Special Presentation for the
The Automatic Fire Alarm Association of New Jersey
September 20, 2012

Fire Alarm Permit Applications under the NJ Uniform Construction Code.

John Drucker, CET
Fire Protection Subcode Official
Building, Fire, Electrical Inspector
Borough of Red Bank, NJ

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Code and Standards

2009 New Jersey I-Code Adoptions

  - Adopted Sept 7, 2010

- **2009 International Residential Code/NJ Edition**
  - Adopted Sept 7, 2010

- **2007 NFPA-72 – National Fire Alarm Code**
- **2007 NFPA-13/13R/13D – Fire Sprinkler Standards**

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N.J.A.C. 5:23-6.8 Materials and methods  (Rehabilitation Subcode)

(a) The following requirements shall be met for materials and installation methods for all items that are part of the applicant's proposed project for all categories of work other than repair as defined in N.J.A.C. 5:23-6.3.

1. Where sections listed below reference other sections not listed below, those sections shall apply within that limited context.

(b) Building and Fire Protection Materials and Methods: The following sections of the building subcode (N.J.A.C. 5:23-3.14) shall constitute the building and fire protection materials and methods requirements for this subchapter:

N.J.A.C. 5:23-6.8 Materials and methods (Rehabilitation Subcode)

**All of Chapter 9** entitled "Fire Protection Systems" except 901, 902, 903.2, 904.2, 905.3, 907.2, 908.1, 908.2, 910.2, 911;

The exceptions are needed since the rehabilitation subcode contains the required criteria for work in existing buildings.

Remember **Additions** while addressed in the Rehabilitation Subcode are considered new construction and therefore comply in total with the Building Subcode!
Fire Alarm

PRODUCT LISTING AND APPLICATION

2007 NFPA-72

4.3.1 Equipment.

Equipment constructed and installed in conformity with this Code shall be listed for the purpose for which it is used.

Fire alarm system components shall be installed, tested, and maintained in accordance with the manufacturer’s published instructions and this Code.
Fire Alarm

- **2007 NFPA-72 1.5 Equivalency.**

- 1.5.1 *Nothing in this Code shall prevent* the use of systems, methods, devices, or appliances of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this Code.

- 1.5.2 *Technical documentation shall be submitted* to the authority having jurisdiction to demonstrate equivalency.

- 1.5.3 *The systems, methods, devices, or appliances that are found equivalent shall be approved.*
N.J.A.C. 5:23-2.9 Variations and exceptions

(a) No variations or exceptions from the requirements of any subcode of these regulations may be made, except upon the following findings:

1. That strict compliance with any specific subcode provision, if required, would result in practical difficulty to such owner;

   and

2. That the exception, if granted, will not jeopardize the health, safety and welfare of intended occupants and the public generally.
### NJ Uniform Construction Code

#### ELECTRICAL SUBCODE

**TECHNICAL SECTION**


- Block
- Lot
- Qualification Code

- Work Site Location

**Owner In Fee:**

- Name: __________
- Address: __________
- Tel.: (_______)
- E-mail: __________

**Contractor:**

- Name: __________
- Address: __________
- Tel.: (_______)
- E-mail: __________

**Contractor License No.:**

- Exp. Date
- Home Improvement Contractor Registration No. or Exemption Reason (if applicable)
- Federal Emp. ID No.
- FAX: (_______)

**B. ELECTRICAL CHARACTERISTICS**

- Use Group: __________
- Present: __________
- Proposed: __________
- PolePad #: __________
- Temporary: __________
- Other: __________
- Building Occupied As: __________
- Utility Co: __________
- Est. Cost of Elec. Work: __________

**JOB SUMMARY (Office Use Only)**

**PLAN REVIEW**

- Yes No Plan Required
- Partial Use Utilized Approved
- Complete Utilized Approved
- Joint Plan Review Required
- SUBCODE APPROVAL for PERMIT
- SUBCODE APPROVAL for CERTIFICATE

