



**JULY, AUGUST, SEPTEMBER
2010**

**CONSTRUCTION
TRADES
CONSISTENCY TEAM**

THIRD QUARTER 2010

**POLICY
GENERAL**



MECKLENBURG COUNTY
Land Use and Environmental Services Agency
Code Enforcement

Memo

Date: October 19, 2010
TO: all contractors
From: Jim Bartl
RE: Code Compliance Report

For over twelve 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 July 1, 2010 to September 30, 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). 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).

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	268	5.33%
framing	111	fire stopping/draftstopping	219	4.35%
framing	197	other defects listed on job	171	3.40%
footing	108	need soil compaction test	166	3.30%
frame	105	call clerk or check meckpermit	138	2.75%
final	197	other defects listed on job	110	2.19%
frame	109	foundation anchors	93	1.85%
final	105	call clerk or check meckpermit	86	1.71%
frame	131	engineered roof design	84	1.67%
frame	104	not ready for inspection	82	1.63%
final	118	handrail construction	77	1.53%
final	120	missing/incomplete insulation	68	1.35%
frame	195	previous list incomplete	64	1.27%
final	123	exterior grading	61	1.21%
frame	136	ledger/hangers incorrect	60	1.19%
TOTAL			1747/5024	34.77%

Note 1: all 04 (incomplete not ready for inspection) total 266 or 5.3% of total bldg code defects noted

Note 2: Rough O2's = 36.7% of total; Final O2's = 24.36% of total

2. Electrical Inspections Top Fifteen Code Defects

task	item #	item	# defects	% of total
final	25	improper overcurrent protection	144	4.71%
final	19	label panel	134	4.39%
final	W8	defects created by others	131	4.29%
final	30	improper wiring method	124	4.06%
final	9	grounding	101	3.30%
final	65	AFCI defect	76	2.49%
final	5	too many defects to list	75	2.46%
final	55	GFCI defect general	56	1.83%
final	4	job not ready	55	1.80%
final	10	bonding	52	1.70%
final	31	cables subject to damage	52	1.70%
final	59	no continuity on receptacle	51	1.67%
final	6	defect not corrected	48	1.57%
final	7	need qualified individual to call	47	1.54%
final	41	improper joints or terminations	42	1.38%
TOTAL			1188/3055	38.88%

Note 1: all 04 (incomplete not ready) total 126 or 4.12% of total electrical code defects noted

Note 2: Rough O2's = 14.44% of total; Final O2's = 68.6% of total

3. Mechanical Inspections Top Fifteen Code Defects

task	item #	item	# defects	% of total
final	H01	damage caused by others	140	6.86%
final	Z99	other or no defect code applies	115	5.63%
final	G03	test not to code or bad gauge	89	4.36%
gas test	G03	test not to code or bad gauge	87	4.26%
final	Z96	approval withheld for other trades	81	397.00%
final	A4	not ready for inspection	59	2.90%
final	P1	primary/secondary drain missing	54	2.65%
rough	D6	duct damaged	53	2.60%
final	F1	flue clearance incorrect	51	2.05%
final	E8	eqpt installation instructions	45	2.20%
final	A13	need ladder	44	2.16%
final	E4	eqpt access incorrect	37	1.81%
rough	H01	damage caused by others	37	1.81%
rough	A4	not ready for inspection	35	1.71%
final	F2	flue material incorrectly installed	32	1.56%
TOTAL			929/2041	45.50%

Note 1: all 04 (not ready for inspection) total 104 or 5.09% of total mechanical code defects noted

Note 2: Rough O2's = 21.41% of total; Final O2's = 69.57% of total

4. Plumbing Inspections Top Fifteen Code Defects

task	item #	item	# defects	% of total
rough	B31	pipng test missing/incorrect	70	8.92%
final	D31	T&P drain missing or incorrect	35	4.46%
final	E71	fixture installed incorrect	32	4.08%
final	41	not ready	32	4.08%
final	E31	handicapped regulation missing	30	3.82%
final	E81	backflow requirement	21	2.68%
wtr distr	B31	pipng test missing/incorrect	21	2.68%
final	C71	equipment missing or incompl	17	2.17%
water service	C11	pipe depth incorrect	15	1.91%
final	C21	pipng insulat'n missing/incorrect	15	1.91%
final	B51	pipng support missing/incorrect	14	1.78%
rough	41	not ready	13	1.65%
rough	B81	vent pip'g or AAV size incorrect	13	1.65%
rough	B51	pipng support missing/incorrect	12	1.53%
final	D21	wtr heater pan missing/incorrect	12	1.53%
TOTAL			352/785	44.84%

Note 1: all 04 (not ready for inspection) total 67 or 8.53% of total plumbing code defects noted

Note 2: Rough O2's = 22.8% of total; Final O2's = 51.2% of total



MECKLENBURG COUNTY

Code Enforcement

Land Use and Environmental Services Agency

JULY, AUGUST, SEPT

2010



BUILDING

THIRD QUARTER 2010



Building Consistency Meeting

Residential

Date: 8/04/2010 Recorder and minutes prepared by: Danny Wooten/Jeff Griffin

Staff present: On File

Public present: Paul Kramer (**Habitat Matthews**); David R. Schwieman (**D.R. Schwieman, Inc.**); Rob Merrell (**Griffin Masonry**); Wayne Carter (**Lifestyle Homes**); Terry Cleary (**Meeting Street Homes**); Garrison Davis (**Ryan Homes**); Darren Price (**M/I Homes**); Charles Sofinowski (**M/I Homes**); Matthew ? (**L&M Homes**); Steven Brusko (**Landis Reed Homes**); **Greg Seaton (Seaton Builders)**; Kevin Ratliff (**GMI Inc.**); Daniel McBride (**Cunnare Group**); Warren Lambert (**D. R. Horton**); Dave Reynolds (**BFS**); Jon ? (**Accent Homes**); Rod Spence (**Banister Homes**); Charlie Courter (**Remington Homes Inc.**);

Topics/Subject	Decisions/Conclusions/Actions
Old Business	Reviewed townhouse projections as they pertained to property line and required fire ratings.
New Business	.
Re-Org	Randy Newman from the North Team and Andy DeMaury from the South Team were introduced as field reps per the re-org.
GS143-139.1	Manufactured buildings: All building units bearing approval labels or seals shall be deemed to meet the requirements of the State Building Code and this Article without further inspections except as may be required for the enforcement of the Code for connection of units, local ordinances, and foundations. This shall apply as long as there is no indication that the units have been field modified.
Frame On Foundation	Pre decking inspection is not a required inspection unless something would prevent a proper inspection after the deck was installed.
Address	Must be affixed to structure that does not move (permanent) 4" high numbers by final inspection. If the house cannot be seen from the road or street then the numbers must be at the street and on the house.
Energy Star	There is a need to see various items at the framing stage. Need to develop a new task code for weather barrier similar to sheathing inspection for Energy Star inspection.
Landings at Doors	There must be a floor or landing on each side of a door or you must meet one of the exceptions in section R311.4.3
Stem Walls	A 4" stem wall as a foundation is not acceptable.
Townhouse Insulation	A request for a formal interpretation for insulating the party wall has been sent to NC DOI
Priority Inspection list	In what order inspections were to be performed, IBA's and overtime inspections were discussed.



Building Consistency Meeting

Residential

Date: 7/07/2010 Recorder and minutes prepared by: Danny Wooten/Lon McSwain

Staff present: Danny Wooten, Eric Brown, Druied Roberson, Steve Lineberger, Ron Dishman, Tim Taylor, Walt Nash, Barry Human, Patrick Bidy, Dave Ries, Gene Morton, Lon McSwain, Greg Walsh, David Williams, Harold Sinclair, Billy Yandle, Robert Richardson, Jeff Griffin, Ken Turull, Ron Featherstone, Tom Shoupe, Don Sprinkle, Randy Newman, Steve Kellen, Andy DeMaury, David Williams, Scott Commander, David Pethel, Kirk Aten, Hugh Moose, Steve Miller, Mike Jackson, Russ Fischer, Ralph Vernon, Debra Parris, Steve Person, George Rogers, Melanie Sellers, Tony Kiser, Eric Brown.

Public present: Kenneth Rampersad (**Soto Construction**); David R. Schwieman (**D.R. Schwieman, Inc.**); Rob Merrell (**Griffin Masonry**); Wayne Carter (**Lifestyle Homes**); Terry Cleary (**Meeting Street Homes**); Bob McKee (**Ryan Homes**); Darren Price (**M/I Homes**); Charles Sofinowski (**M/I Homes**); Joe Stewart (**Build 1st Source**);

Topics/Subject	Decisions/Conclusions/Actions
Old Business	
New Business	
Re-Org	Flyers were distributed detailing the Re-Org process and contact information.
R302 Townhouse separation and protection.	Section R302.1 does not allow any projections within 2'-0" of a property line. As an alternate method per the 2009 Administrative Code, Section 105, We are requiring that the first three feet of any projection adjacent to the property line be 1 hr rated from the underside. These projections would include, but not limited to soffits, cantilevered floors and porch columns and ceilings.
Townhouse soffits	Section R-302 requires the entire soffit be protected with no openings within 4'-0" of the party wall. (non-com, frt, gyp bd, ect). There is a field inspection issue in that if the finished product is the approved non-combustible material like fiber cement board then it can be viewed at final inspection. If the builder is using protection that will be underneath the vinyl soffit material and not visible at the final then it must be installed at frame check. Required on all jobs permitted on or after 07/07/2010
Handout	Amendments to the code that take effect on 01/01/2011 R302.4 Flame spread on vinyl soffit material. R311.2.2 Under stair protection R311.5.8 Special stairways R313 Carbon monoxide detectors. R404.5 Retaining walls (deleted) AG106.1 Pool suction outlets

	Appendix M Wood decks R403.1 Continuous footings These can be found on DOI Web Site http://www.ncdoi.com/OSFM/Engineering/BCC/engineering_bcc_codes_2012_proposed.asp

Approved By Lon Mcswain Date 07/07/2010



Building Consistency Meeting

Residential

Date 09/01/2010 Recorder and minutes prepared by: Danny Wooten/Lon McSwain

Staff present: On File

Public present: David R. Schwieman (**D.R. Schwieman, Inc.**); Wayne Carter (**Lifestyle Homes**); Terry Cleary (**Meeting Street Homes**); Charles Sofinowski (**M/I Homes**); Matthew ? (**L&M Homes**); Greg Seaton (**Seaton Builders**); Daniel McBride (**Cunnare Group**); Dave Reynolds (**BFS**); Jason Whitner (**Southern Traditional Homes**); Bob McKee (**Ryan Homes**); Allan McGee, Doc McGee (**McGee Brick**);

