

LOCAL LAWS
OF
THE CITY OF NEW YORK
FOR THE YEAR 1984

MAY 30 1984

31 CHAMBERS STREET
NEW YORK CITY

No. 16

Introduced by Council Member Manton (by request of the Mayor); also Council Members Castaneira Colon, Michels, Williams, Ferrer, Maloney and O'Donovan.

A LOCAL LAW

To amend the administrative code of the city of New York in relation to fire safety requirements in certain buildings and repealing certain provisions thereof relating thereto.

Be it enacted by the Council as follows:

Section 1. Subdivision a of section C19-160.0 of part two of title C of chapter nineteen of the administrative code of the city of New York, as amended by local law number forty-one for the year nineteen hundred seventy-eight, is amended to read as follows:

§ C19-160.0 Violations. --a. Any person who shall violate, or refuse, or neglect to comply with any provisions of sections C19-154.0, C19-155.0, C19-156.0 and C19-156.1 of the code shall, upon conviction thereof, be punished by a fine of not more than five hundred dollars or by imprisonment for not more than six months, or both; and any such person shall, also, for each offense, be subject to the payment of a penalty in the sum of two hundred fifty dollars, to be recovered in a civil action. In addition thereto the license held by such person may be revoked as provided for in section B32-6.0 of the code.

§ 2. Such section of such part, title, chapter and code, as amended by such local law, is amended by adding a new subdivision c to read as follows:

(c) Any person who shall violate, or refuse, or neglect to comply with any provision of section C19-156.2 of the code shall upon conviction thereof be punished by a fine of not less than five hundred dollars nor more than five thousand dollars for the first violation, not less than one thousand dollars nor more than five thousand dollars for the second violation, not less than fifteen hundred dollars nor more than five thousand dollars for the third violation, and not less than two thousand dollars nor more than five thousand dollars for the fourth violation, and every subsequent violation, or, for any such violation by imprisonment for not more than six months, or by both fine and imprisonment.

§ 3. Part three of such title, chapter and code is amended by adding a new section C 19-161.3 to read as follows:

§ C19-161.3 Fire Safety Requirements. --When required by the building code, all new and existing buildings shall be provided with sprinklers, exit lighting, exit signs, stair and elevator signs, signs in sleeping rooms, fire alarms, communication systems and fire command stations.

§ 4. Section C19-164.0 of such part, title, chapter and code is amended to read as follows:

§ C19-164.0 Elevator in readiness. --In every building exceeding seventy-five feet in height.

elevators shall be kept in readiness for immediate use by the department, during all hours of the night and day including, holidays, Saturdays and Sundays, and there shall be in attendance at iii] times ii person Competent to operate the elevator, except that no attendant shall be required for buildings having elevators with automatic or continuous Pressure operation with keyed switches meeting the requirements of reference standard RS 18-1 of the building code so as to permit sole use of the elevators by the department.

§ 5. Section C19-170.0 of such part, title, chapter and code, as amended by local law **number five** for the year nineteen hundred seventy-three, is amended to read as follows:

§ C19-170.0 Violations. -(a) Any person who shall violate, or refuse, or neglect to comply with, any provision of sections C19-161.0, C19-161.1, C19-161.2, C19-164.0, C19-165.1, C19-165.3, C19-166.0, C19-107.0, and C19-169.0 of the code shall, upon conviction thereof, be punished by a title of not more than five hundred dollars, or by imprisonment not exceeding six months, or both: and any such person shall, also for each offense, be subject to the payment of a penalty in the sum of two hundred fifty dollars, to be recovered in it civil action brought in the name of tile commissioner.

(b) Any person who shall violate, or refuse, or neglect to comply with any provision of section (19- 161.3 of the code shall upon conviction thereof be punished fly a fine of not less than live hundred dollars nor more than five thousand dollars for the first violation, not less than one thousand dollars nor more than five thousand dollars for the second violation, not less than fifteen hundred dollars nor more than five thousand dollars for the third violation, and not less than two thousand dollars nor more than five thousand dollars for the fourth violation, and every subsequent violation, or, for any such violation by imprisonment for not more than six months, ~~or~~ by both fine and imprisonment.