**INSPECTIONS**

- Type: __________
- Failure: __________
- Failure: __________
- Approval: __________
- Initial: __________
- Date: __________
- Date: __________
- Date: __________
- Date: __________

**FEE (Office Use Only)**

- TOTAL NUMBERS
- Pool Permit/In-Wall Lights
- Stirrable Pool/Spa/Vid Tub
- KW Elect. Range/Receptacle
- KW Oven/Surface Unit
- KW Bath/Vent Fan
- KW Laundry/Dryer/Receptacle
- KW Dishwasher
- HP Garage Door
- KW Central HVAC Unit
- HP/RTW Space Heater/Air Handler
- KW Garage Door Opener
- HP Motors 1/2 HP
- KW Transformer/Generator
- AMP Service
- AMP Subpanel
- AMP Motor Control Center
- KW Elect. Sign/Outline Light

**Administrative Surcharge:**

- Minimum Fee
- State Permit Surcharge Fee
- TOTAL FEE

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3. Examination of plans: All plans submitted and any amendments thereto accompanied by the required documentation and application, and upon payment of the fee established by the enforcing agency, shall be numbered, docketed and examined promptly after their submission for compliance with the provisions of the regulations.
ix. Architect’s or engineer’s seal: The seal and signature of the registered architect or licensed engineer who prepared the plans shall be affixed to each sheet of each copy of the plans submitted and on the first or title sheet of the specifications and any additional supportive information submitted.

The construction official shall waive the requirement for sealed plans in the case of a single family home owner who had prepared his or her own plans for the construction, addition, reconstruction, alteration, renovation or repair of a detached structure used or intended to be used exclusively as his or her private residence providing that the owner shall submit an affidavit attesting to the fact that he or she has personally prepared the plans and provided further that said plans are in the opinion of the construction official, and appropriate subcode official, legible and complete for purposes of ensuring compliance with the regulations.

x. The construction official upon the advice of the appropriate subcode official may waive the requirement for plans when the work is of a minor nature.
xi. Those portions of the plans that are required to be submitted and which are not included at the time of application shall be listed by the design professional as part of the application.

(1) All documents prepared by people other than the design professional shall be reviewed by the design professional and submitted with a letter indicating that they have been reviewed and found to be in conformance with the regulations for the design of the building.
(f) Plans, plan review, plan release:

1. Plans and specifications:

The application for the permit shall be accompanied by no fewer than two copies of specifications and of plans drawn to scale, with sufficient clarity and detail dimensions to show the nature and character of the work to be performed.

Plans submitted shall be required to show only such detail and include only such information as shall be necessary to demonstrate compliance with the requirements of the code and these regulations or to facilitate inspections for code conformity. When quality of materials is essential for conformity to the regulations, specific information shall be given to establish such quality;

and… this code shall not be cited, or the term "legal" or its equivalent be used, as a substitute for specific information.
NJ Uniform Construction Code

(f) Plans, plan review, plan release:

1. Plans **and specifications**:

   .....or the term "legal" or **its equivalent** be used, as a substitute for specific information.

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**Electrical**

**Fire Alarm System**

1) Furnish and Install a code compliant fire alarm system in accordance with but not limited to applicable statutes, regulations, codes, standards, bulletins, interpretations and anything else we might have forgotten, overlooked, or otherwise.
NJ Uniform Construction Code

NJDOCA
Health Care Plan Review Unit

PROCEDURES FOR SUBMISSION TO

HEALTH CARE PLAN REVIEW

State of New Jersey
Department of Community Affairs
Division of Codes and Standards
Bureau of Construction Project Review
PO Box 817
Trenton, New Jersey 08625

State of New Jersey
Chris Christie, Governor
Department of Community Affairs
Lori Grillo, Commissioner

NEW JERSEY STATE DEPARTMENT OF COMMUNITY AFFAIRS
HEALTH CARE PLAN REVIEW RECORD
101 South Broad Street, PO Box 817
Trenton, New Jersey 08625-0817
609-986-8151

FACILITY NAME

CERTIFICATE OF NEED
OR
REFERENCE NUMBER

CERTIFICATE OF NEED EXPIRATION DATE

SUBMITTED BY

FIRM NAME

ADDRESS

TELEPHONE #

FAX #

EMAIL

Submit Part #1 with schematic plans (1st stage) and Part #2 with the preliminary (2nd stage) submission. If this first submission consists of preliminary or final plans, the entire plan review record shall be submitted at that time.