Topics/Subject	Decisions/Conclusions/Actions
Old Business	
	.None
New Business	
Accessible Model Homes	Accessible parking for Model homes may be across the street as long as there is no parking allowed for anyone on the drive to the house. The accessible porta jon must be located at the house.
Section R305.1	The minimum head room for a hallway is 7'-0" you cannot treat a hallway as a room use section 305.1 exception 3. There is no allowance for a reduced height in a hallway.
Inlet Entrapment Devices	The pool installer needs to provide a letter documenting that the pool meets the required safety standards per section AG106, staff is working on a standardized form letter to address this issue.
North Carolina Building Code Council	The Building Code Council will be voting on the 2012 Residential Code which includes sprinklers for townhouses and the 2012 Energy Code which includes chapter 11 of the Residential Code on Sept. 14. Will give an update at the October meeting.
ICC Annual Conference and Final Code Hearings	ICC will hold its Annual Conference and Final Actions Hearings in Charlotte the week of Oct.23 rd through Oct. 31 st . The hearings are open to the public non-voting but you need to register.
Section R807	The code changed the requirement from 22"X30" rough opening to 20"X30" net clear opening. An exception is being added to the code which states that hinges and hardware (for pull down stairs) do not deduct from the net clear opening. This is how this department has always looked at it.
Section R502.10	New language, if a header is located more than 3'-0" from a trimmer joist bearing the trimmer joists must be doubled even when the header may be a single member.

Sheathing Inspections	When calling for a framing inspection it is not necessary to also call in a sheathing inspection, it is part of the framing inspection. Sheathing inspections are only requested by themselves when needed before a frame check
Replacement Windows	Replacement windows shall be installed as per the manufactures installation instructions.
Stucco/ Hardcoat	Installer's letter required final inspection. Standardized form can be found on our website and is required for all synthetic or hardcoat applications.

Approved By Lon Mcswain Date 9/31/2010

Commercial Plan Review

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

July Q&A 2010

General:

1. (Q) *Does a sprinkler system eliminate the need for EAAR's on the exterior of the building in relation to NCSBC 1007.3 amendment?*
(A) Per section 1007.8 and the commentary sprinklers in a building does not eliminate the requirement for an exterior area of assisted rescue when it is provided in plane of an accessible route.
2. (Q) *Is two way communication required at an EAAR?*
(A) The 2006 IBC commentary states "...Because of immediate visibility of a person at an exterior area of rescue assistance two way communication and instructions are not required..." If there is a 20' fire lane around the entire building two way communications is not required. If the EAAR is not readily visible by first responders then two way communication needs to be provided.
3. (Q) *When manufactured buildings are moved to a new site must they be brought up to current code?*
(A) No. GS 143-139.9 States that once a manufactured building has received a stamp or label by an approved third party they are not subject to further inspections except for site work and connection to utilities. This applies if there is no indication that modifications have been made to the building that would void the label or stamp.
4. (Q) *Are 28" round footings acceptable for trailer set up?*
(A) Yes
5. (Q) *What rooms or spaces need to be marked with permanent signage?*
(A) Locations that are required to be marked with the International Symbol of Accessibility are found in Section 1110 of the Building Code. The type of sign shall be in accordance with Section 703 of ANSI 117.1 2003.
6. (Q) *Does moving a door back into a tenant space meet code requirements for remoteness?*
(A) This action alone does not meet the code requirements for remoteness. This needs to be addressed by alternate methods and addressed on a case by case basis, especially in older buildings.
7. (Q) *Does Chapters 11 & 34 require the building or space to meet the current accessibility code for upfits.*

- (A) Section 1103.2.2 states that existing buildings must meet Section 3409 or the NC Rehab Code. Section 3409 requires that any new work must conform to the code for new construction and when an alteration is made to a primary function area then 20% of the cost of the project must be used to address the accessible route to the primary function area. Note that 20% is the max that is required to be spent on the accessible route. Restrooms are considered part of the accessible route. If the upfit is to a tenant space and there are restrooms in that space then those restrooms are part of the accessible route of that space. However if the restrooms are in a common area to the building then they are not part of the accessible route in that space and are not subject to the 20% requirement.

Commercial Plan Review

Land Use and Environmental Service Agency
(Code Enforcement)

August Q&A 2010

General:

1. (Q) *What are the requirements of Section 1108.2.8.1?*
(A) This Section addresses dining surfaces. 5% or 1 of all dining surfaces must be accessible. If seating or standing bar surface is provided then one section of the bar must be accessible along with the required table seating.
2. (Q) *What to do if SI is marked on Appendix B but is not required by the code?*
(A) If the designer of record wants SI but it is not required by Chapter 17 then the plans should be stamped SI NOT REQUIRED by the reviewer in plan review.
3. (Q) *Is SI required for all fireproofing?*
(A) No. Fireproofing of less than 1000 sq ft does not require special inspections. Patch and repair.
4. (Q) *In Section 1008.1.8.3 item 2 can a building have more than one main entrance?*
(A) Yes, there are times when a building can have one main entrance and the locking arrangement of this section may be used.
5. (Q) *Is the insulation between cod units required by the Energy Code?*
(A) No. Only exterior wall insulation is required by the Energy Code, the insulation in tenant walls is for sound transmission.
6. (Q) *Does Section 1405.12.2 require that all windows located more than 72" above finished grade and the bottom located less than 24" AFF be restricted to a 4" opening.*
Yes. However windows tested to ASTM 2006 when located higher than 75' above grade and windows tested to ASTM 2090 when located less than 75' above grade meet the requirements of this section.

Commercial Plan Review

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

September Q&A 2010

General:

1. (Q) *Do cable guardrails have to meet the requirements of both Sections 1607.7.1 and 1013?*
 - (A) Yes, Section 1607.7.1 deals with structural load requirement for guards while Section 1013 deals with the life safety. Cable guards must meet the requirement for the rejection of the 4" sphere.



MECKLENBURG COUNTY
Code Enforcement

Land Use and Environmental Services Agency

JULY, AUGUST, SEPTEMBER

2010



ELECTRICAL

THIRD QUARTER 2010



MECKLENBURG COUNTY
Land Use and Environmental Service Agency
Code Enforcement

8/11/10 ELECTRICAL CONSISTENCY MEETING

Code Consistency Questions

1. Are disconnects required on hand dryers?

Yes if they fall under (B) of the following.

422.31 Disconnection of Permanently Connected Appliances.

(A) Rated at Not over 300 Volt-Amperes or 1/8 Horsepower.

For permanently connected appliances rated at not over 300 volt-amperes or 1/8 hp, the branch-circuit overcurrent device shall be permitted to serve as the disconnecting means.

(B) Appliances Rated over 300 Volt-Amperes or 1/8 Horsepower.

For permanently connected appliances rated over 300 volt-amperes or 1/8 hp, the branch-circuit switch or circuit breaker shall be permitted to serve as the disconnecting means where the switch or circuit breaker is within sight from the appliance or is capable of being locked in the open position. The provision for locking or adding a lock to the disconnecting means shall be installed on or at the switch or circuit breaker used as the disconnecting means and shall remain in place with or without the lock installed.

2. Are transformers and/or motors allowed in plenum ceilings.

Yes. Per 300.22(C) 2, as long as they are listed for use within air handling space.

3. A revision to the 334.15(B) states that Type NMC cable installed in shallow chases or grooves in masonry, concrete, or adobe, shall be protected in accordance with the

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requirements in 300.4(F) and covered with plaster, adobe, or similar finish. I tried to purchase such cable for a driveway lighting installation along an entry wall and gate but was told such cable does not exist. What is the story?

2002 NEC Section 334.10(B)(3) was moved by action of the Technical Correlating Committee to 334.15(B) in the 2005 NEC as a new second paragraph to that section. The substantiation for this move was that the subject language is more appropriate in Section 334.15(B) as that section deals with protection from physical damage. As to availability, Type NMC type cable is defined as "insulated conductors enclosed within an overall corrosion resistant, nonmetallic jacket." This type of NM cable is not known at present to be commercially available with most designs requiring a cable capable of being embedded in plaster or adobe using Type UF cable which is acceptable for installations in wet, dry, or corrosive locations under the recognized wiring methods of the NEC, and where exposed to masonry products except where the cable is "embedded in poured cement, concrete, or aggregate." It should also be noted that the original language to be moved from 334.10(B)(3) remains in that subsection so that currently there are dual language requirements regarding Type NMC cable being installed in shallow chases in both 334.10(B)(3) and 334.15(B).

4. It is my understanding that cord-and-plug-connected appliances with a motor load greater than 1/8 hp requires the appliance to be equipped with a hp rated attachment plug and receptacle where the plug/receptacle is utilized as a disconnecting means. If true, where in Article 422 is this requirement located?

NEC 422.3 establishes that article 430 applies unless modified by article 422. NEC 430.109(F) specifically exempts appliance attachment plugs from being horsepower rated and points back to 422.33 which permits attachment plug and receptacle as the disconnect without a horsepower requirement. See 430.109(F) Cord-and-Plug-Connected Motors that states, "For a cord-and-plug-connected motor, a horsepower-rated attachment plug and receptacle having ratings no less than the motor ratings shall be permitted to serve as the disconnecting means. A horsepower-rated attachment plug and receptacle shall not be required for a cord-and-plug-connected appliance in accordance with 422.33 (.32 is wrong – should be errata), a room air conditioner in accordance with 440.63, or a portable motor rated 1/3 hp or less." Also see UL White Book and UL 498 Attachment Plugs – HP ratings exist on the attachment plug and receptacle as noted in the white book.

5. Section 250.4(A)(5) states, "Electrical equipment and wiring and other electrically conductive material likely to become energized shall be installed in a manner that creates a permanent, low-impedance circuit facilitating the operation of the overcurrent device..." Two Questions: **1)** How really important is this to the proper operation of an overcurrent device and what are any consequences of properly opening an overcurrent device where a lengthy circuit is involved and especially where a raceway is being used as the fault return path and the raceway is installed beyond the limits for it to be an effective grounding conductor as shown by the steel raceway industry in studies they did? **2)** If this is an issue, what measures could be taken to help overcurrent devices perform to their capabilities?

