

- (A) Yes. The intent of 802.1.6 is to keep the dishwasher discharge line as high as possible to prevent ground food particles from flowing over into the dishwasher during the disposal's cycle. It would be impossible for a line so installed to drop.

6) (Q) *What type of protection is require under a public lavatory/ADA?*

(A) ALL piping, valves and appliances shall be protected, either by padding or by a protective cover as depicted in Figure 606.3.



7) (Q) *Do restaurants and bars have to provide drinking fountains?*

(A) They are exempt provided they serve water free to their customers.

8) (Q) *Is bottled water still allowed by the NC Plumbing Code?*

(A) Yes. You may use bottled water starting with the 3<sup>rd</sup> Code required drinking fountain. The ANSI A-117 section 602.1 states: This section is not intended to cover bottle-type water coolers, which generally rely on paper cups and are not permanently piped.

9) (Q) *May tenants access their restroom facilities from outside the structure where they may be subject to the elements?*

(A) No! Sections 403.4, 403.5 and 403.6 stipulate the facilities must be within the building or tenant space and may be located on the floor above or below the tenant space. There are a few exceptions such as guard shacks, kiosk and storage structures within 500 feet and under the same ownership, lease or control. (Reprinted from 2008)

10) (Q) *A church has decided to add an educational building for the typical Sunday school activities (no day care or church school). Which category should the designer use to calculate the quantity of fixtures?*

(A) Is the proposed structure now the largest building? If so, then you would calculate the quantity of fixtures using Assembly A-3. You could subtract the quantity of fixtures provided in the other church structures and place the remainder in the new educational building. If it is not the largest building, no fixtures would be required.



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## *Chapter 4 continues:*

- 11) (Q) *Does the restroom's lavatories have to be placed in the same room as the water closet?*  
(A) Yes. Section 405.3.2 requires the employee and public lavatories to be in the same room as the water closets. It does allow the lavatories outside the water closet space in Education Occupancy, kindergarten.
- 12)✓ (Q) *When are floor drains required for a washing machine?*  
(A) They are required in public laundries or central washing facilities such as a apartment laundry. See section 412.4.



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## Chapter 5 Water Heaters:

- 1) *(Q) When are safety pans for water heaters required?*  
**(A) The Code requires safety pans when water heaters are placed in remote locations such as an attic, above drop in ceilings typically found in commercial type buildings, above a space that is occupied or unvented crawl spaces. An example would be; a water heater placed in a closet on the second floor of a two story house with a kitchen directly below. This would require a pan because it was above an occupied space. An example of an unoccupied space would be a garage.**
- 2) *(Q) Where does the Code allow a T&P discharge drain to terminate?*  
**(A) The drain shall discharge through an air gap located in the same room as the water heater which shall then terminate over an approved waste receptor, or outdoors.**
- 3) *(Q) does the galvanized nipple that comes installed in most water heaters serve the same purpose as a dielectric union when installing copper water piping systems?*  
**(A) No! The installer must use a dielectric union or a brass fitting to isolate the copper from the water heater.**
- 4) *(Q) May condensate from a water heater flue discharge into a safety pan drain?*  
**(A) No. Acidic flue condensate must discharge into an approved waste receptor.**
- 5) *(Q) What does a contractor use if the water heater manufacturer will void the warranty if dielectric union/s are installed?*  
**(A) Brass coupling or adapter.**
- 6) *(Q) Do expansion tanks require dielectric unions?*  
**(A) Dielectric unions or brass adapters are required anywhere dissimilar materials are jointed.**





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## Chapter 5 continued:

- 7) (Q) *Who is responsible for enforcing the Code on large water heaters that meet the threshold of the NC Boiler and Pressure Vessel Code?*  
(A) Both the Plumbing and Mechanical (on gas fired) are responsible for checking those items still required by the NC Codes and both are responsible for assuring that the heater receives an inspection and stamp from the NC Department of Labor (Boiler Division).
- 8) (Q) *May a water heater be installed such that access for service/repair/replacement would require the disconnecting and moving of a laundry appliance (i.e., washer or dryer)?*  
(A) No. The water heater shall be readily accessible (see definitions).
- 9) (Q) *May a laundry tub (modified) be used as a safety pan for an instantaneous water heater?*  
(A) The Code Official has the latitude to approve pans constructed that meet the minimum requirements of section 504.7.
- 10) (Q) *When are "heat traps" required on water heaters?*  
(A) Water heaters serving non-circulating systems are required to have heat traps. These may be factory installed devices or as a part of the piping arrangement.
- 11) (Q) *When is insulation required on hot water circulating systems?*  
(A) All water piping installed in unconditioned space shall be insulated with a minimum R-6 insulation. Hot water circulating systems (loop) in commercial buildings shall be insulated with 1" insulation have in a conductivity not exceeding .27 btu per inch. Residential circulating systems (loop) shall be insulated with a minimum R-2.,
- 12) (Q) *Is "Mule Hide" shower pan material approved?*  
(A) Material used for shower pans shall comply with 417.5.2 unless otherwise approved as an alternative method by providing an ICC performance report.
- 13)✓ (Q) *When does the code require a safety pan?*  
(A) When water heaters are installed in remote locations such as above a ceiling, in an attic, above occupied spaces or unventilated crawl spaces. See section 504.7.
- 14)✓ (Q) *What type of piping is required on a water heater pan drain?*  
(A) Materials listed in table 605.4.