Hydraulically designed working drawings and calculations (including summary sheet, detailed working sheets and graph sheet) prepared in accordance with Chapter 8 of NFPA-13, shall be submitted for review at the first submission of engineering drawings.

The Plan Review Record is an informational tool only. It shall in no way relieve the Architect or Engineer from submitting complete and detailed plans and specifications.

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5:23-2.7 Ordinary maintenance

(a) Ordinary maintenance to structures may be made without filing a permit application with or giving notice to the construction official.

(b) Ordinary maintenance shall not include any of the following:

4. Any work affecting structural or fire safety
Ordinary maintenance to structures may be made without filing a permit application with or giving notice to the construction official.

4. Ordinary fire protection maintenance shall include:

i. The replacement of any sprinkler or smoke detector or heat detector head with a like device;

ii. The repair or replacement of any component of a fire alarm or smoke and heat detection equipment (other than the replacement of a fire alarm control panel);

iii. The installation of battery-powered smoke alarms; and

iv. The installation of battery-powered or plug-in type carbon monoxide alarms.
(b) The following are exceptions from (a) above:

1. **Ordinary maintenance** as defined in *N.J.A.C. 5:23-2.7* shall not require a permit or notice to the enforcing agency;

2. **Minor work** as defined by *N.J.A.C. 5:23-2.17A* shall require a permit. However, work may proceed, upon notice to the enforcing agency, before the permit is issued;

3. **Emergency work** not involving lead abatement, except that a permit shall be applied for or notice given as soon thereafter as is practicable, but not later than 72 hours thereafter.
5:23-2.15 Construction permits--application

(a) The application for a permit shall be submitted on the standard Construction Permit Application form prescribed by the Commissioner at N.J.A.C. 5:23-4.5(b)2 and shall be accompanied by the required fee, as provided for in this subchapter and N.J.A.C. 5:23-4.

The application shall contain a general description of the proposed work, its location, the use and occupancy of all parts of the building or structure and all portions of the site or lot not covered by the building or structure, and such additional information as may be required by the construction official, which shall include, but not be limited to, the following:
vii. **Engineering details and specifications**: The construction official and appropriate subcode official may require adequate details of structural, mechanical, plumbing and electrical work, including computations, stress diagrams and other essential technical data to be filed.

All **engineering plans and computations** shall bear the **seal and signature of the licensed engineer or registered architect** responsible for the design.

Plans for buildings shall indicate how required structural and fire-resistance rating will be maintained for penetrations made for electrical, mechanical, plumbing and communication conduits, pipes and systems.
Plumbing plans for **class III structures** may be prepared by persons licensed pursuant to "The Master Plumber Licensing Act", N.J.S.A. 45:14C-1 et seq.

Electrical plans for **class III structures** may be prepared by persons licensed pursuant to "The Electrical Contractors Licensing Act", N.J.S.A. 45:5A-1 et seq.;

Class III Structures;

Group B less than 7,200 square feet, two stories, 40 feet high;
Group M less than 4,800 square feet, one story, 40 feet high;
Group S-1 less than 4,200 square feet, one story, 40 feet high;
Group S-2 less than 7,200 square feet, two stories, 40 feet high;
Group R-3 as permitted in the building subcode and including accessory private garages, radio and television antennae and swimming pools;
vi. Group R-5 as permitted in the one- and two-family dwelling subcode and including accessory private garages, radio and television antennae and swimming pools.
[F] 907.1.1 Construction documents. Fire Alarm Systems

[F] 907.1.1 Construction documents for fire alarm systems shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code, and the International Fire Code.