§ 6. Subdivision c of section 643a- 11.0 of title A of chapter twenty-six of such code, as added by local law number ten for the Year nineteen hundred eighty-one, is amended to lead as follows:

(c) In addition to the penalties provided in Subdivision it oi this section, any owner who shall fail to file a report pursuant to the provision,, (if section C26-125.1 or C26-1802.4 of this code shall he liable for a civil penalty of not less than twenty-five dollars nor more than one hundred dollars per day not to exceed one thousand dollars commencing with the date after which such report was required to be filed with the department and terminating, on the date of' the filing of such report with the department.

7. Paragraph four of' subdivision , of' section C26-86.5 of article eight-A of part one oi' title C' of' such chapter and code is REPEALED and re-enacted to read as follows:

4. A violation of' the provisions of:

- (ii) paragraph (6) oi (7) oi' subdivision (c) oi' section C26-504.1: or
- (b) subdivision (c) oi' section C26-504.15: or
- (c) section C26-504.16; or
- (d) subdivision (e) of section C26-605.1; or
- (e) subdivision (b) oi section C26-605.2: or
- (f) subdivision (b) of section C26-606.2; or
- (g) section C26-1300.8; or
- (h) section C26-1300.9; or
- (i) subdivision (b) oi' section C26-1700.7; or
- (J) paragraph (12) of' subdivision (f) of section C26-1704.5; or
- (k) paragraph (, 10) oi' subdivision (g) of section C26-1704.5: or
- (1) subdivision (c) of section C26-1704.8; or
- (m) subdivision (c) of section C26-1800.8; or
- (n) section C26-1801.4; or
- (o) section C26-1801.5; or
- (p) section 2-4 or 4-3 of reference standard RS 13-1.

§ 8. 'file introductory paragraph of sub-article 103.0 of article one of part two of such title, chapter and code, as amended by local law number forty-one for the year nineteen hundred seventy-eight, is amended to read as follows:

Subject to the provisions of section C26-100.5 and except as otherwise specifically provided by the provisions of this code, the following provisions shall apply to the alteration of existing buildings, whether made voluntarily or as a result of damage, deterioration or other cause, provided, however, that the following alterations shall conform with the requirements of this code regardless of magnitude or cost:

(a) Alterations or additions to existing standpipes, sprinklers or interior fire alarm and signal systems or a change in use or an enlargement to spaces requiring such protection, as provided in article seventeen of the building-code.

(b) Alterations, replacements or new installations of equipment for heating or storing water, as provided in reference standard RS - 16.

(c) Projections beyond the street line, as provided in article four of the building code.

(d) Sprinkler, alarm protection, and emergency lighting requirements for places of assembly, as provided in article eight of this code.

(e) Interior finish work, as provided in section C26-504.10,

(f) Finish flooring and floor covering, as provided in section C26-504.13.

The installation or replacement of elevators, is provided in article eighteen of this code.

§ 9. Section C26-103.4 of such article, part, title, chapter and code, as amended by local law number seventy-nine for the year nineteen hundred seventy-nine, is amended to read as follows:

§ C26-103.4 Alterations involving change in occupancy or use.

(a) Except as otherwise provided for in this section, if the alteration of a building or space therein results in a change in the occupancy group classification of the building under the provisions of article 3, then the entire building shall be made to comply with the requirements of this code.

(b) Except as otherwise provided for in this section, if the alteration of a space in a building involves a change in the occupancy or use thereof, the alteration work involved in the change shall, except as provided for in this section, be made to comply with the requirements of this code and the remaining portion of the building shall be altered to such an extent as may be necessary to protect the safety and welfare of the occupants.

(c) When, however, the cost of alterations involved in the change of occupancy of an existing building erected prior to the effective date of this code or space therein authorizes the alterations to be made in compliance with the applicable laws in existence on the sixth day of December, nineteen hundred sixty-eight, such change in occupancy may similarly be made, in compliance with such prior laws, provided the general safety and public welfare are not thereby endangered, and further provided that the alteration work shall effect compliance with all requirements of this code relating to interior finish work, finish flooring and floor covering, sprinklers, interior fire alarms, fire command and communication systems, elevators, smoke detectors, directional signs, emergency lighting and emergency power.