1) See 90.1(A), 110.10, 250.4(A)(5), Table 250.122. Clearing faults in electrical systems works toward the overall purpose of the National Electrical Code, that being the protection of persons and property from hazards arising from the use of electricity. It is important to clear a line-to-ground fault so that it does not evolve into a line-to-ground, and line-to-line fault situation where extensive damage to not only the electrical system, but the potential for a fire of electrical origin within the premises is greatly increased. Using the wire as a fuse was a protective technique recognized in the very early editions of the Code, but the development of overcurrent protective devices that rapidly respond to ground-faults and short-circuits has greatly enhanced the ability of the Code to protect persons and property from the electrical hazards, particularly when it comes to minimizing fires of electrical origin. Metal raceways can be supplemented by the use of wire type equipment grounding conductors installed in parallel with the raceway and sized not less than required by Table 250.122 and in compliance with the performance requirement of 250.4(A)(5) or 250.4(B)(4). The technology available in overcurrent protection is always improving, however even the best devices cannot work if there is not an effective path for ground-fault current to return to its source. **2)** See 110.10, 250.4(A)(5), Table 250.122. Increasing the size of equipment grounding conductors; decreasing circuit lengths; using higher voltage distribution systems where long runs are anticipated are some methods.

6. The 2005 UL white book states, "A receptacle type GFCI installed in wet locations is intended to be installed with an enclosure that is weatherproof, whether or not the attachment plug is inserted." 517.20(A) states, "All receptacles and fixed equipment within the area of the wet location shall have ground-fault circuit-interrupter protection for personnel if interruption of power under fault conditions can be tolerated, or be served by an isolated power system if such interruption cannot be tolerated." It is also my understanding

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that operating rooms in health care facilities are classified as wet locations. If this is true, are bubble covers required on all GFCI receptacles installed in operating rooms or that GFCI type circuit breakers are required for such circuits?

See 110.3(B) and 406.8(A) and (B). First, the surgical suites or portions of them are often classified as wet locations by the administrative authority of the health care facility. Where that is the case, the requirements of 517.20(A) apply. The guide card information (KCXS) for GFCI receptacles does indicate that their use in a wet location requires the "in-use" type of cover, therefore 110.3(B) controls this application. If a GFCI type circuit breaker is used to supply hospital grade receptacles in these wet locations, the requirement of 406.8(B)(1) and (2) apply. For all 15- and 20-ampere receptacles installed in outdoor and indoor wet locations, 406.8(B)(1) requires the installation of the "in-use" type of cover.

7. Busbars are field installed in a shop-made weatherproof metal enclosure. Would this assembly be an auxiliary gutter (Article 366) or a busway (Article 368)?

Since the busbars are installed in the field, by definition, this installation would be an auxiliary gutter. UL 870 covers both metal and nonmetallic wireways and also auxiliary gutters and closely match the requirements covered in Article 366 and 368. The definition of a busway is, "A grounded metal enclosure containing factory-mounted, bare or insulated conductors, which are usually copper or aluminum bars, rods, or tubes", whereas, auxiliary gutter are defined as, "Metallic Auxiliary Gutters - Sheet metal enclosures with hinged or removable covers for housing and protecting electric wires, cable, and busbars in which conductors are laid in place after the wireway has been installed as a complete system" and "Nonmetallic Auxiliary Gutters - Flame retardant, nonmetallic enclosures with removable covers for housing and protecting electric wires, cable, and busbars in which conductors are laid in place after the wireway has been installed as a complete system."

8. A full-service motor fuel dispensing facility utilizes a single 240-volt circuit to power four single-phase, 1/3 HP, 240-volt sump pumps each with individual overload protection. The 12 AWG copper circuit conductors are protected at 20-amperes by a 2-pole circuit breaker. Each sump pump motor is individually controlled by a 15-ampere rated snap switch for manual control and a 15-ampere rated float switch for automatic control. The inspector turned down the installation because of the 20-ampere circuit breaker stating that a 15-ampere circuit breaker was the maximum allowed. Is this correct?

See 430.24, 430.53, 430.53(A), and Table 430.248. Yes. Section 430.53 provides the requirements for sizing the branch circuit short-circuit, ground-fault protective device where the circuit supplies two or more motors. Of the three conditions specified in this section only 430.53(A) is applicable to this installation. Here is how the requirement applies to this

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installation:

430.53 Several Motors or Loads on One Branch Circuit.

Two or more motors or one or more motors and other loads shall be permitted to be connected to the same branch circuit under conditions specified in 430.53(D) and in 430.53(A), (B), or (C).

*(A) **Not Over 1 Horsepower.** Several motors, each not exceeding 1 hp in rating, shall be permitted on a **nominal 120-volt branch circuit protected at not over 20 amperes or a branch circuit of 600 volts, nominal, or less, protected at not over 15 amperes, if all of the following conditions are met:***

(1) The full-load rating of each motor does not exceed 6 amperes.

3.6 amperes per Table 430.248

(2) The rating of the branch-circuit short-circuit and ground-fault protective device marked on any of the controllers is not exceeded.

The manual snap switch and the float switch are each rated 15 amperes.

(3) Individual overload protection conforms to 430.32.

This is established in the question.

430.53(D) is complied with because the branch circuit conductors to each motor are full sized using 12 AWG copper (no individual taps made).

430.24 Calculation for minimum branch circuit conductor:

Table 430.248 FLC: 1/3 hp 230 v single phase motor – 3.6 A

$3.6 \text{ A} \times 1.25 = 4.5 \text{ A} + 3.6 \text{ A} + 3.6 \text{ A} + 3.6 \text{ A} = 15.3 \text{ amperes}$

Minimum conductor size:

14 AWG copper (75°C terminals) or 12 AWG copper (60° C terminals)

9. Three Questions: **1)** Can you pull a copper equipment-grounding conductor with aluminum phase and grounded conductors in a parallel feeder? **2)** Can you pull all conductors of each phase in their own conduit or must the parallel runs include each phase and grounded conductor? **3)** Can each conduit and conductor run be of different characteristics such as nonmetallic and metallic conduits?

1) See 250.118 & 310.4. Yes. 250.118 permits wire type equipment grounding conductors to be copper, copper-clad aluminum or aluminum. The requirement of 310.4 specifying the same conductor material for parallel conductor installations applies to the individual parallel sets and not to the overall paralleled installation. Any mixture of conductor materials can be used for the collective installation but not for the individual sets that comprise each of the ungrounded conductors, the grounded conductor and the equipment-grounding conductor. The terminals in the equipment where the parallel conductors terminate need to be compatible with the conductor material used in the parallel sets. **2)** See 300.3(B) and 300.3(B)(1) Exception.

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Each conduit or cable is required to contain the ungrounded conductors, the grounded conductor and the EGC. The general rule is that each raceway or cable in a parallel run contain the ungrounded conductors, the grounded conductor (where used) and the equipment-grounding conductor (if wire type EGC is used). For cable trays grouping of all conductors in the circuit is covered by 392.8(D). By exception isolated phase installations are permitted under specific conditions. The installation of the all of the A phase, all of the B phase, and all of the C phase and where used the grounded conductor and EGC in separate nonmetallic raceways run underground is permitted as long as the raceways are in close proximity and the installation does not create inductive heating where entering enclosures. **3)** See 310.4. No. Where more than one raceway or cable is used for parallel installations, the physical characteristics of each raceway or cable is required to be the same. This is to help ensure that there will be an even division of current on the parallel circuit conductors. Use of a mixture of metal and nonmetallic raceways can result in different overall impedances in the paralleled conductors.

10. Two Questions: **1)** Per 210.52(B)(1), Exception No. 2, where a 120-volt, 15-ampere branch circuit serves a refrigerator in the kitchen and the NEC requires this to be an individual branch circuit, is it also a dedicated circuit requiring the branch circuit to terminate in a single receptacle so that only the refrigerator may be connected to the circuit, and **2)** if no to question 1 and a duplex receptacle that is served by the intended refrigerator's 15-amp branch circuit is located over a countertop area adjacent to the refrigerator, can one receptacle serve the refrigerator and the other receptacle serve the countertop?

1) No, see Article 100, page 27 for the definition of an "individual branch circuit", that reads, "a branch circuit that supplies only one utilization equipment." Also, see 210.21(B)(1) that does address a single receptacle installed on an individual branch circuit where it states the receptacle "shall have an ampere rating not less than that of the branch circuit", but it does not require an individual branch circuit to serve only a single receptacle. **2)** No, first see 210.11(C)(1) that requires, "In addition to the number of branch circuits required by other parts of this section, two or more 20-ampere small-appliance branch circuits shall be provided for all receptacle outlets specified by 210.52(B)." Next, see 210.52(B)(1) that states, "In the kitchen, pantry, breakfast room, dining room, or similar area of a dwelling unit, the two or more 20-ampere small-appliance branch circuits required by 210.11(C)(1) shall serve all receptacle outlets covered by 210.52(A) and (C) and receptacle outlets for refrigeration equipment." Also, note that 210.52(C) covers kitchen and dining room countertops.

11. Table 310.15(B)(6) allows a higher rating for 120/240-volt, 3-wire, single-phase dwellings services and feeders that the normally utilized Table 310.16. Two Questions: **1)** Does this Table apply to Type NM cable such that a 4 AWG cable assembly would be rated at 100 amperes, and **2)** Where parallel THWN 350 kcmil copper conductors are used for both line-1

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and line-2 of a single-phase service to a dwelling, would both line-1 and line-2 be allowed to be rated at 700 amperes?

1) NM cable is not included in the list of allowed Conductor types. **2) No!** Table 310.15(B)(6) only allows for service and feeder ratings of 100 – 400 amps. Table 310.15(B)(6) Conductor Types and Sizes for 120/240-Volt, 3-Wire, Single-Phase Dwelling Services and Feeders. Conductor Types RHH, RHW, RHW-2, THHN, THHW, THW, THW-2, THWN, THWN-2, XHHW, XHHW-2, SE, USE, USE-2

12. I have a job installing pole lights in a large parking lot. At what stage do I call for inspections?

Any underground work will have to be inspected before it is covered. Then have the lights wired and ready for mounting then call for inspection while the lights can still be looked at from the ground.

13. I am installing EMT above a lay-in ceiling. The area will be part of a fire-rated floor-ceiling assembly. I am using additional support wires attached to the ceiling joist to support the conduit. Can I support the other end of this support wire to the ceiling grid?

Yes. See 300.11(A)(1). This sentence added in 2005 NEC: "An independent means of secure support shall be provided and shall be permitted to be attached to the assembly."

14. I am wiring a large air-handler in a large commercial building for heating and cooling. The unit is delivered listed and labeled with a 25 HP motor inside the unit. I must wire this motor from a VFD that is not within sight of the motor, but is in sight of the air-handler. Must I install a disconnect within sight of the motor? The motor is inside this unit behind a walk-in door.