[F] 903.3 Installation Requirements. Automatic Fire Sprinkler Systems shall be designed and installed in accordance with Sections 903.3.1 through 903.3.6

[F] 903.3.1 Standards. Sprinkler Systems shall be designed and installed in accordance with Section 903.3.1.1., 903.3.1.2 or 903.3.1.3

The applicant must demonstrate compliance.

Interestingly many applications are simply incomplete.

Lets take a look at what's supposed to be submitted ...
907.1.2 Fire alarm shop drawings.

Shop drawings for fire alarm systems shall be submitted for review and approval prior to system installation, and shall include, but not be limited to, all of the following:

1. A floor plan that indicates the use of all rooms.
2. Locations of alarm-initiating devices.
3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.
4. Location of fire alarm control unit, transponders and notification power supplies.
5. Annunciators.
6. Power connection.
7. Battery calculations.
8. Conductor type and sizes.
9. Voltage drop calculations.
10. Manufacturers’ data sheets indicating model numbers and listing information for equipment, devices and materials.
11. Details of ceiling height and construction.
12. The interface of fire safety control functions.
13. Classification of the supervising station.
[F] 907.1.2 Fire alarm shop drawings.

1. A floor plan that indicates the use of all rooms.
2009 International Bldg Code/NJ Edition

- **[F] 907.1.2 Fire alarm shop drawings.**


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Diagram showing the layout of various areas:
- Reception
- Owners Office (Private)
- Restroom
- General Sales Office
- Warehouse

$\frac{1}{4}'' = 1$ Ft

(C) John Drucker 2012
[F] 907.1.2 Fire alarm shop drawings.

3. **Locations of alarm notification** appliances, **including candela ratings** for visible alarm notification appliances.

![Diagram](C) John Drucker 2012
[F] 907.1.2 Fire alarm shop drawings.

4. Location of fire alarm control unit, transponders and notification power supplies.

\[ \frac{1}{4}'' = 1 \text{ Ft} \]
[F] 907.1.2 Fire alarm shop drawings.

5. **Annunciators.**
[F] 907.1.2 Fire alarm shop drawings.

6. **Power connection.**
[F] 907.1.2 Fire alarm shop drawings.

7. Battery calculations.
8. **Conductor type and sizes.**
9. **Voltage drop calculations.**

![Voltage drop calculation table](image)

**Note:**
- Wire resistance is divided in the calculations for two wires (Positive and Negative).
- The voltage calculated to the last device in any method must not be lower than the manufacturers listed minimum operating voltage (IE: rated operating voltage 20-32 VDC).
[F] 907.1.2 Fire alarm shop drawings.

10. Manufacturers’ data sheets indicating model numbers and listing information for equipment, devices and materials.
[F] 907.1.3 Equipment.

Systems and [their] components shall be listed and approved for the purpose for which they are installed.
[F] 907.1.2 Fire alarm shop drawings.

11. Details of ceiling height and construction.
1. Details of ceiling height and construction.

2007 NFPA-72 5.6 – Heat Sensing Fire Detectors
2007 NFPA-72 5.7 – Spot Type Smoke Detectors

Be sure to thoroughly review the location and spacing requirements based on the conditions, design and submit accordingly.
Major Change – 5.7.3.2 Spot-Type Smoke Detectors.

5.7.3.2.4.2 For level ceilings (slope less than 10%) the following shall apply:

(1) For ceilings with beam depths of less than 10 percent of the ceiling height (0.1 H), smooth ceiling spacing shall be permitted. (.7s rule)

(2) For ceilings with beam depths equal to or greater than 10 percent of the ceiling height (0.1 H) and beam spacing equal to or greater than 40 percent of the ceiling height (0.4 H), spot-type detectors shall be located on the ceiling in each beam pocket.
(1) For ceilings with beam depths of less than 10 percent of the ceiling height (0.1 H), smooth ceiling spacing shall be permitted. (.7s rule)

9 Ft Ceiling (0.1H) (.1 * 108” = 10.8”) So a solid joist 10.79” or less in depth allows for smooth ceiling (.7s) spacing.

