

NORTH CAROLINA

DEPARTMENT OF INSURANCE

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 **OSFM**

OFFICE OF STATE FIRE MARSHAL



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ELECTRICAL CHANGES

2008 NC Electrical Code

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Article 708 (COPS)

COPS

• Critical Operations Power Systems

- Power systems for facilities or parts of facilities that require continuous operation for the reasons of public safety, emergency management, national security, or business continuity.

- Required in DCOA's, Designated Critical Operations Areas, Areas within a facility or site designated as requiring critical operations power.



COPS

- **Originated by Homeland Security**
- **Not part of DOI Standard Review**
- **COPS requirements are not addressed in other State Building Codes**
 - Complete Code compliance requirements are presently undefined
- **DOI review for COPS compliance**
 - Must be specifically requested by an Agency
 - Would result in recommendations that are based on similar installations for Building Code compliance



COPS

- **Who Determines the Necessity and Location of COPS and DCOA's?**
 - **Any governmental agency having jurisdiction or by facility engineering documentation**
 - **Municipal**
 - **State**
 - **Federal**
 - **Other Codes**



COPS

- **Refer to NFPA 1600-2007 Standard on Disaster/Emergency Management and Business Continuity Programs for more information on COPS**

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Emergency & Standby Power Systems

- NCEC Defines how these systems are installed
 - Chapter 7 Special conditions
 - Article 700 Emergency Systems
 - Article 701 Legally Required Standby
- NCBC Chapter 27 determines where each system is required



Emergency & Standby Power

- **The NCBC** requires compliance with NFPA-110 and 111 for emergency and standby systems.



Emergency Power -

Natural Gas Generators

- **Natural Gas generators** used for emergency service are approved on a project specific basis.
 - This will require an alternate material method submittal by the designer along with a letter from the utility indicating their reliability.
 - A copy of this type letter with the required contents is available from our office by request.
Jim.Yancey@ncdoi.gov.
- DOI currently does not approve Natural Gas generators for fire pump service.



Smoke Control

- **NCBC section 909.11 Power System** requirements of a smoke control system ATS and the standby power source when located inside a building
 - Separate room from the normal power transformers and its switchgear
 - This room(s) is to be enclosed by not less than 1-hour “fire barriers”.
 - Emergency power equipment may also be in this same room.
 - This room must be ventilated directly to and from the exterior.



Smoke Control

- NCBC 909.11 requires 60 second transfer for smoke control systems
- DOI requires that all smoke evac systems that affect egress be put on emergency power, the same practice as emergency lighting



Standby Power-Elevators

- **NCBC section 3003.1**-When Standby power is required for all elevators.
 - High Rise Buildings section 403.10.2 in accordance with 1007.4 and 3003.
 - When the owner chooses to furnish standby power to any elevator other than service elevators, it is required for all.
 - Power must be able to be transferred manually to all elevators in each bank.



Emergency Power- Panels

- **Compromised emergency systems-**
Emergency panels may only contain loads allowed by chapter 27 NCBC. Any others require special permission from DOI.



Fluorescent Luminaires

- **Article 410-130** – Disconnecting means is required for EACH fluorescent luminaire that has double-ended lamps and contains ballast(s) that may be serviced in place.
 - Exceptions
 - 1. Not required in hazardous locations
 - 2. Not required for emergency illumination required in 700.16
 - 3. Not required for cord-and-plug
 - 4. Not required in industrial establishments with restricted public access...
 - 5. Not required at each luminaire if design of the installation includes disconnecting means such that the space cannot be left in total darkness. Neutral has to be disconnected.



Fluorescent Luminaires

- **Multiwire Branch Circuits**
 - The disconnecting means shall simultaneously break all the supply conductors to the ballast, including the grounded conductor
- **Location of Disconnecting Means**
 - Shall be located accessible to qualified persons before servicing ballast. If external to luminaire, must be attached, or within sight of the luminaire



Electric Water Coolers

- **Article 422.52 -Electric Water Coolers**
 - Require GFCI protection
 - Please indicate this on your panel schedules.