No. See 440.14 as disconnect must be in sight of air handler. This section states, "Disconnecting means shall be located within sight from and readily accessible from the air-conditioning or refrigerating equipment. The disconnecting means shall be permitted to be installed on or within the air-conditioning or refrigerating equipment."



MECKLENBURG COUNTY
Land Use and Environmental Service Agency
Code Enforcement

7/14/10 ELECTRICAL CONSISTENCY MEETING

Code Consistency Questions

1. We were turned down for an underground installation of 8 parallel runs of 3-inch HDPE from a utility transformer to a CT enclosure outside the building that fed service equipment inside the building on the other side of the exterior building wall. The problem seemed to be that the HDPE conduit entered the bottom of the CT enclosure located approximately 30-inches above grade. The inspector stated I would need to change over to rigid PVC, rigid steel, or IMC where the HDPE was above grade. Is this correct?

Yes, see 353.12 that states, "HDPE conduit shall not be used under the following conditions: (1) Where exposed; and (2) Within a building. The substantiation for including the new 2005 NEC Article 353 covering type HDPE conduit stated, "HDPE is currently a listed product that is restricted in use and is sometimes substituted as Rigid Nonmetallic Conduit and used above ground. The new article will clarify the HDPE Conduit's installation and construction specifications." Also note that HDPE is not approved for directional boring.

2. Each grade level dwelling unit of a multifamily dwelling is now required to have a 125-volt, 15- or 20-ampere rated outdoor receptacle outlet provided. Six Questions: **1)** Does this receptacle outlet have to be provided by the individual dwelling's distribution panelboard? **2)** Could these required receptacle outlets be supplied from a common house panelboard? **3)** Are the required receptacle outlets required to be located directly on an outside wall of the dwelling unit it is intending to serve? **4)** Can the same receptacle outlet serve as the required outdoor convenience outlet and the outdoor ac unit service receptacle outlet? **5)** If a duplex receptacle outlet is utilized from a common house panelboard, if permitted, could this duplex serve two dwelling units with each having a receptacle designated to a specific unit? **6)** If receptacles are allowed out of a common house panelboard, could all be located directly under the house panelboard if they are accessible to all intended units required to be served?

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1) See 210.25 & 240.24(B). No. The receptacle could be supplied from a panelboard other than the one in the dwelling. However the occupant has to have access to the overcurrent protective device supplying that branch circuit. 2) See 210.25 & 240.24(B). Yes. The code does not specify where the circuits are to be supplied from; only that the branch circuits cannot supplying one dwelling unit cannot supply another dwelling unit. Access to that panelboard is required. 3) See 210.52(E). It is intended by the requirement for multifamily units that a receptacle be installed on the outside of each dwelling unit located at grade and having direct exit to, and entrance from, the outside. 4) See 210.52(E) and 210.63. Yes. It can serve as the outdoor receptacle outlet and the service receptacle outlet if located within 25 feet of the A/C unit. 5) See 210.52(E). No. Section 210.52 (E) requires the installation of at least one receptacle outlet for each dwelling. The definition of receptacle outlet is "An outlet where one or more receptacles are installed. The question suggests splitting a duplex receptacle but by definition, the duplex receptacle is located at a single receptacle outlet and the intent has not been met. 6) No. See 210.52(E) and 110.2. The purpose of this requirement is to provide an accessible receptacle outlet on the exterior of each grade level dwelling unit in order that the occupant can use outdoor electrical equipment directly outside his unit. The suggested location would only promote the use of extension cords and the connection of cords (run through doors and windows) to receptacle outlets inside the dwelling that may not have GFCI protection.

3. A one-family dwelling must have a service disconnecting means rated not less than 100 amperes. However, is it permissible to place 70-ampere fuses in the 100-ampere rated service disconnect and feed this dwelling with 6 AWG copper conductors if this meets the computed load?

See 230.42(B), 230.79(C), 230.90 Exception No. 5, and Table 310.15(B)(6). In accordance with 230.42 (B) the minimum ampacity for ungrounded conductors for specific installations shall not be less than the rating of the service disconnecting means specified in 230.79 (A) through (D). Therefore the minimum size conductors in accordance with Table 310.15(B)(6) for a 120/240 volt, single phase dwelling service rated at 100 amperes is 4 AWG copper or 2 AWG aluminum. The rating of the service overload protection device is permitted to be based on 310.15(B)(6) and shall not be less than is required to serve the calculated load. If the 70 ampere fuses are sufficient to carry the calculated load, their installation in the 100 ampere disconnecting means is permitted.

4. A dwelling property has an outdoor 125-volt, 15-ampere receptacle installed on a detached garage located 10' from the back of the dwelling unit in the back yard. Could this receptacle

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serve as the required rear outdoor receptacle outlet per 210.52(E)?

See 210.52(E). No. Section 210.52(E) requires an outdoor receptacle outlet to be installed at the front and back of the dwelling. Actual Code text in 210.52(E) in part: "at least one receptacle outlet accessible at grade level and not more than 2.0 m (6 1/2 ft) above grade shall be installed at the front and back of the dwelling." The question creates a scenario that is going to require a determination by the approving authority (AHJ). In my opinion, based on the information provided in the question, there is a receptacle installed at the back of the dwelling and it could meet the minimum requirements of the *NEC* and also satisfy the objective of the rule. The *Code* does not require this receptacle outlet to be installed on the dwelling unit; it just has to be installed at the back of the unit. The information in the question indicates it is installed within 10 feet of the back of the dwelling unit. In Mecklenburg County we say the receptacle may be on the unit or within 6 1/2 feet off the unit. Also, 210.52(E) requires each dwelling unit of a multifamily dwelling where the dwelling unit is located at grade level and provided with individual exterior entrance/egress, at least one receptacle outlet accessible from grade level and not more than 2.0 m (6-1/2 ft) above grade shall be installed. Also see 210.8(A)(3) for GFCI requirements.

5. A recent inspection found hospital grade Type AC cable being used to supply dentists chair stations in a large room with only 4-foot high partitions separating each cubical dentist area. The AC cable was installed in a PVC conduit run underground beneath an on grade concrete slab. I turned this installation down as AC cable is not permitted in damp or wet locations, but the contractor stated the AC cable was now a part of a raceway wiring method and was no longer considered a cable wiring method as the cable terminated in boxes at each end of the runs of PVC conduit and that the AC cable conductors were marked THWN. The contractor also pointed out 352.22 states that cables shall be permitted to be installed where such use is not prohibited by the respective cable article and Article 320 does not prohibit such an installation. Please comment.

Type AC cable is not permitted for this application. This is a wet location as defined in Article 100. Armored cable is a dry location wiring method regardless of the conductor insulation.

6. Question is about an installation of MC cable that contains three 250 kcmil aluminum phase conductors and one 2/0 AWG aluminum grounding conductor where one of the black insulated 250 kcmil conductors is re-identified with a circle of white tape as a grounded conductor for a 3-wire, 120/240-volt single phase feeder with equipment-ground. This installation was rejected with the inspector citing 200.6(E). He also stated that if this installation had been the same conductors but in a raceway wiring method the installation

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would have been *Code* compliant. What is the reason for this “special” rule for cables?

The inspector is right. 200.6(B) does not have the stipulation like 200.6(E) “Where the conditions of maintenance and supervision ensure that only qualified persons service the installation” grounded conductors shall be permitted to be permanently identified at their termination at the time of installation.....

Code Reference 200.6 (B) Sizes Larger Than 6 AWG An insulated grounded conductor larger than 6 AWG shall be identified by one of the following means:

- (1) By a continuous white or gray outer finish.
- (2) By three continuous white stripes along its entire length on other than green insulation.
- (3) At the time of installation, by a distinctive white or gray marking at its terminations. This marking shall encircle the conductor or insulation.

200.6 (E) Grounded Conductors of Multiconductor Cables The insulated grounded conductors in a multiconductor cable shall be identified by a continuous white or gray outer finish or by three continuous white stripes on other than green insulation along its entire length. Multiconductor flat cable 4 AWG or larger shall be permitted to employ an external ridge on the grounded conductor.

Exception No. 1: Where the conditions of maintenance and supervision ensure that only qualified persons service the installation, grounded conductors in multiconductor cables shall be permitted to be permanently identified at their terminations at the time of installation by a distinctive white marking or other equally effective means.

7. 700.27 requires emergency system(s) overcurrent devices to be selectively coordinated with all supply side overcurrent protective devices. How is this to be accomplished and what can an AHJ do to make sure the installer complies with this requirement?

See Article 100: Coordination (selective), 110.3(B), and 700.27. Design and subsequent verification of electrical system coordination can be achieved only through a coordination study by the design engineer or consultant that entails detailed knowledge of electrical supply system fault current characteristics. For selective coordination of overcurrent protective devices, the manufacturer's time-current curves, let-through and withstand capacity data, and unlatching times data must be used for sizing or setting overcurrent devices. The overcurrent protective devices specified for the system must be verified by the AHJ that they are of the correct type and size according to the design specifications for the system.

Note: Michael Johnston, IAEI, from the audience, ask the panelist answering the

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question how a series rated system would react in a selectively coordinated installation. **Answer:** It will not work with a series rated system as both overcurrent devices will open and this would not serve as a selectively coordinated system. Panel 13 and Panel 15 understand the effect of series rated systems and their potential effect on emergency and critical branch systems as you are losing the reliability of the system required in specific environments and it is hoped that designers will not make any moves that will put life safety at risk.

8. The feeder from the secondary of a 480-120/208-volt, 3-phase, 112.5 KVA transformer is installed with 500 kcmil phase and grounded conductor ending in a 400 amp main breaker panelboard. The transformer is protected on the primary at 150 amps. Is this a code violation and if so, why?

See 240.21(B), 240.21(C), 110.14(C) and Table 310.16. **No.** The transformer is correctly protected with primary only protection with the 150-ampere primary breaker per Table 450.3(B). Per the UL White Book the terminations in dry type transformers are rated for 75° C and in accordance with 110.14(C)(2) the minimum insulation temperature for terminating in the 400-ampere circuit breaker is also 75° C. In accordance with Table 310.16, the 75° C ampacity for 500 kcmil is 380 amperes. A change in the 2005 NEC clarified that the conductor ampacity requirement in the tap conductor and transformer secondary conductor requirements cannot be achieved through the use of the next standard size permission in 240.4(B). Therefore the conductor protection required under 240.21(C) has not been met and a conductor with an allowable ampacity of not less than 400-amperes shall be used.