8 Ft Ceiling (0.1H) (.1 * 96” = 9.6”) So a solid joist 9.59” or less in depth allows for smooth ceiling (.7s) spacing.

7 Ft Ceiling (0.1H) (.1 * 84” = 8.4”) So a solid joist 8.39” or less in depth allows for smooth ceiling (.7s) spacing.
(2) For ceilings with beam depths equal to or greater than 10 percent of the ceiling height (0.1 H) and beam spacing equal to or greater than 40 percent of the ceiling height (0.4 H), spot-type detectors shall be located on the ceiling in each beam pocket.

\[
\begin{align*}
(0.1H) & \quad (.1 \times 108" = 10.8") \text{ or } (12" / 108" = 11\%) \\
(0.4H) & \quad (.4 \times 108" = 43.2") \text{ or } (48" / 108" = 14\%)
\end{align*}
\]
12. The interface of fire safety control functions.
13. Classification of the supervising station.
Submittal Information and Documentation

1) The NFPA-72 System and Service Classification

2) The NFPA-72 Communications Method

3) The **MFVN** Service Providers Name and Type of Service

3) The Monitoring Service Providers Name

4) Copy of the Monitoring Service Providers Listing Documentation

5) Communications Equipment Manufacturer and Model

6) Copy of the Communications Equipment Tech Sheet(s) and Listing Documentation

7) The Number of Communications Paths and the Provisions made to Monitor the Communications Technology and Communications Path.

Alarm companies can simplify this by having prepackaged submittals made up ahead of time.
Plain Old Telephone Service (POTS) to Managed Facility Voice Network (MFVN) Service

Many people are switching over from POTS to MFVNs. A new code provision that takes effect July 16, 2012 will make it easier for them to make the switch. Currently, when someone wishes to change their POTS line to a MFVN, they need a full permit.

The changes found at N.J.A.C. 5:23-2.17A, 4.18 and 4.20 allow MFVNs to be used without making the owner of a building apply for a full permit to change phone lines. A new verification form U.C.C. F391 contains a compliance checklist. This form must be completed by a licensed/certified alarm service provider and submitted to the Fire Protection Subcode Official of the Local Enforcing Agency within 24 hours of conversion.

The new form can be found on the Division of Codes and Standards webpage at http://www.nj.gov/dca/divisions/codes/resources/constructionpermitforms.html

The new code provisions dealing with this change are found at the link below.

The adopted amendments at N.J.A.C. 5:23-4.18(c)
Plan Review Comments

- Let's look at some actual plan review comments.
## PLAN REVIEW CORRECTION COMMENTS

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Code Reference</th>
<th>Revision</th>
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<td>Application missing the following, unable to review:</td>
<td>NJUCC</td>
<td>5.23-2.15</td>
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<td>a) Riser</td>
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<td>5.23-8.5(c)</td>
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<td>b) Secondary Power Calculations</td>
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<td>c) Voltage Drop Calculations</td>
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<td>d) Wiring Materials and Methods</td>
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<td>e) Sequence of Operation</td>
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<td>f) Basement Plan</td>
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<td>g) Sprinkler System Supervision Details and Locations</td>
<td>NFPA-72</td>
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<td>h) Visual Notification Appliance Can be Out of Sight</td>
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<td>i) HVAC Detection and Control Details and Locations</td>
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<td>j) Ceiling Details, Height, Type and or Obstructions.</td>
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<td>k) Door Holder Details and Interface</td>
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<td>l) Delayed and or Access Control Locking Arrangements</td>
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<td>Audibility - Various Guestrooms shown without Audible Notification Appliances</td>
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<td>and/or Audibility Design Documentation.</td>
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<td>verifying compliance.</td>
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<td>Visual Notification - Four (4) Rooms provided with visual</td>
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<td>alarms where Fourteen (14) required.</td>
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<td>7 907.8.1.2</td>
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<td>Plans- PE/RA Signature and Seal - Missing</td>
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<td>Verify Approved Location with Fire Department</td>
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<td>6</td>
<td>System Power - Not noted or designated</td>
<td>NFPA-72</td>
<td>4.4.1.4</td>
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<td>System power shall be from dedicated, marked and locked source</td>
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<td>Provide Exterior Notification Appliance at FDC Location</td>
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<td>Meeting Room 8 - Missing Audible/Visual Notification Appliance</td>
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<td>2nd Floor Corridor - Smoke Detector Coverage exceeded</td>
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<td>adjacent to room 201</td>
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Please find the following plan review comments for the referenced application:

1) Plan E 2.1 Dated 09/03/2009


a) Plans not signed and sealed by Licensed Professional Engineer listed in Title Block.

b) Use group not noted on application – Unable to review applicable construction code requirements.

c) Legend not provided – Provide legend on plans.

d) Unable to determine visual (strobe) notification compliance – candela output settings not indicated on plan. Provide and locate notification appliances in accordance with 2006 IBC/NJ Section 907 and 2002 NFPA-72 Chapter 7 indicate candela output setting for each appliance accordingly.

e) Room uses not identified – List room use for each room or compartment.

f) Appliance mounting height detail not provided or noted – Provide Detail/Notes

g) Voltage drop calculations not provided – Provide voltage drop calculations for applicable circuits including existing appliances on same

h) Riser not submitted – Submit riser denoting modifications.

i) Initiating devices not shown or noted on plan – See comment b) use group

Revise and Resubmit. All documentation shall be submitted in duplicate.
Application Denied – Incomplete Application

1) 2006 IBC/NJ - 907.1.1 Construction documents.

Construction documents for fire alarm systems shall be submitted for review and approval prior to system installation. Construction documents shall include, but not be limited to, all of the following:

1. A floor plan which indicates the use of all rooms. -- Missing Apartment Layout Plans.
2. Locations of alarm-initiating and notification appliances. -- Missing Apartment Layout Plans.
3. Alarm control and trouble signaling equipment.
4. Annunciation. -- Missing Location of Remote Annunciator
5. Power connection. -- Missing Power Connection Details to House Power and Panel Location and Designation
8. Voltage drop calculations. -- Missing Voltage Drop Calculations

2) 2002 NFPA-72 - 4.5.1.1 Approval and Acceptance.

The authority having jurisdiction shall be notified prior to installation or alteration of equipment or wiring. At the authority having jurisdiction's request, complete information regarding the system or system alterations, including specifications, shop drawings, battery calculations, and notification appliance circuit voltage drop calculations shall be submitted for approval.

1. System Riser -- Missing System Riser

3) Strobe Coverage Exceeded – 2002 NFPA-72 T-7.5.4.1.1(a), T-7.5.4.4.2

a) Maximum off axis distance (to sidewall) is 22 ft for 110cd appliances – Basements 32, 34, 36, 42, 44, 46. Reconfigure accordingly.

b) Maximum on axis distance (to farwall) is 54 ft for 110cd appliances – Basements 150-152 Reconfigure accordingly.

c) Stipulate Mounting Height of Apartment Strobes – For mounting heights where the top of the lens is equal to or greater than 24” from the ceiling a 110cd strobe may be used in sleeping areas, for distances less than 24” a 177cd strobe is required.

4) Provide information on communications, circuits and method. DACT circuits shall be house (landlord) POTS circuits on the PSTN pursuant to NFPA-72 3.5.3.2.1.1;

5) 5.3.2.1.1 Public Switched Network. A DACT shall be connected to the public switched telephone network upstream of any private telephone system at the protected premises.

(A) The connections to the public switched telephone network shall be under the control of the subscriber for whom service is being provided by the supervising station fire alarm system.