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## Chapter 6 Water Supply & Distribution:

- 1) 

*(Q) What is the proper way to ground a replacement water service?*  
(A) When replacing a water service, the plumbing contractor must take care not to interrupt the electrical system's ground. Some older homes used the metallic water distribution system along with the metallic water service as the electrical system ground. Now with the introduction of so many varieties of approved plastic piping materials, other means of grounding are required. When replacing a water distribution system or water service with plastic piping material, a licensed electrical contractor should be contacted to assure that no electrical hazards are inadvertently introduced.
- 2) 

*(Q) May Viega water piping materials be used on new or replacement water piping systems?*  
(A) Yes! Viega water pipe systems have been approved by the ICC evaluation service and may be used as an alternative method and material, within product manufacturer's limits and the installation instructions.
- 3) 

*(Q) May an installer place a service valve between a water hammer arrestor or expansion tank and the building distribution system they are connected to?*  
(A) Yes. The valve would be allowed.
- 4) 

*(Q) What type of yard hydrants are approved?*  
(A) Hydrants that do not contain stop and waste assemblies as a part of their design.
- 5) 

*(Q) May shark bite fittings be used on backflow devices?*  
(A) Yes, provided there is lateral support for the backflow device to keep it from rotating on its axis.
- 6) 

*(Q) May recycled PVC (Char Pipe & Foundry, F1760) be used as an alternate material per section 105.2?*  
(A) Yes.







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## Chapter 6 continued:

- 7) *(Q) Does water piping installed in an “unheated: garage or storage room require R 6.2 pipe insulation?*  
**(A) Yes, areas outside the building envelop with no supplied heat source shall be properly insulated.**
- 8) *(Q) Will water piping laid directly on the ground be considered supported by the Code?*  
**(A) No. The intent of the Code is to secure piping laterally as well as vertically. It is doubtful that piping manufacturer would support installation placed directly on the ground and the Code requires the contractor to install the material per the manufacturer’s installation instructions.**
- 9) *(Q) What changes were applied to the general statute that requires separate metering of irrigation backflow devices?*  
**(A) G.S. 143-355.4 was amended to exempt the requirement for separate metering for any property platted prior to July 1, 2009. Code Enforcement will require a waiver form from Charlotte Mecklenburg Utility (CMU) to waive the separate meter requirement.**
- 10) *(Q) Where does the drain from water filtration/treatment devices discharge?*  
**(A) Devices that contain chemicals shall discharge to the sanitary sewer. Devices without chemicals may discharge outside provided they don’t create a nuisance.**




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Attention: ✓ Denotes a new question!

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## Chapter 7 Sanitary Drainage:

- 1) *(Q) Is it permissible for an owner or contractor to install a self relieving cleanout such as the "Sewer Popper" in a sewer line subject to frequent stoppage?*  
**(A) NO. This would be in direct violation of section 701.4 which reads:**  
**701.4 Sewage treatment.** Sewage or other waste from a plumbing system that is deleterious to surface or subsurface waters shall not be discharged into the ground or into any waterway unless it has first been rendered innocuous through proper treatment approved by the authority having jurisdiction.  

- 2) *(Q) May a contractor tie the sewer from two separate residences into a single tap to save tap fees?*  
**(A) No. Section 701.3 requires a separate connection for each separate lot.**
- 3) *(Q) May a contractor/developer connect the drainage systems from multiple townhomes together within the footprint of the building by using a utility easement?*  
**(A) No. The systems must exit the building/s and then may connect together using an utility easement.**
- 4) *(Q) when does the Code require a backwater valve and where is it required to be installed?*  
**(A) Section 715.1 states:**  
Where the flood level rims of plumbing fixtures are below the elevation of the manhole cover of the next upstream manhole in the public sewer, such fixtures shall be protected by a backwater valve installed in the building drain, branch of the building drain or horizontal branch serving such fixtures. Plumbing fixtures having flood level rims above the elevation of the manhole cover of the next upstream manhole in the public sewer shall not discharge through a backwater valve  
**Section 715.5 Location states:**  
Backwater valves shall be installed so that access is provided to the working parts for service and repair.
- 5) *(Q) What is the definition of an utility easement?*  
**(A) Use of another's property for the purpose of laying gas, electric, water, and sewer lines. A property owner grants a utility easement to the electric power company to extend power lines to the owner's home.**
- 6) *(Q) May a quarter bend with heel inlet be used at the top of a stack to vent a water closet?*  
**(A) Yes, provided that it is a dry vent. See table 706.3, footnote F.**





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Attention: ✓ Denotes a new question!

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## Chapter 7 continued:

- 7) *(Q) What are the requirements for an multi-floor waste riser described in section 504.6 exception 2 that collects condensate and discharge water from a w/h pan or t&p?*  
**(A) The riser would have to be minimum 1 ½", penetration protected per the NC Building Code, indirectly discharged to a floor drain on the first floor and would require a continuous vent if more than 3 branch intervals. The appliances would discharge through an indirect connection. Risers installed inside occupied space would be required to be trapped on each floor.**
- 8) *(Q) may a heel inlet, short radius ¼ bend be placed below a water closet provided there is a sanitary tee above, venting the water closet?*  
**(A) No, a short radius ¼ bend directly below the water ( 12" max.) closet, used as the closet bend is approved. The placement of a tee to revert the water closet changes the installation to a "stack" and long radius fitting is required at the base of a stack.**



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Attention: ✓ Denotes a new question!

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## Chapter 9 Vents:

- 1) *(Q) Are you still allowed to extra distance in table 906.1 by putting a 1 ½ inch trap on a 2 inch fixture branch?*  
**(A) No. The table has been reformatted to allow the same distance, 8 feet, even with the 2 inch trap. The table is now based on trap size only.**
- 2) *(Q) Section 904.5 states a vent terminal shall not be placed directly beneath any door, window or intake opening. How far away must the vent be placed?*  
**(A) The vent when placed 10 or more feet from said opening is no longer classified directly beneath.**
- 3) *(Q) May a washing machine's vent, located on the lower floor of a two story house, tie back to an adjacent fixtures vent or does it have to extend to the second floor before connecting back to a vent?*  
**(A) It can connect on the same floor.**
- 4) *(Q) May a mirror be placed directly over a grilled access box for an air admittance valve?*  
**(A) Yes provided the mirror is hung such that it may be removed without the use of tools and is provided with adequate space to allow the AAV to operate properly.**

1<sup>st</sup>

2<sup>nd</sup>

3<sup>rd</sup>



# Plumbing 2010

Attention: ✓ Denotes a new question!