9. Could we go over Mecklenburg's stand on 250.104 (B) and (C) as applied to houses where copper is being used...not track pipe. I am having an issue with a neighboring county and just wanted to know your stand on bonding at the gas meter.

The key words in both 250.104 (B) and (C) is "subject to become energized" and "shall be bonded". In the case of (B) typically the electrical appliance being fed by the gas piping system is fed with an equipment grounding conductor and thus (B) is satisfied.

For (C), a judgment will have to be made as to the proximity of live conductors to structural metal (subject to be energized) and then bonding done accordingly per the section.

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10. Are lights required in attic storage of detached garages and carports?

Yes, Per 210.70 (A), (2) & (3)

(2) Additional Locations. Additional lighting outlets shall be installed in accordance with (A)(2)(a), (A)(2)(b), and (A)(2)(c).

(a) At least one wall switch-controlled lighting outlet shall be installed in hallways, stairways, attached garages, and detached garages with electric power.

(b) For dwelling units, attached garages, and detached garages with electric power, at least one wall switch-controlled lighting outlet shall be installed to provide illumination on the exterior side of outdoor entrances or exits with grade level access. A vehicle door in a garage shall not be considered as an outdoor entrance or exit.

(c) Where one or more lighting outlet(s) are installed for interior stairways, there shall be a wall switch at each floor level, and landing level that includes an entryway, to control the lighting outlet(s) where the stairway between floor levels has six risers or more.

Exception to (A)(2)(a), (A)(2)(b), and (A)(2)(c): In hallways, in stairways, and at outdoor entrances, remote, central, or automatic control of lighting shall be permitted.

(3) Storage or Equipment Spaces. For attics, underfloor spaces, utility rooms, and basements, at least one lighting outlet containing a switch or controlled by a wall switch shall be installed where these spaces are used for storage or contain equipment requiring servicing. At least one point of control shall be at the usual point of entry to these spaces. The lighting outlet shall be provided at or near the equipment requiring servicing.

SUBJECT: Attic / Storage Light

CODE REFERENCE: 210.70 (A) (3)

SUBMITTED BY: Electrical Contractor

EFFECTIVE DATE: Immediately

PROBLEM: When is a light required in an attic storage area?

SOLUTION: Attic spaces of less than six feet (6'), in depth or height, shall not be considered as attic storage requiring a lighting outlet.

APPROVED BY: GERALD HARVELL ELECTRICAL CPM FEB/2006

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8.4

11. What are the receptacle spacing requirements when there are cabinets/shelves floor to ceiling in rooms such as a study or library.

210.52 Dwelling Unit Receptacle Outlets.

This section provides requirements for 125-volt, 15- and 20-ampere receptacle outlets. The receptacles required by this section shall be in addition to any receptacle that is:

- (1) Part of a luminaire or appliance, or
- (2) Controlled by a wall switch in accordance with 210.70(A)(1), Exception No. 1, or
- (3) Located within cabinets or cupboards, or
- (4) Located more than 1.7 m (5½ ft) above the floor

Permanently installed electric baseboard heaters equipped with factory-installed receptacle outlets or outlets provided as a separate assembly by the manufacturer shall be permitted as the required outlet or outlets for the wall space utilized by such permanently installed heaters. Such receptacle outlets shall not be connected to the heater circuits.

FPN: Listed baseboard heaters include instructions that may not permit their installation below receptacle outlets.

(A) General Provisions. In every kitchen, family room, dining room, living room, parlor, library, den, sunroom, bedroom, recreation room, or similar room or area of dwelling units, receptacle outlets shall be installed in accordance with the general provisions specified in 210.52(A)(1) through (A)(3).

(1) Spacing. Receptacles shall be installed such that no point measured horizontally along the floor line in any wall space is more than 1.8 m (6 ft) from a receptacle outlet.

(2) Wall Space. As used in this section, a wall space shall include the following:

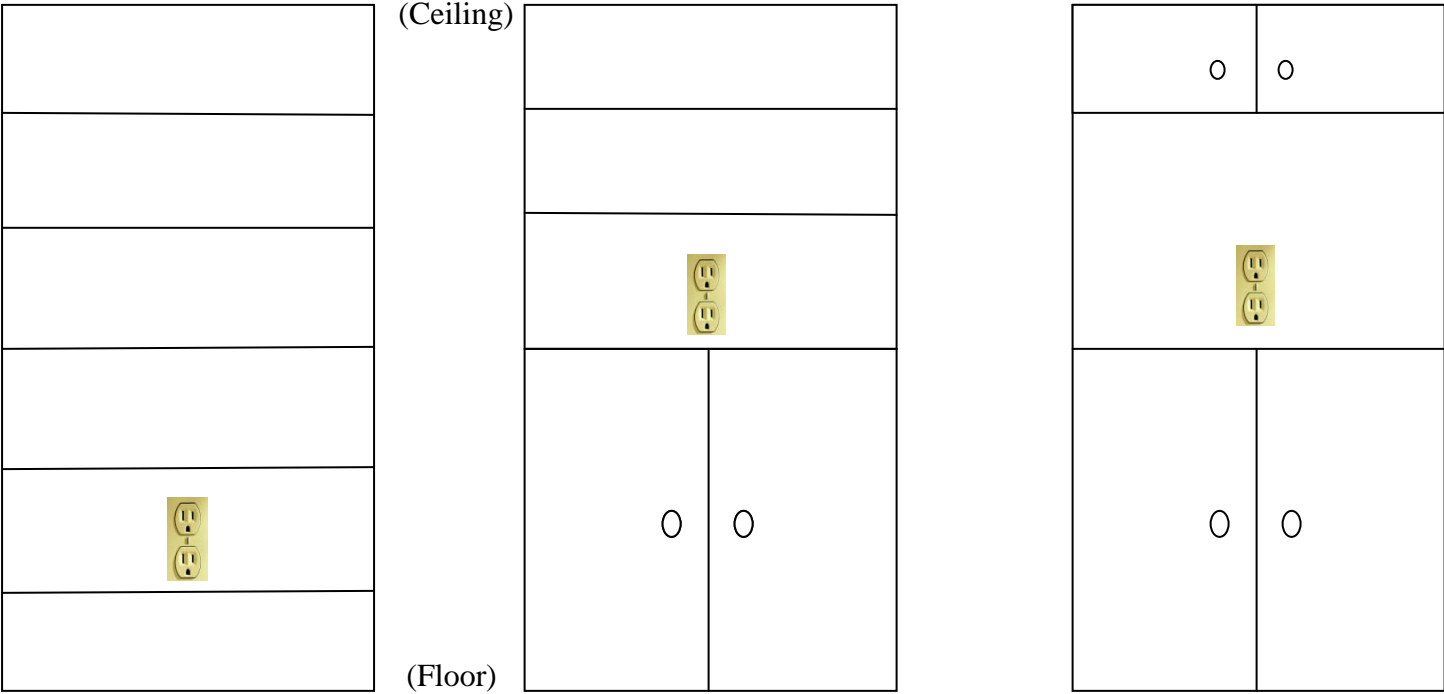
- (1) Any space 600 mm (2 ft) or more in width (including space measured around corners) and unbroken along the floor line by doorways, fireplaces, and similar openings
- (2) The space occupied by fixed panels in exterior walls, excluding sliding panels
- (3) The space afforded by fixed room dividers such as freestanding bar-type counters or railings

When there are floor-to-ceiling cabinets with operable doors receptacle spacing requirements begin beyond these cabinets. If cabinets are installed in half walls, receptacle spacing will be

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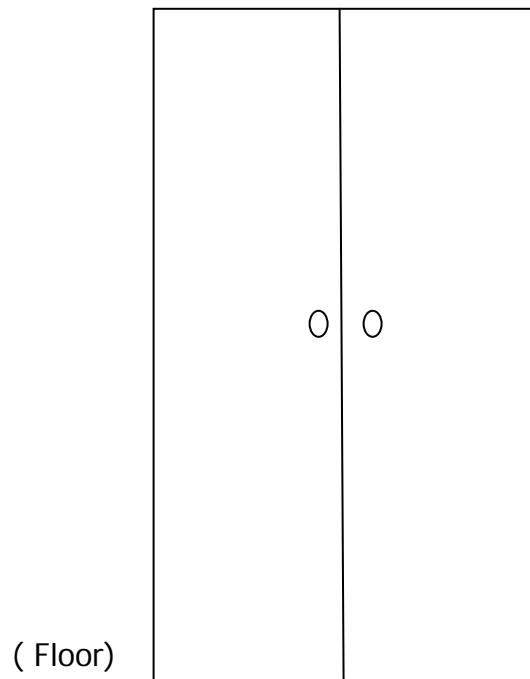
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required above the cabinets. Normal receptacle spacing is required in areas where bookshelves are installed.



The examples above would be included in receptacle spacing requirements

The example below would be excluded from receptacle spacing requirements
(Ceiling)





MECKLENBURG COUNTY
Land Use and Environmental Service Agency
Code Enforcement

9/8/10 ELECTRICAL CONSISTENCY MEETING

Code Consistency Questions

1. I am wiring a central electric heating unit in a crawl space. I would like to use the same circuit feeding this unit to feed the outside ac unit. Would this meet code?

Yes. See 422.12, New exception No. 2 – However, the size of the overcurrent device required for each unit would have to be considered. This new exception states, “Permanently connected air-conditioning equipment shall be permitted to be connected to the same branch circuit.”

2. Are handle ties or two/three pole breakers required on multiwire branch circuits on existing commercial upfits or service change out jobs?

Maybe. If you are adding to or installing new multiwire circuits then handle ties are required. If the existing circuits required handle ties when they were installed then they would be required on this job; otherwise handle ties would not be required.

2002 NEC

210.4(B) Dwelling Units.

In dwelling units, a multiwire branch circuit supplying more than one device or equipment on the same yoke shall be provided with a means to disconnect simultaneously all ungrounded conductors at the panelboard where the branch circuit originated.

2005 NEC

210.4 B) Devices or Equipment Where a multiwire branch circuit supplies more than one device or equipment on the same yoke, a means shall be provided to disconnect simultaneously all ungrounded conductors supplying those devices or equipment at the point where the branch circuit originates.