6) Plans shall be signed and sealed by a NJ Licensed Professional Engineer pursuant to N.J.A.C. 6:23-2.16

6) Revise and Resubmit Application in Duplicate. Work shall not commence prior to receiving permit.
*Denotes Previous Comments Issued November 19, 2010
*Denotes Previous Comments Issued February 16, 2011

Application is denied for the following:

Fire Protection Subcode Official

1. *Provide minimum 15 cd strobe – corridor 105. – Comment 04/12/2011-The revised plans dated 4/8/11 indicate this appliance however the wiring diagram indicates it being circuited with the Exterior Waterflow Notification Appliance which is not permitted since the exterior WF Appliance is configured for Waterflow Only.

2. *Locate exterior horn/strobe over Fire Dept. Connection – program for waterflow only operation. Comment 04/12/2011-The revised plans dated 4/8/11 indicate this appliance however the wiring diagram indicates it being circuited with the Interior Corridor 105 Notification Appliance which is not permitted since the exterior WF Appliance is configured for Waterflow Only.

3. *Plans shall be signed and sealed by a NJ Registered Architect or Licensed Professional Engineer pursuant to N.J.A.C. 5:23-2.15. All documents, including but not limited to shop drawings, prepared by people other than the design professional shall be reviewed by the design professional and submitted with a letter indicating that they have been reviewed and found to be in conformance with the regulations for the design of the building. Documents shall be submitted in duplicate. Comment 04/12/2011-The revised plans dated 4/8/11 are neither signed and sealed by a NJPE or reviewed by the design professional and submitted with a letter indicating that they have been reviewed and found to be in conformance with the regulations for the design of the building as required by the regulations.

Revise application and resubmit accordingly. Work shall not commence until a permit has been received.
Re: Proposed Alteration

Fire Protection Codes & Standards References:

Fire Alarm & Fire Sprinklered System Protected Building

Dear Applicant

We are in receipt of Architectural Plan A-1 – Revision 1 received March 29, 2011. The referenced property is protected by a Fire Alarm & Fire Sprinkler System. Premises undergoing alterations routinely require modifications of the fire alarm and/or fire sprinkler systems to maintain code compliance.

The revised plans indicate the location of existing fire sprinkler and fire alarm equipment. The proposed alterations will create conflicts and or gaps in protection in violation of reference standards NFPA-13 (Fire Sprinkler) and NFPA-72 (Fire Alarm).

Please contact your fire sprinkler and fire alarm service providers as soon as possible such that they may file the requisite applications, plans and submittals to facilitate the necessary modifications to the existing fire alarm and fire sprinkler systems.

Unfortunately, I cannot grant release of this application until such time as the fire protection applications are received, reviewed, released and permitted. Please feel to have these service providers contact me if I can be of further assistance.
Fire Protection Codes & Standards References:

1) 2006 IBC/NJ - 907.1.1 Construction documents – Fire Alarm

Construction documents for fire alarm systems shall be submitted for review and approval prior to system installation. Construction documents shall include, but not be limited to, all of the following:

f) Candela Output setting of Visual Notification Appliances demonstrating required coverage pursuant to NFPA-72 7.5, provide additional visual notification appliances as required.

g) Shop Drawings

Submit Application including but not limited to Fire and Electrical Subcode Applications, Shop Drawings, Calculations and Submittals in Duplicate.

Fire Alarm work shall not commence prior to receiving permit.
Fire Protection Subcode Official – Plan Review Comments – Fire Alarm System


2009 IBC/NJ 907.1.1 Construction documents.
Construction documents for fire alarm systems shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code, the International Fire Code, and relevant laws, ordinances, rules and regulations, as determined by the fire protection subcode official.

2009 IBC/NJ 907.1.2 Fire alarm shop drawings.

Shop drawings for fire alarm systems shall be submitted for review and approval prior to system installation, and shall include, but not be limited to, all of the following:

3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.
5. Annunciators.
6. Power connection.
8. Conductor type and sizes.
9. Voltage drop calculations.
11. Details of ceiling height and construction.
12. The interface of fire safety control functions.