★ Denotes a revised/revisited question.

November 2010

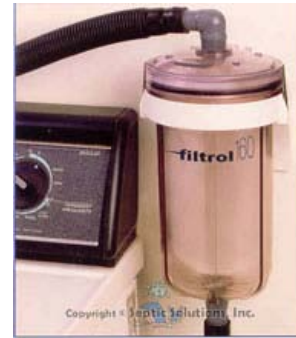
## Chapter 10: Traps & Interceptors:

1) (Q) Do drains in a large walk-in cooler have to discharge their drains through a grease interceptor?

(A) Only if there is grease producing potential (i.e. hanging meats, oil or grease transfers from larger containers, etc.)

2) (Q) Are Filtrol-160 lint interceptors approved for commercial occupancies?

(A) The Filtrol-160 was developed to protect septic systems installed in the residential market. A residence is exempt from the lint interceptor requirements in the Code. This product is not applicable to commercial applications.



3) (Q) What section of the Code requires a "fish scale" interceptor?

(A) Section 1003.1 states:

**1003.1 Where required.** Interceptors and separators shall be provided to prevent the discharge of oil, grease, sand and other substances harmful or hazardous to the building drainage system, the public sewer, the private sewage disposal system or the sewage treatment plant or processes.

The scraping of fish scales into a sink can cause premature stoppages and therefore a hazard. A manufactured/approved solids or scale interceptor shall be installed whenever fish scale cleaning will deposit waste into the drainage system.

4)✓ (Q) When are lint interceptors required?

(A) All laundries, except an individual residence serving a single family. See section 1003.6.



# Plumbing 2010

Attention: ✓ Denotes a new question!

★ Denotes a revised/revisited question.

November 2010

## Policy:

- 1) *(Q) Who enforces the cutting and notching requirements found in the plumbing code?*  
**(A) The plumbing inspector would question the contractor initially. A building inspector would either take over on the repair or consult with the plumbing inspector how best to correct the issue.**
- 2) *(Q) Can a business install locks on the public restrooms?*  
**(A) Yes, with the exception of restaurants, public buildings and public transportation centers.**
- 3) ✓ *(Q) May a tenant A meet the Code by entering into a contractual agreement with a neighboring tenant B whose business operates at different hours, to use their restrooms in off hours in lieu of installing restrooms within their tenant A space.*  
**(A) NO NCDOL has ruled that the Code may not be met by contractual means.**





# Plumbing 2010

Attention: ✓ Denotes a new question!

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November 2010

## Other:

- 1) *(Q) What type of access cover is required for a C/O placed in a rated wall?*  
**(A) The contractor may choose between a rated plate or a access door. The designer shall stipulate which is appropriate for the wall rating per the NC Building Code.**
- 2) *(Q) When is an inspector letter of recommendation for a perspective contractor examination required?*  
**(A) The Board of Examiners requires experience to stand the exam. Verification of this is typically supplied by the employer. In his/her absence, a letter/s may be acceptable to the Board.**
- 3)✓ *(Q) Is a mechanical license required to vent a water heater flue?*  
**(A) No. A plumbing contractor may obtain a mechanical permit to install any water heater flue.**
- 4)✓ *(Q) General Contractors are purchasing gas insert fireplaces and having the carpenters install them. Is this legal?*  
**(A) In Mecklenburg County we require that the installer have a valid contractor's license of a decorative appliance contractor's license, obtain the proper mechanical permit and call for regular inspections.**





**MECKLENBURG COUNTY**  
Land Use and Environmental Service Agency  
Code Enforcement

**11/10/10 ELECTRICAL CONSISTENCY MEETING**

**Code Consistency Questions**

1. If a microwave oven, or refrigerator or freezer has a dedicated circuit with no other outlets, is the circuit required to be calculated at 1500 VA or may some other value be used for calculating the service demand load.

Some other value shall be used. See NEC Sections 220.3 that states, "In other articles applying to the calculation of loads in specialized applications, there are requirements provided in Table 220.3 that are in addition to, or modifications of, those within this article." Also, see 220.14(A) that states, "An outlet for a specific appliance or other load not covered in 220.14(B) through (L) shall be calculated based on the ampere rating of the appliance or load served."

2. We are designing the wiring for a sewage lift station. These stations have a buildup of methane gas in the pits. Should they be wired with explosion proof wiring methods?

Yes, see 500.5(B)(2)(1) that states, "A Class I, Division 2 location is a location" that "(1) In which volatile flammable liquids or flammable gases are handled, processed, or used, but in which the liquids, vapors, or gases will normally be confined within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown of such containers or systems or in case of abnormal operation of equipment." Also see NFPA 820.

3. Is it permitted as part of the Listing of a luminaire to retrofit a T12 ballasted fluorescent luminaire with a T8 ballast and lamp and not affect the Listing of the luminaire?

You may do this with only listed luminaire conversion retrofit kits. See the UL White Book for UL Classified kits under product category Luminaire Conversions, Retrofit (IEUQ) for more details.

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4. A nonmetallic device box is supplied with Type NM cables. Some cables are No. 12"s on 20-ampere circuits and some cables are No.14 on 15-ampere branch circuits. No isolated equipment grounds are present. Does 250.148 require all of the equipment grounding conductors present in the box to be spliced or bonded together?

Yes except for isolated grounding conductors per section 250.146(D), see 250.148 that states, "Where circuit conductors are spliced within a box, or terminated on equipment within or supported by a box, any equipment grounding conductor(s) associated with those circuit conductors shall be spliced or joined within the box or to the box with devices suitable for the use in accordance with 250.148(A) through (E)." Also see the exception to this section that states, "The equipment grounding conductor permitted in 250.146(D) shall not be required to be connected to the other equipment grounding conductors or to the box."