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2008 NEC

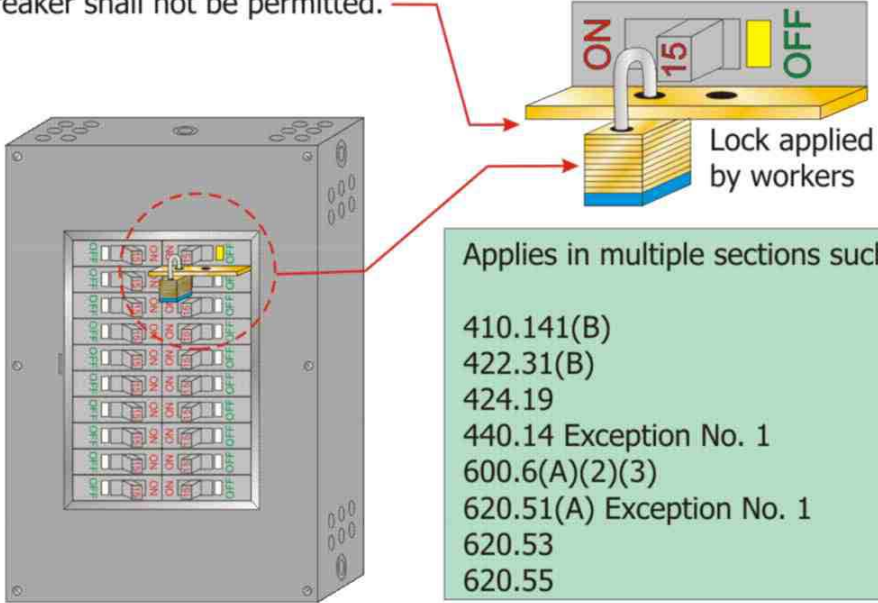
B) Disconnecting Means.

Each multiwire branch circuit shall be provided with a means that will simultaneously disconnect all ungrounded conductors at the point where the branch circuit originates.

3. When the Code says a disconnect or breaker shall be capable of being locked in the open position does that mean the locking device must be on the disconnect or breaker?

Disconnects Capable of Being Locked Open

The provisions for locking or adding a lock to the disconnecting means shall remain in place at the switch or circuit breaker whether the lock is installed or not. Portable means for adding a lock to the switch or circuit breaker shall not be permitted.



The diagram shows a grey electrical panel with a grid of switches. A red dashed circle highlights one switch. A red arrow points from this switch to a detailed view of the switch handle. The handle is yellow and has 'ON' in red and 'OFF' in green. A blue padlock is attached to the handle, with a label 'Lock applied by workers' pointing to it. Another red arrow points from the text 'Portable means for adding a lock...' to the padlock.

Lock applied by workers

Applies in multiple sections such as:

- 410.141(B)
- 422.31(B)
- 424.19
- 440.14 Exception No. 1
- 600.6(A)(2)(3)
- 620.51(A) Exception No. 1
- 620.53
- 620.55

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4. We are installing UF cable to feed a receptacle for a kitchen island. The UF is run through a conduit under the slab and up a stud wall to a junction box and switch box on the far wall. The inspector said that my UF cable had to be rated at 90 degrees. What NEC Code section requires this?

See new text in 340.112, Insulation. The conductors of Type UF shall be one of the moisture-resistant types listed in Table 310.13 that is suitable for branch-circuit wiring or one that is identified for such use. Where installed as a substitute wiring method for NM cable, the conductor insulation shall be rated 90°C (194°F).

5. Where in a doctor's office are "hospital grade" receptacles required per Article 517? This doctor does not perform any surgery in this office.

Hospital grade receptacles shall be installed in general care and critical care areas at patient bed locations. Based on the definition for a patient bed location in Section 517.2 (the location of an inpatient sleeping bed; or the bed or procedure table used in a critical patient care area), the examining bed in a doctor's office is not required to have hospital grade receptacles. Also see Section 517.18(A), Exception No. 2 that states, "Requirements of 517.18(A) shall not apply to patient bed locations in clinics, medical and dental offices, and outpatient facilities; psychiatric, substance abuse, and rehabilitation hospitals; sleeping rooms of nursing homes and limited care facilities meeting the requirements of 517.10(B)(2). Equipment may require HG receptacles and 517.13 still applies.

6. I am installing new luminaries that require an equipment grounding-conductor be utilized in a house that is about 50-years old with Type NMC without an equipment-grounding conductor. Can these luminaries be installed where the old wiring has no equipment-grounding conductor?

See 410.42(B), Exception No. 1 that states, "Replacement luminaries shall be permitted to connect an equipment grounding conductor from the outlet in compliance with 250.130(C). The luminaire shall then be grounded in accordance with 410.42(A)." Exception No. 2 states, "Where no equipment grounding conductor exists at the outlet, replacement luminaries that are GFCI protected shall not be required to be connected to an equipment grounding conductor."

7. Is a cord-and-plug type condensation pump allowed to be installed above a lay-in type ceiling? If yes, would it be allowed if the space were for environmental air?

Maybe. See 400.8, 400.7(A)(8), 400.8(5) that states, "Where concealed by walls, floors, or ceilings or located above suspended or drop ceilings." Also see 300.22.

8. At my house, I have a meter base on the outside with the service equipment panelboard on the inside. I want to install a non-fused transfer switch on the outside to provide power from a generator. Does this meet the requirements in NEC Section 230.91? The panelboard is immediately behind the transfer switch as the panelboard is on the inside of the house.

No, as the service is not immediately adjacent to the transfer switch. See, 230.91 that states, "The service overcurrent device shall be an integral part of the service disconnecting means or shall be located immediately adjacent thereto."

9. I have a window air conditioning unit in a bedroom that is 20-amperes and 240-volts. Does this unit have to be on AFCI protection?

See 440.65 Leakage Current Detection and Interruption (LCDI) and Arc Fault Circuit Interrupter (AFCI). The answer to the question is that the unit, if single phase and if supplied with a cord-and-plug connection and if it were classified as a room air conditioner, would have to either be provided with LCDI protection or AFCI protection. This section states, "Single-phase cord-and-plug-connected room air conditioners shall be provided with factory-installed LCDI or AFCI protection. The LCDI or AFCI protection shall be an integral part of the attachment plug or be located in the power supply cord within 300 mm (12 in.) of the attachment plug." For the 2005 NEC, Proposal 11-110 was submitted by the Home Appliance Manufacturers (AHAM) that would have deleted Section 440.65, but the proposal was rejected by CMP-11. In rejecting Proposal 11-110, CMP-11 stated that the panel repeats its desire to reduce the number of fires caused by room air conditioners cords and the existing requirements are the best way to achieve that goal. Section 440.65 also applies to ... packaged terminal air conditioners and packaged terminal heat pumps. This requirement began to be enforced on listed equipment by UL on August 1, 2004.

10. I have a renovated building in the older downtown area where the electrician is installing a new service. The copper water pipe serving the building comes through the wall from the building next door. After investigating, it is found, the pipe originates underground in another building passes through and serves the second building on its way to the third building. The

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occupancies are separated by solid brick fire-rated walls effectively creating three buildings. Do buildings two and three have to take a grounding electrode conductor back to within 5 feet of where the water pipe enters building one or is bonding to the water pipe all that is required?

Maybe not on going back to the first 5 feet if the use of the structure is industrial or commercial. First, see Article 250, Part III. Grounding Electrode System and Grounding Electrode Conductor, Section 250.50 Grounding Electrode System, that states, "All grounding electrodes as described in 250.52(A)(1) through (A)(6) that are present at each building or structure served shall be bonded together to form the grounding electrode system. Section 250.52 Grounding Electrodes, (A) Electrodes Permitted for Grounding, (1) states, "A metal underground water pipe in direct contact with the earth for 3.0 m (10 ft) or more (including any metal well casing effectively bonded to the pipe) and electrically continuous (or made electrically continuous by bonding around insulating joints or insulating pipe) to the points of connection of the grounding electrode conductor and the bonding conductors. Interior metal water piping located more than 1.52 m (5 ft) from the point of entrance to the building shall not be used as a part of the grounding electrode system or as a conductor to interconnect electrodes that are part of the grounding electrode system. However, see the Exception, that states, "In industrial and commercial buildings or structures where conditions of maintenance and supervision ensure that only qualified persons service the installation, interior metal water piping located more than 1.52 m (5 ft) from the point of entrance to the building shall be permitted as a part of the grounding electrode system or as a conductor to interconnect electrodes that are part of the grounding electrode system, provided that the entire length, other than short sections passing perpendicular through walls, floors, or ceilings, of the interior metal water pipe that is being used for the conductor is exposed. Therefore, if only qualified persons service the installation and if the only place the water piping is not exposed is the short sections through the occupancy separation walls, the metal water piping in the occupancy may be utilized as a grounding electrode connection.

11. A contractor is installing a replacement for the air-conditioner on my house. Does Section 210.63 of the NEC require that I install a 125-volt, single-phase, 15- or 20-ampere receptacle for servicing the equipment?

No, however this could be a judgment call on the part of the AHJ. Section 210.63 requires a 125-volt, single-phase, 15- or 20-ampere-rated receptacle outlet be installed at an accessible location for the servicing of heating, air conditioning, and refrigerant equipment. However, the NEC is basically a new construction code and there is no clear requirement that any requirement in the NEC is retroactive for existing installations except for very few instances

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such as 406.3(D)(2) that requires ground-fault circuit-protected receptacles shall be provided where replacements are made at receptacle outlets that are required to be so protected elsewhere in the NEC. *In Appendix G to the 2005 NEC, Section 80.11(B) states, "Existing buildings that are occupied at the time of adoption of this Code shall be permitted to remain in use provided the following conditions apply: 1) The occupancy classification remains unchanged, and 2) There exists no condition that would constitute an imminent danger." But remember, Appendix G is not a part of the NEC and therefore, unless a condition constitutes an imminent danger in the installation at hand, the answer is no. LIKE FOR LIKE!*

12. We are installing a 100-hp, 480-volt, three-phase fire pump in a large building. We are sizing the conductors at locked rotor current. Is this correct and what size is appropriate for the feeder disconnect?

See 695.6(C)(1) that states, "Conductors supplying a fire pump motor(s), pressure maintenance pumps, and associated fire pump accessory equipment shall have a rating not less than 125% of the sum of the fire pump motor(s) and pressure maintenance motor(s) full-load current(s), and 100 percent of the associated fire pump accessory equipment." Therefore a 100-hp fire pump motor rated at 480-volt, 3-phase will have a full-load ampere rating of 124 amperes or at 125% this would mean the conductors would need to be sized based on an ampere figure of 155 amp or be 2/0 copper from the 75° C column of Table 310.16.