Additionally pursuant to 907.1.2, the following shall be provided:

1) Riser Diagram – Existing and New Areas

2) Indicate Ceiling Construction – Verify Smoke Detector Spacing based per NFPA-72- 5.6.5.1, 5.6.5.1.1, 5.6.5.1.2, 5.6.5.2, 5.6.5.3, 5.6.5.3.1, 5.5.3.2. Where the beams project more than 100 mm (4 in.) below the ceiling, the spacing of spot-type heat detectors at right angles to the direction of beam travel shall be not more than two-thirds of the smooth ceiling spacing permitted under 5.6.5.1.1 and 5.6.5.1.2.

3) Provide Visual Notification – 2nd Floor – Area outside Restrooms IBC/NJ 907.5.2.3.1 Public and common areas; Visible alarm notification appliances shall be provided in public areas and common areas.
Fire Protection Subcode Official – Plan Review Comments – Fire Alarm System

4) Indicate Visual Notification Candela Output Setting – Coverage and Spacing shall comply with 2007 NFPA-72-7.5.4.3, Table 7.5.4.3.1(a) Room Spacing for Wall-Mounted Visible and or Table 7.5.4.3.1(b) Room Spacing for Ceiling-Mounted Visible Appliances. Provide additional and or locate to comply with 2009 IBC/NJ 907.5.2.3.1 Public and common areas; Visible alarm notification appliances shall be provided in public areas and common areas.

5) Indicate the following on Plans and Risers;
   a) Kitchen Fire Extinguishing System – Separate Zone/Point – Alarm and Trouble
   b) HVAC Duct Smoke Detectors – Configured for Supervisory and Fan Shutdown
   c) Fire Sprinkler System – Waterflow (Alarm) and Control Valve Tampers (Supervisory)
   d) Fire Sprinkler System – Exterior Horn Strobe over FDC configured for Waterflow Only
   e) Fire Alarm Annunciator Required at Front Entrance.

Plans shall be signed and sealed by a NJ Registered Architect or Licensed Professional Engineer pursuant to N.J.A.C. 5:23-2.15. All documents, including but not limited to shop drawings, prepared by people other than the design professional shall be reviewed by the design professional and submitted with a letter indicating that they have been reviewed and found to be in conformance with the regulations for the design of the building. Documents shall be submitted in duplicate

Revise application and resubmit accordingly. Work shall not commence until a permit has been received.
Re: Secure Lower Lobby Door Addition – Plan SK-1B

The application to secure lower lobby door addition cannot be approved for the following reasons;

1) The door is a component of the means of egress in both directions, a) as a second means of egress from the basement corridor and b) as a second means of egress from the basement lobby.

In this regard the exit door must be unsecured and readily accessible from both sides.

However the door to the “Bank File Space” may be electronically secured from the ingress side with the requisite fail safe provisions on the egress side, permits and inspection. Additionally electronic security measures such as alarms and or video monitoring are permissible.
Common Issues

Fire Alarm Systems

• Audibility and Visibility - IBC/NFPA-72 Requirements?

• Have the voltage drop calculations been performed?. Does the wire size specified in the calculations match that on the plans?

• Don’t Forget - Smoke Detector at the Panel (except fully suppressed) and at least one Manual Station.

• Supervising Station Systems – Methods and Materials especially now with alternate means of communications including the use of MFVN’s

• Do the calculations match the quantities, types and power requirements of the devices and appliances called out on the plans?

• Mounting Heights Specified?
Remember the purpose of plans and submittals is to **demonstrate code compliance**.

To do this the documentation must be complete and accurate.

- Install Quality Control Checks – Develop Checklists

- Verify that Backgrounds correspond with Architectural’s and that RCP is coordinated

- Check the Math – Develop and or use Calculators such as spreadsheets that can be imported to the plans

- Documentation in Duplicate as a minimum – Remember one approved set must be on the jobsite for inspection.

- Signatures and Seals & Review by the Primary Design Professional

- Legal Statements or Equivalent not allowed
Remember, it is the applicants responsibility is to demonstrate code compliance.