Closing

- Remember to put the e-mail address of the Owner and all designers on the Code Summary

**2009 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)**

Name of Project: _____
 Address: _____ Zip Code _____
 Proposed Use: _____
 Owner/Authorized Agent: _____ Phone # (____) _____ - _____ E-Mail _____
 Owned By: City/County Private State
 Code Enforcement Jurisdiction: City _____ County _____ State

LEAD DESIGN PROFESSIONAL: _____

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	_____	_____	_____	(____) _____	_____
Civil	_____	_____	_____	(____) _____	_____
Electrical	_____	_____	_____	(____) _____	_____
Fire Alarm	_____	_____	_____	(____) _____	_____
Plumbing	_____	_____	_____	(____) _____	_____
Mechanical	_____	_____	_____	(____) _____	_____
Sprinkler-Standpipe	_____	_____	_____	(____) _____	_____
Structural	_____	_____	_____	(____) _____	_____
Retaining Walls >3' High	_____	_____	_____	(____) _____	_____
Other	_____	_____	_____	(____) _____	_____



Questions?

For further questions:

- **Phone: 919 661-5880**
Fax: 919 662-4414
- **On the e-mail, please include:**
 - **your name,**
 - **agency affiliation**
 - **phone number**



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CODE CHANGES

2009 NC Mechanical & Fuel Gas Code

Prepared by:

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Chap. 3 Condensate Disposal

- NCMC 307.2.3 Auxiliary pans and secondary drains
 - Auxiliary drain pan with separate discharge
 - Equipment-provided drain pan with separate discharge
 - Auxiliary drain pan with water-level detection device, UL 508 Listed.
 - Equipment-provided drain pan with UL 508 water-level detection device



Ch. 4-Ventilation

•Exit Enclosure Ventilation Restrictions

- Deleted from Mechanical Code
- Still required by NCBC 1020.1.3



Ch-5 Exhaust Systems

- **502.5 Valve-Regulated Lead-Acid Battery Systems**
 - Room systems have been deleted from NCMC, but still included in NCFC 608.6.1
 - Cabinet systems –no change

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Exhaust Systems- Flammable Finishes

- **Termination Point of Exhausts**
 - Deleted from NCMC 502.7.3.6
 - Still included in NCFC 1504.7.6
 - Except environmental air, as it is covered in NCMC 401.5



Exhaust Systems- Smoke Control

- **Clarifies Methods Available to the designer for smoke control**
 - **Scale Modeling as defined in NFPA 92B**
 - **Algebraic Equations in NFPA 92B**
 - **Compartment Fire Models-Zone Modeling or CFD Modeling (computational fluid dynamics)**



Exhaust Systems- Smoke Control

- **Section 513.8.1 Changes**

- Exhaust Rate Now consistent in NCMC, NCBC, & NCFC as requiring.... “height of accumulating smoke layer shall be maintained at least 6 feet above walking surface”
- References to makeup air flow rate “shall not exceed 200 fpm” are deleted from Mechanical, Fire, and Building Code, but it is included by reference of NFPA 92B



Exhaust Systems- Smoke Control

- **Also Deleted from the NCMC, NCBC, & NCFC**
 - NCMC 513.8.2 Axisymmetric plumes
 - NCMC 513.8.3 Balcony Spill Plumes
 - NCMC 513.8.4 Window Plumes
 - NCMC 513.8.5 Plume Contact with Walls



Exhaust Systems – Smoke Control

- **Design Fire changes** Shall be based on a Rational Analysis performed by the registered design professional and approved by the code official. NCMC 513.9
 - Design fire fuel shall include consideration of the type of fuel, fuel spacing and configuration
 - References to Design Fire Heat Release Assumption of 5000 Btu/s Q value are deleted



Exhaust Systems- Smoke Control

- **NCMC Section 513.20 Underground Building Smoke Exhaust Systems**
 - Prescriptive six ach design of Section 513.20, 513.20.1,2,&3 is deleted from NCMC
 - Deleted from Fire Code, formerly NCFC 909.20
 - Deleted from Building Code, formerly NCBC 909.21
 - NCBC 405.5 Smoke Control System for underground buildings still refers to chapter 9, you still are required to provide smoke control, but not the prescriptive approach of 2006 NCBC 909.21
 - NCBC 408.8 Windowless buildings, I-3 occupancy



Exhaust Systems – Smoke Control

- These changes may reduce the exhaust rates required compared to the more prescriptive approach available for use in the 2006 Code.

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NCFG Clarification(s)

- MP Regulators

- Provide detail of device vent on drawings,
- Or Model and Manufacturer(s) of regulators meeting the vent limiting exception of 410.3.

- Regulators Section 410.3.1 Vent Piping

- Vent piping shall be run independently and serve only one device vent
- Combination vent and breather piping shall be run independently and serve only one device
- Breather only piping may be connected in a manifold arrangement



Questions?

For further questions:

- Phone: 919 661-5880
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- **Janie Sutton, P.E.**
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- On the e-mail, please include:
 - your name,
 - agency affiliation
 - phone number