5. What is the required clearance in front of a dry type transformer? For example a 45 kva floor mounted 480 to 208/120 volt transformer. I cannot find it addressed in the code for clearance in front of the transformer, like it is addressed in front of a panel (36", 42", or 48" depending on voltage, and grounded, or ungrounded) . It is my understanding that as long as there is the clearance of 30 inches or the width of the equipment whichever is greater, that is all that required.

See 110.26, 110.26(A), and 110.26(A)(1). (A) says: Working space for equipment operating at 600 volts, nominal, or less to ground and likely to require examination, adjustment, servicing, or maintenance while energized shall comply with the dimensions of 110.26(A)(1), (A)(2), and (A)(3) or as required or permitted elsewhere in this Code. (A)1 says: The depth of the working space in the direction of live parts shall not be less than that specified in Table 110.26(A)(1) unless the requirements of 110.26(A)(1)(a), (A)(1)(b), or (A)(1)(c) are met. Distances shall be measured from the exposed live parts or from the enclosure or opening if the live parts are enclosed.

6. Are open splices allowed on low voltage lighting when using transformers NOT rated as class 2 wiring?

No. See 725.46 and 725.3

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7. Is a remote control device acceptable as a service disconnecting means for a small commercial building? The main service disconnect is a 400-ampere shunt-trip circuit breaker installed about 55 feet inside of the building.

No, see 230.70(A), location of service disconnecting means that states, "The service disconnecting means shall be installed in accordance with 230.70(A)(1), (A)(2), and (A)(3). Section (A)(3) states, "remote control, where a remote control device(s) is used to actuate the service disconnecting means, the service disconnecting means shall be located in accordance with 230.70(A)(1)."

8. Does a church with a large sanctuary that has multiple theatre-type productions throughout the year require that the "theatre" Article of the Code be applied with regards to lighting, foot lights, dimmer controls etc.

Yes. Article 520 Theaters, Audience Areas of Motion Picture and Television Studios, Performance Areas, and Similar Locations, I. General, 520.1 Scope states, "This article covers all buildings or that part of a building or structure, indoor or outdoor, designed or used for presentation, dramatic, musical, motion picture projection, or similar purposes and to specific audience seating areas within motion picture or television studios. Also, see Article 518 Assembly Occupancies, 518.1 Scope that states, "Except for the assembly occupancies explicitly covered by 520.1, this article covers all buildings or portions of buildings or structures designed or intended for the gathering together of 100 or more persons for such purposes as deliberation, worship, entertainment, eating, drinking, amusement, awaiting transportation, or similar purposes.

9. I've been turned down on my final inspection by an inspector who says I can't install a non IC rated cut-in luminaire in a wood ceiling. Why is this a violation?

410.116 Clearance and Installation.

(A) Clearance.

(1) Non-Type IC. A recessed luminaire that is not identified for contact with insulation shall have all recessed parts spaced not less than 13 mm (½ in.) from combustible materials. The points of support and the trim finishing off the opening in the ceiling or wall surface shall be permitted to be in contact with combustible materials.

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10. In remodeling of an existing residential bath I re-arranged the sinks layout. There was one existing receptacle and I added another to it from the existing 15 amp GFCI circuit that met code when it was installed. The inspector turned me down and required a 20amp GFCI circuit for the new receptacle. What gives?

Anytime you extend an existing circuit the new work must meet the current Code.

11. I have a hotel with cooking facilities in each dwelling unit. **1)** When doing the load calculations do I consider this as a dwelling unit and, **2)** is arc-fault circuit interrupter required? **3)** Is this a multi-family dwelling unit for load calculations purposes?

**1)** This is not a dwelling unit as far as load calculations are concerned. (220.12, Table 220.12) Dwelling requires 3 VA per square foot and a hotel requires 2 VA per square foot, but only if the hotel is "without provisions for cooking by the tenants". Code language is not clear in 220.12 or 220.42 as far as hotels with cooking provisions. **2)** Yes, if you have "permanent provisions for cooking" the branch circuits and outlets are to be treated as a dwelling per 210.18. **3)** No, as there is no NEC specific requirement.

12. An Electrical Contractor installed a new transformer in my building for computer circuits. It is a 480/277-volt service and the transformer is a delta/wye with a 208/120-volt secondary. The distance is about 13 feet from the transformer to the secondary panelboard. There are 24 breakers in the panelboard but no main. Should a main be installed?

Yes, as a 13-foot distance exceeds that for a 10-foot tap rule per 240.21(C)(2) for transformer taps. This appears to be an installation that could apply the 25-foot transformer tap rule in 240.21(C)(6) that would require that the secondary conductors terminate in a single circuit breaker or set of fuses that limit the load current to not more than the conductor ampacity that is permitted by 310.15. In addition, see 408.36 that states, "In addition to the requirement of 408.30, a panelboard shall be protected by an overcurrent protective device having a rating not greater than that of the panelboard. This overcurrent protective device shall be located within or at any point on the supply side of the panelboard. Also, see 408.36(B), Supplied Through a Transformer, that states, "Where a panelboard is supplied through a transformer, the overcurrent protection required by 408.36 shall be located on the secondary side of the transformer." However, also see the exception to 408.36(B) *Exception*

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that states, "A panelboard supplied by the secondary side of a transformer shall be considered as protected by the overcurrent protection provided on the primary side of the transformer where that protection is in accordance with 240.21(C)(1), which speaks to allowed protection by the primary overcurrent device for conductors supplied by the secondary side of a single-phase transformer having a 2-wire (single-voltage) secondary, or a three-phase, delta-delta connected transformer having a 3-wire (single-voltage) secondary provided this protection is in accordance with 450.3 and does not exceed the value determined by multiplying the secondary conductor ampacity by the secondary to primary transformer voltage ratio. Single-phase (other than 2-wire) and multiphase (other than delta-delta, 3-wire) transformer secondary conductors are not considered to be protected by the primary overcurrent protective device.