First, see 240.4(A) that states, "Conductor overload protection shall not be required where the interruption of the circuit would create a hazard, such as in a material-handling magnet circuit or fire pump circuit. Short-circuit protection shall be provided." Section 695.4 concerning overcurrent protection for fire pump motor(s) states, "The overcurrent protective device(s) shall be selected or set to carry indefinitely the sum of the locked-rotor current of the fire pump motor(s) and the pressure maintenance pump motor(s) and the full-load current of the associated fire pump accessory equipment when connected to this power supply. The requirement to carry the locked-rotor currents indefinitely shall not apply to conductors or devices other than overcurrent devices in the fire pump motor circuit(s).

Section 695.5 concerning overcurrent protection for transformer supplied fire pump motor(s) states, "The primary overcurrent protective device(s) shall be selected or set to carry indefinitely the sum of the locked-rotor current of the fire pump motor(s) and the pressure maintenance pump motor(s) and the full-load current of the associated fire pump accessory equipment when connected to this power supply. Secondary overcurrent protection shall not be permitted. The requirement to carry the locked-rotor currents indefinitely shall not apply to conductors or devices other than overcurrent devices in the fire pump motor circuit(s). In addition the transformer shall be rated at 125 percent of the sum of the fire pump motor(s) and the pressure maintenance pump(s) motor loads and 100 percent of the associated fire pump accessory equipment supplied by the transformer.

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Therefore, the corresponding locked-rotor current for a 100-hp, 3-phase, 480-volt fire pump motor is 725 amperes (Table 430.251 B), which is approximately 5.8 times the motor's full-load current. The required overcurrent protection shall not be less than 725 amperes. As to a disconnect for the fire pump motor, see that states, "The disconnecting means shall comply with all of the following: 1) Be identified as suitable for use as service equipment, 2) Be lockable in the closed position, 3) Not be located within equipment that feeds loads other than the fire pump, and 4) Be located sufficiently remote from other building or other fire pump source disconnecting means such that inadvertent contemporaneous operation would be unlikely." As to size, at 725 amperes locked-rotor for the minimum overcurrent device permitted for the 100-hp fire pump motor, realistically an 800 panelboard or an 800-amp fused switch frame would be the minimum permitted.

13. I have paralleled three conductors for each phase of a service in a raceway. They are joined at each end. Do I have to derate them as nine current carrying conductors or are they considered three conductors?

These three sets of paralleled conductors are considered to be 9 conductors for deration purposes. See Section 310.4 that states, "Conductors installed in parallel shall comply with the provisions of 310.15(B)(2)(a). See revised 310.15(B)(2)(a) that states, "Each current carrying conductor of a paralleled set of conductors shall be counted as a current carrying conductor."

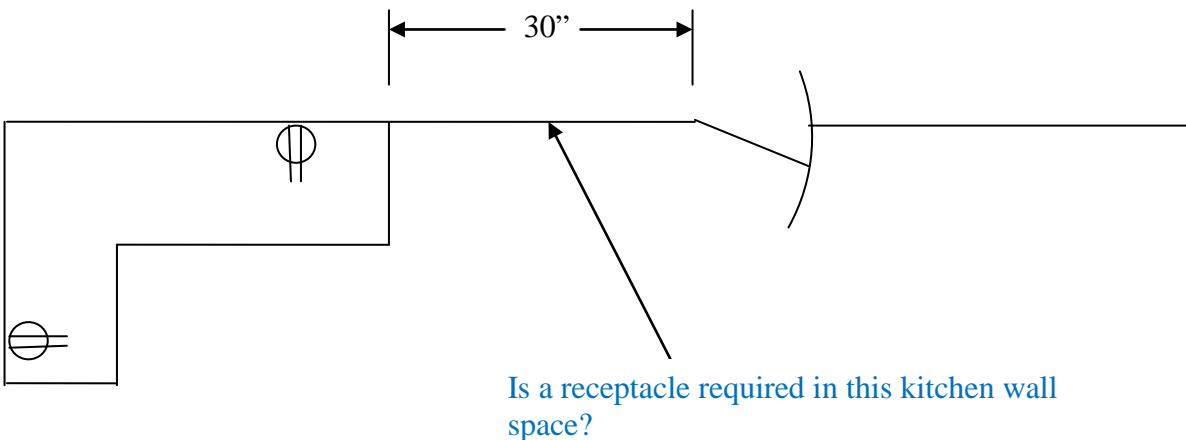
14. Is the food serving areas located in front of food preparation area used solely for handling of cash and distribution of food purchases by customers considered kitchen areas, which require GFCI protection for receptacles?

Only if this area also has permanent cooking and food preparation facilities and if it is outfitted with a sink in addition to the facilities for handling of cash and distribution of food purchases by customers. See NEC Section 210.8(B)(2) that requires that all 125-volt, single-phase, 15- and 20-ampere receptacles installed in commercial and institutional kitchens have ground-fault circuit-interrupter protection for personnel with the new added clarification that states, "for the purpose of this section, a kitchen is an area with a sink and permanent facilities for food preparation and cooking." This section definition was added through Proposal 2-85 by Douglas Hansen with Codecheck, and modified through Public Comment 2-58 by Michael Johnston during the 2005 NEC revision cycle.

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15.



If the nearest receptacle over the countertop does not violate 210.52 (4), 210.52(A) or (B) and is within 6ft from the door then another receptacle is not required in this space. (See below)

210.52 Dwelling Unit Receptacle Outlets.

This section provides requirements for 125-volt, 15- and 20-ampere receptacle outlets. The receptacles required by this section shall be in addition to any receptacle that is:

- (1) Part of a luminaire or appliance, or
- (2) Controlled by a wall switch in accordance with 210.70(A)(1), Exception No. 1, or
- (3) Located within cabinets or cupboards, or
- (4) Located more than 1.7 m (5½ ft) above the floor

Permanently installed electric baseboard heaters equipped with factory-installed receptacle outlets or outlets provided as a separate assembly by the manufacturer shall be permitted as the required outlet or outlets for the wall space utilized by such permanently installed heaters. Such receptacle outlets shall not be connected to the heater circuits.

FPN: Listed baseboard heaters include instructions that may not permit their installation below receptacle outlets.

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(A) General Provisions. In every kitchen, family room, dining room, living room, parlor, library, den, sunroom, bedroom, recreation room, or similar room or area of dwelling units, receptacle outlets shall be installed in accordance with the general provisions specified in 210.52(A)(1) through (A)(3).

(1) Spacing. Receptacles shall be installed such that no point measured horizontally along the floor line in any wall space is more than 1.8 m (6 ft) from a receptacle outlet.

(2) Wall Space. As used in this section, a wall space shall include the following:

- (1) Any space 600 mm (2 ft) or more in width (including space measured corners) and unbroken along the floor line by doorways, fireplaces, and similar openings
- (2) The space occupied by fixed panels in exterior walls, excluding sliding panels
The space afforded by fixed room dividers such as freestanding bar-type counters or railings
- (3) Floor Receptacles. Receptacle outlets in floors shall not be counted as part of the required number of receptacle outlets unless located within 450 mm (18 in.) of the wall.

(B) Small Appliances.

(1) Receptacle Outlets Served. In the kitchen, pantry, breakfast room, dining room, or similar area of a dwelling unit, the two or more 20-ampere small-appliance branch circuits required by 210.11(C)(1) shall serve all wall and floor receptacle outlets covered by 210.52(A), all countertop outlets covered by 210.52(C), and receptacle outlets for refrigeration equipment.

Exception No. 1: In addition to the required receptacles specified by 210.52, switched receptacles supplied from a general-purpose branch circuit as defined in 210.70(A)(1), Exception No. 1, shall be permitted.

Exception No. 2: The receptacle outlet for refrigeration equipment shall be permitted to be supplied from an individual branch circuit rated 15 amperes or greater.

(2) No Other Outlets. The two or more small-appliance branch circuits specified in 210.52(B)(1) shall have no other outlets.

Exception No. 1: A receptacle installed solely for the electrical supply to and support of an electric clock in any of the rooms specified in 210.52(B)(1).

Exception No. 2: Receptacles installed to provide power for supplemental equipment and lighting on gas-fired ranges, ovens, or counter-mounted cooking units.

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(3) Kitchen Receptacle Requirements. Receptacles installed in a kitchen to serve countertop surfaces shall be supplied by not fewer than two small-appliance branch circuits, either or both of which shall also be permitted to supply receptacle outlets in the same kitchen and in other rooms specified in 210.52(B)(1). Additional small-appliance branch circuits shall be permitted to supply receptacle outlets in the kitchen and other rooms specified in 210.52(B)(1). No small-appliance branch circuit shall serve more than one kitchen.

(C) Countertops. In kitchens, pantries, breakfast rooms, dining rooms, and similar areas of dwelling units, receptacle outlets for countertop spaces shall be installed in accordance with 210.52(C)(1) through (C)(5).

Where a range, counter-mounted cooking unit, or sink is installed in an island or peninsular countertop and the width of the countertop behind the range, counter-mounted cooking unit, or sink is less than 300 mm (12 in.), the range, counter-mounted cooking unit, or sink is considered to divide the countertop space into two separate countertop spaces as defined in 210.52(C)(4). Each separate countertop space shall comply with the applicable requirements in 210.52(C).

(1) Wall Countertop Spaces. A receptacle outlet shall be installed at each wall countertop space that is 300 mm (12 in.) or wider. Receptacle outlets shall be installed so that no point along the wall line is more than 600 mm (24 in.) measured horizontally from a receptacle outlet in that space.

Exception: Receptacle outlets shall not be required on a wall directly behind a range, counter-mounted cooking unit, or sink in the installation described in Figure 210.52(C)(1).



MECKLENBURG COUNTY

Code Enforcement

Land Use and Environmental Services Agency

JULY, AUGUST, SEPTEMBER

2010



MECHANICAL PLUMBING

THIRD QUARTER 2010



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Chapter 2 Definitions:

- 1)✓ (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:

- 1) (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.
- 2) (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.