13. A single-family residence has a calculated service load 190 Ampere. The service is 225 Ampere and the owner wants a "Whole House" standby generator system with a 200-Ampere automatic transfer switch. What is the minimum generator capacity permitted by the NEC and do I need a manual transfer switch?

Since the service size has a calculated service load of 190 amps and Section 702.5 requires adequate capacity and rating to supply all electrical equipment intended to be operated at one time, the generator capacity must be for the entire 190 amps where an automatic transfer is used. The owner is permitted to choose whatever loads they want connected to the system, unlike the requirements for emergency and legally required standby systems where the AHJ determines the loads to be connected. There is an exception in Section 702.6 for transfer equipment in the NEC permitting a temporary connection of a portable generator without a transfer switch but only where under the supervision of qualified persons and where I can physically separate the normal supply from the load connected to the generator by a lockable disconnect or by disconnecting the normal supply conductors.

14. May I install Type SE cable that has no covering on the ground wire to feed a swimming pool secondary non-service panelboard?

Maybe, if the exception to 680.25(A) is followed. This exception states, "An existing feeder between an existing remote panelboard and service equipment shall be permitted to run in flexible metal conduit or an approved cable assembly that includes an equipment grounding conductor within its outer sheath. The equipment-grounding conductor shall comply with 250.24(A)(5). After a question concerning this practice

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was expressed by another panelist, it was explained by a third panelist that this allowance has nothing to do with safety but was rather an economic consideration when considering installations where existing feeders without insulated equipment-grounding conductors are present and the only reason the feeder cannot be used is because the existing equipment-grounding conductor was not insulated.

15. As a contractor we are mainly doing commercial work. We install many 480/277-volt systems and know about the bonding requirements when eccentric or concentric knockouts are encountered. We maintain that as long as one end of the run meets the requirements in NEC Article 250 we should not be concerned about the other end when using metallic conduits such as rigid, intermediate, and EMT, even though at the other end we have concentric or eccentric knockouts. What is the interpretation of the NEC?

Both ends. See NEC Sections 250.92(B) that states, "Bonding jumpers meeting the other requirements of this article shall be used around concentric or eccentric knockouts that are punched or otherwise formed so as to impair the electrical connection to ground. Standard locknuts or bushings shall not be the sole means for the bonding required by this section", and 250.96(A) states, "Metal raceways, cable trays, cable armor, cable sheath, enclosures, frames, fittings, and other metal non-current-carrying parts that are to serve as grounding conductors, with or without the use of supplementary equipment grounding conductors, shall be effectively bonded where necessary to ensure electrical continuity and the capacity to conduct safely any fault current likely to be imposed on them. Any nonconductive paint, enamel, or similar coating shall be removed at threads, contact points, and contact surfaces or be connected by means of fittings designed so as to make such removal unnecessary." You only have to bond one end to bond the raceway, but may have to bond each end in order to be able to bond the next piece of equipment.

16. Can I bury a gfci protected multi-wire branch circuit cable from the house to a residential garage at 12" deep.

No, the definition of multiwire branch says "A branch circuit that consists of two or more ungrounded conductors that have a voltage between them, and a grounded conductor that has equal voltage between it and each ungrounded conductor of the circuit and that is connected to the neutral or grounded conductor of the system." That voltage between them is 240 volts and Table 300.5, Column 4 speaks to 120 volts.

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**MECKLENBURG COUNTY**  
Land Use and Environmental Service Agency  
Code Enforcement

**9/8/10 ELECTRICAL CONSISTENCY MEETING**

**Code Consistency Questions**

**1. Can branch circuits of different services be installed in the same conduit?**

Yes, see 300.3(C)(1) for conductors of different systems rated 600 volts, nominal, or less that states, "Conductors of circuits rated 600 volts, nominal, or less, ac circuits, and dc circuits shall be permitted to occupy the same equipment wiring enclosure, cable, or raceway. All conductors shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the enclosure, cable, or raceway. See 300.3(C)(2) for over 600 volt, nominal, conductors occupying the same equipment wiring enclosure, cable, or raceway with conductors of circuits rated 600 volts, nominal, or less which states, "conductors of circuits rated over 600 volts, nominal, shall not occupy the same equipment wiring enclosure, cable, or raceway with conductors of circuits rated 600 volts, nominal, or less unless otherwise permitted in (C)(2)(a) through (C)(2)(e). The provisions of (C)(2)(a) through (C)(2)(e) were discussed.

**2. Is it permissible to land my grounding electrode conductor in a field-installed lug on either the inside or outside of the bottom of the service panel?**

No, unless it's listed for the use. See 250.24(A) that states, "A premises wiring system supplied by a grounded ac service shall have a grounding electrode conductor connected to the grounded service conductor, at each service, in accordance with 250.24(A)(1) through (A)(5). Section 250.24(A)(1) states, "The connection shall be made at any accessible point from the load end of the service drop or service lateral to and including the terminal or bus to which the grounded service conductor is connected at the service disconnecting means." Also, see 250.12 that states, "Nonconductive coatings (such as paint, lacquer, and enamel) on equipment to be grounded shall be removed from threads and other contact surfaces to ensure good electrical continuity or be connected by means of fittings designed so as to make such removal unnecessary." Also, see 300.6(A) that states, "Ferrous metal raceways, cable trays, cablebus, auxiliary gutters, cable armor, boxes, cable sheathing, cabinets, metal elbows,

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couplings, nipples, fittings, supports, and support hardware shall be suitable protected against corrosion inside and outside by a coating of listed corrosion resistant material." Both panelboard and switch equipment come with or have available neutral (grounded conductor) kits and provisions, which are listed for specific applications.

3. Is redundant grounding required in a feeder to a 200-ampere panel in a critical care area in a hospital?

No, as this is strictly a branch-circuit requirement covered in 517.13. However, 517.19(D), panelboard grounding and Bonding states, "Where a grounded electrical distribution system is used and metal feeder raceway or Type MC or MI cable that qualifies as an equipment grounding conductor in accordance with 250.118 is installed, grounding of a panelboard or switchboard shall be ensured by one of the following bonding means at each termination or junction point of the metal raceway or Type MC or MI cable:

- (1) A grounding bushing and a continuous copper bonding jumper, sized in accordance with 250.122, with the bonding jumper connected to the junction enclosure or the ground bus of the panel
- (2) Connection of feeder raceways or Type MC or MI cable to threaded hubs or bosses on terminating enclosures
- (3) Other approved devices such as bonding-type locknuts or bushings

Concerning branch circuit redundant grounding requirements of 517.13, Code-Making Panel 17, currently Code-Making Panel 15, stated in their substantiation to Proposal 17-19 to the 1996 NEC that, "the intent of 517.13(a) is to provide two separate grounding paths – the "metal raceway" and the "conductor"." They also stated that, "Type MC cable with two paralleled equipment grounding conductors [one green insulated and the other green with yellow stripes insulated] does not satisfy the requirement of Section 517.13(a)." Also, see Code-Making Panel 17's panel statement to Proposal 17-22 to the 1996 NEC that states, "The addition of a second equipment grounding conductor does not introduce a redundant path, it merely increases the capacity of the equipment grounding conductor. The intent of Section 517.13(b) is to provide two separate means of grounding – the "raceway and the "conductor"."

4. **1)** Can more than one receptacle in a laundry room be on the required laundry circuit? **2)** If the laundry equipment (washer/dryer) is in one room but the owner irons clothes in another room, can the circuit go to the two rooms?

- 1)** Yes, see 210.52(F) that states, "In dwelling units, at least one receptacle outlet shall be

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installed for the laundry.” See 210.11(C)(2) that states, “In addition to the number of branch circuits required by other parts of this section, at least one 20-ampere branch circuit shall be provided to supply the laundry receptacle outlet(s) required by 210.52(F). **2)** No, 210.11(C)(2) requires at least one 20-ampere branch circuit shall be provided to supply the laundry receptacle outlet(s), and it states, “This circuit shall have no other outlets.”

5. 514.11(A) and 514.13 basically state the any circuit leading to or through dispensing equipment and each dispensing device shall be provided with means to remove all external voltage sources. Does this include intrinsically safe circuits?

NO. If the intrinsically safe circuit(s) are properly installed in accordance with article 504 of the NEC then it is not necessary to include them in the requirements of 514.11(A) and 514.13. For further clarification, consult NFPA 30A section 6.7 exception.

6. Can the same equipment grounding conductor be used for the pool motor and the pool lights? Someone told me we need a separate EGC for each light and for the motor.

Yes, No, and maybe. The pool motor must be separate from the pool lights; however the pool lights may be combined on the same equipment ground with restrictions. See 680.23 Underwater Luminaires (Lighting Fixtures), subsection (F) (3) Conductors, that states, “Conductors on the load side of a ground-fault circuit interrupter or of a transformer, used to comply with the provisions of 680.23(A)(8), shall not occupy raceways, boxes, or enclosures containing other conductors unless one of the following conditions applies: (1) The other conductors are protected by ground-fault circuit interrupters, (2) The other conductors are grounding conductors, or (3) The other conductors are supply conductors to a feed-through type ground-fault circuit interrupter. Also see subsection (F)(2) Equipment Grounding, that states, “Through-wall lighting assemblies, wet-niche, dry-niche, or no-niche luminaires (lighting fixtures) shall be connected to an insulated copper equipment grounding conductor installed with the circuit conductors. The equipment-grounding conductor shall be installed without joint or splice except as permitted in (F)(2)(a) and (F)(2)(b). The equipment-grounding conductor shall be sized in accordance with Table 250.122 but shall not be smaller than 12 AWG. Section (F)(2)(a) states, that where more than one underwater luminaire (lighting fixture) is supplied by the same branch circuit, the equipment grounding conductor, installed between the junction boxes, transformer enclosures, or other enclosures in the supply circuit to wet-niche luminaires (fixtures), or between the field-wiring compartments of dry-niche luminaires (fixtures), shall be permitted to be terminated on grounding terminals. Section (F)(2)(b) states that the underwater luminaire (lighting fixture) is supplied from a transformer, ground-fault circuit interrupter, clock-operated switch, or a manual snap switch that is located between the panelboard and a junction box connected to the conduit that

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extends directly to the underwater luminaire (lighting fixture), the equipment grounding conductor shall be permitted to terminate on grounding terminals on the transformer, ground-fault circuit interrupter, clock-operated switch enclosure, or an outlet box used to enclose a snap switch.

As to motors, see 680.21(A)(1) Wiring Methods, General that states, "The branch circuits for pool-associated motors shall be installed in rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, or Type MC cable listed for the location. Other wiring methods and materials shall be permitted in specific locations or applications as covered in this section. Any wiring method employed shall contain an insulated copper equipment-grounding conductor sized in accordance with 250.122 but not smaller than 12 AWG. Also, see 680.21(A)(4) One-Family Dwellings that states, "In the interior of one-family dwellings, or in the interior of accessory buildings associated with a one-family dwelling, any of the wiring methods recognized in Chapter 3 of this Code that comply with the provisions of this paragraph shall be permitted. Where run in a cable assembly, the equipment grounding conductor shall be permitted to be uninsulated, but it shall be enclosed within the outer sheath of the cable assembly." Also, see 680.22(A) Area Lighting, Receptacles, and Equipment, Receptacles, subsection (5) GFCI Protection that states, "All 15- and 20-ampere, single-phase, 125-volt receptacles located within 6.0 m (20 ft) of the inside walls of a pool shall be protected by a ground-fault circuit interrupter. Receptacles that supply pool pump motors and that are rated 15 or 20 amperes, 125 volts through 250 volts, single phase, shall be provided with GFCI protection."