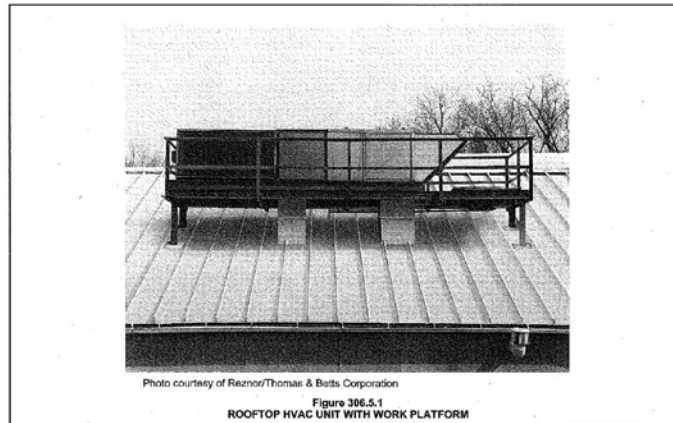
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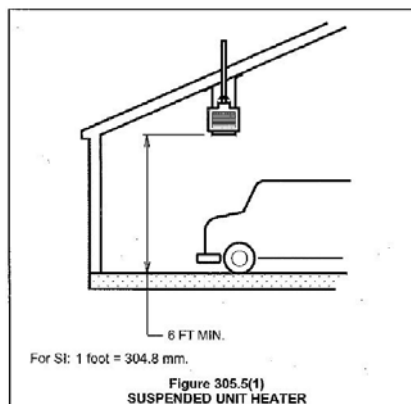
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- 7)✓ (Q) How would you access an appliance installed on a mansard roof where there was inadequate room to place the equipment below the roof?
(A) Section 306.5 would require a platform not less than 30" with rails (guards) not less than 42" high.



- 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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Chapter 4 Ventilation:

- 1) *(Q) May you use CO² 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 CO² 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) *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 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.



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- 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 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)**



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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?*
(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*



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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.

Chapter 9 Specific Equipment:

1) *(Q) A room in a commercial structure has been designated a “class 1,*



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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-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



Mechanical 2010

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(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

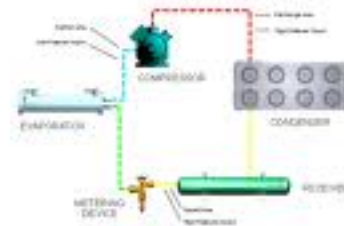
(4) Inadequately ventilated areas within spraying or coating operations using volatile flammable fluids

(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.



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.



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- 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.
- 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.



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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 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)



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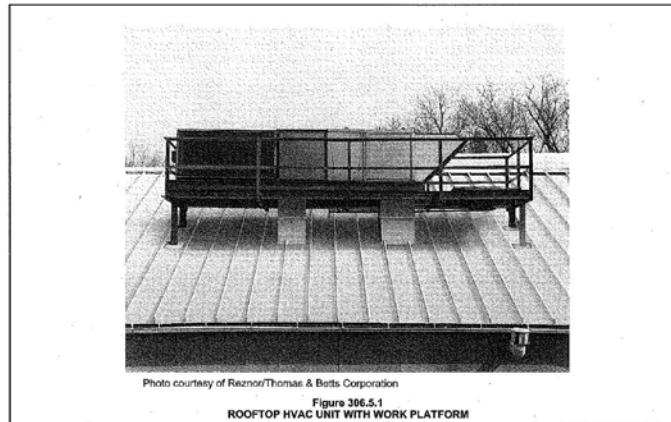
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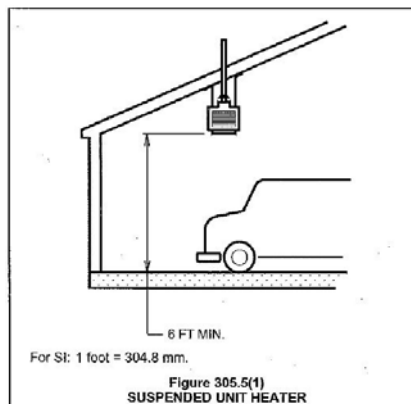
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Chapter 3 General Regulations:

- 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.





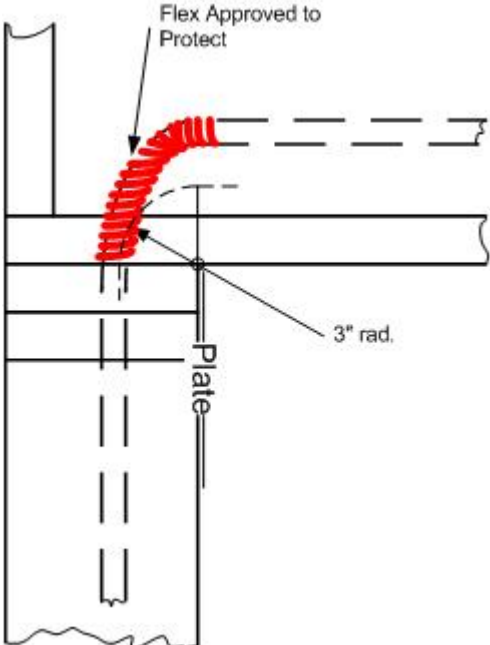
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Chapter 4 Gas Piping Installations:

- 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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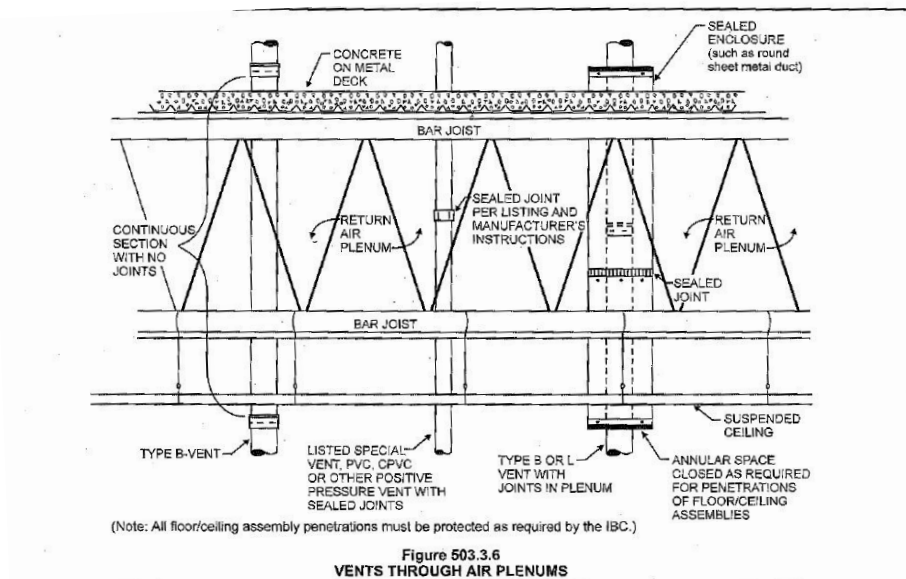
- 6) (Q) *May a contractor use Viega ProPress gas pipe system?*
(A) Yes. Viega ProPress has achieved an ICC Evaluation approval (PMG-1036) and can be used as an alternative method.

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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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. NCDOI 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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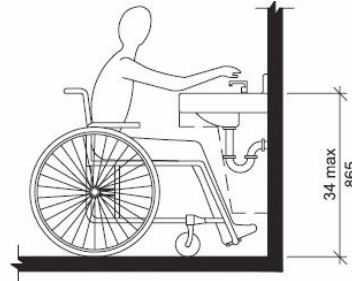
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Chapter 4 continued:

- (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 3rd 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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- 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) *Where should restrooms be placed in a food service business such as a pizza carry out (no seating)?*
(A) The plumbing code, section 403.4 does not restrict where the restroom is to be placed. Section 310.1 prohibits restrooms from opening directly into a kitchen. The Health Department will not let the public walk through a kitchen to access the toilets.

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?*



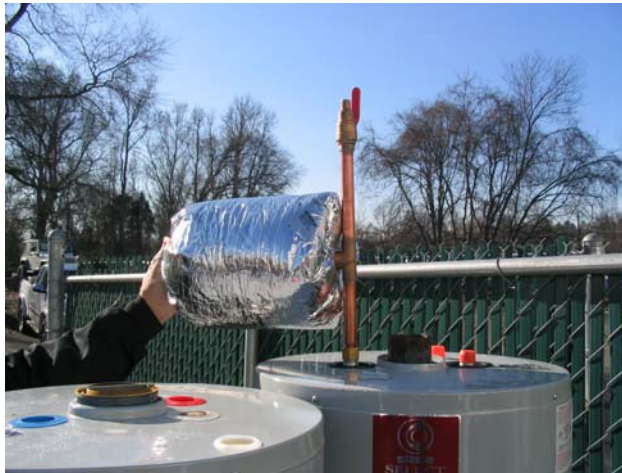
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- 6) (A) Brass coupling or adapter.
(Q) *Do expansion tanks require dielectric unions?*
(A) Dielectric unions or brass adapters are required anywhere dissimilar materials are joined.



- 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"



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insulation have in a conductivity not exceeding .27 btu per inch. Residential circulating systems (loop) shall be insulated with a minimum R-2.,

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.





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- 6) (Q) *May recycled PVC (Char Pipe & Foundry, F1760) be used as an alternate material per section 105.2?*
(A) **Yes.**
- 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.**
- 11)✓ (Q) *What is required when replacing an existing metallic water service with a plastic product?*
(A) **Section 601.3 that another approved means of grounding shall be instituted before the replacement is approved.**
- 12)✓ (Q) *When are metering faucets required?*
(A) **Section 604.4.1 requires that public restrooms in:**
 1. Restrooms with six or more lavatories.
 2. School occupancies in student use restrooms.
 3. Assembly occupancies in customer/public use restrooms. (Restaurants)
- 13)✓ (Q) *Are self tapping ¼” saddle valves approved for the installation of a humidifier?*
(A) **No. Section 605.9 #4 prohibits saddle valves.**




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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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- 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) What is required for clean out access in lines 8" and larger?*
(A) Section 708.3.2 requires a manhole within 200' of the junction of the building drain/sewer and every 400' of run and at every change in direction.

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.



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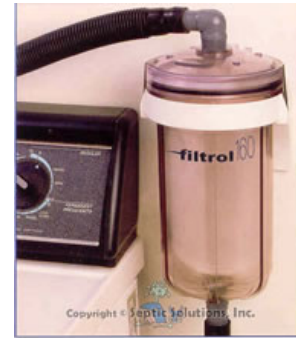
Chapter 10: Traps & Interceptors:

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 Filtrrol-160 lint interceptors approved for commercial occupancies?

(A) The Filtrrol-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.



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.

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) What are the regulations for the collection and distribution of rainwater?

(A) You will have to use the criteria found in Appendix C until the BCC approves Appendix I "Rainwater Collection and Distribution Systems".

3)✓ (Q) When are sump pumps required in elevator pits by the Plumbing Code?

(A) The plumbing code doesn't require pumps in an elevator pit. The NCDOL requires the pumps.