7. I have installed a dedicated 20-ampere branch circuit to a microwave receptacle mounted in the cabinet space above the microwave oven. On the finish I installed a 15-ampere duplex receptacle. The inspector red tagged the job, and requested that I install a single 20-ampere receptacle. Is this a violation and if so what section of the 2008 *NEC* applies?

First, the NEC does not define the term "dedicated branch circuit". See Article 100, page 25 that states an "individual branch circuit is, "A branch circuit that supplies only one utilization equipment." Section 210.21(B)(1) states, "A single receptacle installed on an individual branch circuit shall have an ampere rating not less than that of the branch circuit." Note that the exceptions to this section do not bear in this installation. Also, note that Section 210.21(B)(1) does not require an individual branch circuit to serve a single receptacle exclusively. Section 210.21(B)(3) states, "where connected to a branch circuit supplying two or more receptacles or outlets, receptacle ratings shall conform to the values listed in Table 210.21(B)(3). Table 210.21(B)(3) allows receptacle ratings of both 15- and 20-ampere on a 20-ampere rated circuit. Also, note that 210.21(B)(2) for cord-and-plug-connected loads

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requires that, "where connected to a branch circuit supplying two or more receptacles or outlets, a receptacle shall not supply a total cord-and-plug-connected load in excess of 12-amperes for a 15-ampere rated receptacle supplied by a 20-ampere rated circuit and 16-amperes for a 20-ampere rated receptacle supplied by a 20-ampere rated circuit. Also, see 210.23(A)(1) that states, "the rating of any one cord-and-plug-connected utilization equipment shall not exceed 80% of the branch-circuit ampere rating", which compliments the requirements in 210.21(B)(2). Also see 422.10(A) that states, "the rating of an individual branch circuit shall not be less than the marked rating of the appliance or the marked rating of an appliance having combined loads as provided in 422.62. See 422.60 that states, "Each electric appliance shall be provided with a nameplate giving the identifying name and rating in volts and amperes, or in volts and watts. 422.62(B)(1) states, "in addition to the marking required in 422.60, the marking on an appliance consisting of a motor with other load(s) or motors with or without other load(s) shall specify the minimum supply circuit overcurrent protective devices." Therefore, a 15 ampere rated duplex receptacle is acceptable where the load is limited to 12 amperes or less and a 20-ampere rated receptacle would be required for loads exceeding 12-amperes up to 16-amperes. If the microwave range also has a range hood built into it, look at 422.16(B)(4) that states, "range hoods shall be permitted to be cord-and-plug connected with a flexible cord identified as suitable for use on range hoods in the installation instructions of the appliance manufacturer, where all of the following conditions are met: 1) The flexible cord is terminated with a grounding-type attachment plug where the range hood is not identified as one utilizing a system of double insulation, 2) The length of the cord is not less than 18 inches and not more than 36 inches, 3) receptacles are located to avoid physical damage to the flexible cord, 4) the receptacles is accessible, and 4) the receptacle is supplied by an individual branch circuit.

#### 8. Is it permissible to parallel MC cable? What about the sizing of the equipment grounding conductor?

Yes, MC cable can be paralleled as permitted in Article 300.3 and 310.4. The sizing if the equipment grounding conductor is done in accordance with 310.4(E). There are some manufacturers who have listed MC cables made specifically for paralleling.

#### 9. The secondary side of a step-down transformer is fed with steel flex and attached to a panelboard, with the neutral and grounding electrode conductors landed at the transformer. What are my bonding and /or grounding requirements in my steel flex and to the panel?

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See 250.30 Grounding Separately Derived Alternating-Current Systems.

(A) Grounded Systems that states, "A separately derived ac system that is grounded shall comply with 250.30(A)(1) through (A)(8). Except as otherwise permitted in this article, a grounded conductor shall not be connected to normally non-current-carrying metal parts of equipment, to equipment grounding conductors, or be reconnected to ground on the load side of the point of grounding of a separately derived system. 250.30(A)(1), System Bonding Jumper states, "An unspliced system bonding jumper in compliance with 250.28(A) through (D) that is sized based on the derived phase conductors shall be used to connect the equipment grounding conductors of the separately derived system to the grounded conductor. This connection shall be made at any single point on the separately derived system from the source to the first system disconnecting means or overcurrent device, or it shall be made at the source of a separately derived system that has no disconnecting means or overcurrent devices. However, see Exception No. 2 that states, "A system bonding jumper at both the source and the first disconnecting means shall be permitted where doing so does not establish a parallel path for the grounded conductor." If the steel flex meets all the requirements of 250.118; then you may pull three hots and the grounded conductor (neutral) to the secondary panel where the grounded conductor (neutral) is isolated from the can. If the steel flex does not meet the requirements of 250.118 an equipment bonding jumper must be pulled with your three hots and the grounded conductor (neutral) to the secondary panel and the grounded conductor (neutral) is isolated from the can.

**10. I recently inspected a job where the electrician installed the grounded conductor and the grounding conductor in the same terminal of the panelboard. Is this a violation?**

Yes, see 408.41 and 110.3(B). Section 408.41 states, "Each grounded conductor shall terminate within the panelboard in an individual terminal that is not also used for another conductor. However, also see the exception that states, "Grounded conductors of circuits with parallel conductors shall be permitted to terminate in a single terminal if the terminal is identified for connection of more than one conductor."

**11. Is a service installed correctly if a meter and service disconnect breaker are installed on a pedestal 100 feet from the house and bonded at the pedestal and a four-wire feeder piped directly into a MLO panel located 20 ft inside the house?**

No, the service may be 100 feet from the house however see, 225.32 that states, "The disconnecting means shall be installed either inside or outside of the building or structure

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served or where the conductors pass through the building or structure. The disconnecting means shall be at a readily accessible location nearest the point of entrance of the conductors. For the purposes of this section, the requirements in 230.6 shall be utilized." Also see 225.33, Maximum Number of Disconnects, that states, "The disconnecting means for each supply permitted by 225.30 shall consist of not more than six switches or six circuit breakers mounted in a single enclosure, in a group of separate enclosures, or in or on a switchboard. There shall be no more than six disconnects per supply grouped in any one location."

12. I recently inspected a job where the electrician had left approximately 2" of sheath on the Type NM cable inside the nonmetallic box. I turned the job down. The electrician said I could not prove it in the codebook. Besides the free conductor requirement, what Section would apply?

See 314.17(C) that states, "Where nonmetallic-sheathed cable or multiconductor Type UF cable is used, the sheath shall extend not less than 6 mm (¼ in.) inside the box and beyond any cable clamp. In all instances, all permitted wiring methods shall be secured to the boxes." Also see the exception

*Exception: Where nonmetallic-sheathed cable or multiconductor Type UF cable is used with single gang boxes not larger than a nominal size 57 mm × 100 mm (2¼ in. × 4 in.) mounted in walls or ceilings, and where the cable is fastened within 200 mm (8 in.) of the box measured along the sheath and where the sheath extends through a cable knockout not less than 6 mm (¼ in.), securing the cable to the box shall not be required. Multiple cable entries shall be permitted in a single cable knockout opening.*



MECKLENBURG COUNTY

# Code Enforcement

Land Use and Environmental Services Agency

JANUARY, FEBRUARY, MARCH

2011



## **BUILDING**

## **FIRST QUARTER 2011**

# **Residential**

Land Use and Environmental Service Agency  
(Code Enforcement)

## November Q&A 2010

### **General:**

1. (Q) *What must be in place for the Energy Star inspection?*  
(A) Headers for direct vent fireplace must be in place as well as all the windows and the house must be in the dry.
2. (Q) *Do deck handrails have to meet the requirements of Section 311.5.6.2?*  
(A) Yes. Deck handrails must terminate at a newel post or be returned.
3. (Q) *Does each townhouse have to meet the energy code for exterior walls at the party wall?*  
(A) Yes. Each townhouse is a standalone unit and the walls between units must be insulated as an exterior way.
4. (Q) *What options are there for ground water vapor retarder in a sealed crawl space?*  
(A) There are two options available, use a 6 mill poly over 100% of the crawl floor or a liner system with taped joints and extended up the wall. Both are not required.
5. (Q) *Does Dow foam insulation sheathing meet the requirements of Section R703.2 for water resistive barrier?*  
(A) Yes, if the joints are taped per their ESR report from ICC.
6. (Q) *What must be done if a header is located more than 3'-0" from a trimmer joist bearing?*  
(A) Per Section R502.10 the trimmer joist must be doubled even if the header can be a single.
7. (Q) *When must an existing house be brought into compliance with Section 313.2.1 for smoke detectors.*  
(A) When a building permit is required for interior work. The smoke detectors only have to be hard wired if sheetrock is removed on ceilings and walls.
8. (Q) *When is an attic access required?*  
(A) It is required when there is an attic space with 60" head room for an area exceeding 100 SF.

# Residential Building

Land Use and Environmental Service Agency  
(Code Enforcement)

## December Q&A 2010

### General:

1. *(Q) What is required at a slab inspection to prove that the full 3.5 inches of depth is provided?*
  - (A) There is a need to make sure that the full 3.5 inches of concrete is provided. Strings need to be pulled or left on site for the inspector to pull to check the depth of the pour. Make sure that the Poly is lapped a minimum of 6”.
  
2. *(Q) What is an approve fix for a notched stud?*
  - (A) An approved fix for a notched stud is to install another stud adjacent to and fastened to the notched stud at a right angle forming an “L” shape.
  
3. *(Q) What is the procedure when a subgrade verification form is required at the footing inspection?*
  - (A) Footing inspections that fail due to “need subgrade verification form” will have to produce that form at the next requested inspection. If the next inspection is a poured concrete wall or slab (concrete work) and the letter is not available this inspection will be failed as “previous list not complete” but inspection will be performed. If the only reason to fail that slab or foundation wall is because footers (subgrade form) have not passed then inspectors will note “pending footer/subgrade letter only, pour at own risk”. This failure will count against the GC or permit holder and will affect their defect rate

# Residential Building

Land Use and Environmental Service Agency  
(Code Enforcement)

## October Q&A 2010

### General:

1. (Q) *What type of material must the insulation certificate be made of and where should it be posted.*
  - (A) The certificate must be of a permanent material. Card stock with permanent marker; printed peel off label, are items approved as permanent certificate. It should be placed in a cabinet or electrical panel.
  
2. (Q) *What type of fasteners shall be used on decks?*
  - (A) Galvanized nails shall be used. Regular gun nails or cement coated nails are not permitted.
  
3. (Q) *Do cable guards have to meet the requirement for resisting the passage of a 6" sphere?*
  - (A) Yes, make sure that the cables cannot be pushed apart to allow the passage of the 6" sphere.
  
4. (Q) *Where is the fire separation for townhouses measured to?*
  - (A) It shall be measured to 1) closest interior lot line, 2) center line of street or public way, 3) an assumed lot line between two buildings. Note the public way must be deeded for public use or held as common property.
  
5. (Q) *On engineered plans do structural changes have to be sent back to the original designer?*
  - (A) Yes, any structural element that is changed in the field shall be reviewed by the Engineer of Record.