§ 10. Section C26-121.2 of such article, part, title, chapter and code is amended by adding a new subdivision c to read as follows:

c. No certificate of occupancy or temporary certificate of occupancy (excluding amendments to previously issued certificates of occupancy) shall be issued on or after April 1, 1987 for any existing building which has not fully complied with all requirements of this code applicable to such existing building.

§ 11. Section C26-12 1. 10 of such article, part, title, chapter and code, as amended by local law number forty-five for the year nineteen hundred sixty-nine, is amended to read as follows:

§ C26-12 1. 10 Issuance of certificates of occupancy.

(a) All applications for certificates of occupancy and accompanying papers shall be examined promptly after their submission. If the building is entitled to the certificate of occupancy applied for, the application shall be approved and the certificate of occupancy issued by the commissioner within 10 calendar days after submission of the application. Otherwise, the application shall be rejected and written notice of rejection, stating the grounds of rejection, shall be given to the applicant within 10 calendar days.

of the submission of the application. Wherever an application has been rejected and proof is thereafter submitted establishing that the grounds of rejection have been met and that the building is entitled to the certificate of occupancy applied for, the application shall be approved and the certificate of occupancy issued within 10 calendar days after submission of such proof.

(b) No certificate of occupancy or temporary certificate of occupancy shall be issued until a fire protection plan, if required **under the provisions** of sub-article C26-124.0, has been filed and accepted.

§ 12. Such article of such part, title, chapter and code, is amended by adding two new sub-articles 124.0 and 125.0 to read as follows:

SUB-ARTICLE 124.0 FIRE PROTECTION PLAN

C26-124.1 Applicability.-This sub-article shall apply to the following buildings and building sections:

- (a) High Rise buildings or building sections exceeding 75 ft. in height.
- (b) Buildings or building sections classified in occupancy group A, B, C, D, E or G which are 2 or more stories in height with over 20,000 gross sq. ft. per floor or are 2 or more stories in height with a total building floor area exceeding 50,000 gross sq. ft.
- (c) Any building containing an assembly use having an occupant load of 300 or more persons.
- (d) Buildings or building sections classified in occupancy group H or J- I which are 2 or more stories in height and contain sleeping accommodations for 30 or more persons.
- (e) Buildings or building sections classified in occupancy group 1-2 which contain 30 or more dwelling units and over 10,000 gross sq. ft. of floor area used for mercantile, assembly, educational or institutional purposes.
- (f) Alterations to a building or building section listed in subdivisions (a) through (c), if the cost of the alterations, computed in accordance with section C26-103.5, exceeds one million dollars or involves a change of use.

§ C26-124.2 Scope.

- (a) The plan shall include the following information, where applicable:
 - (1) Building description: address; block and lot numbers; number of stories-, height in feet; occupancy group: construction classification: occupancy load and department of buildings application number.
 - (2) Key plans showing all floors, exits, corridors, partitions serving as fire separations or fire divisions, locations and ratings of required enclosures, stairs with pressurization, roof access, exit discharges, locations of frontage space.
 - (3) Descriptions in narrative form of safety systems and features, including:
 - a. Communications systems
 - b. Alarm systems
 - c. Smoke detection equipment
 - d. Location of fire command station
 - e. Elevator recall
 - f. Emergency lighting and power
 - g. Standpipes
 - b. Sprinklers
 - i. Compartmentation
 - j. Mechanical ventilation and air conditioning
 - k. Smoke control systems and equipment
 - 1. Furnishings types and materials
 - m. Places of assembly
 - n. Fire department access
 - o. Other systems, required and voluntary, to be installed
 - (4) Proof that the fire safety plan, if required, has been filed with the fire department and accepted by that department.

§ C26-124.3 General Requirements. --A fire protection plan, as defined in article two shall be filed with the department by a registered architect or licensed professional engineer whose seal and signature shall be on the plan.

§ C26-124.4 Retroactivity. --The requirements of this sub-article shall apply to all alterations to, and construction of, buildings listed in section C26-124.1 in progress and not yet completed on the effective date of this sub-article.

SUB-ARTICLE 125.0
SPECIAL FILING REQUIREMENTS

§ C26-125.1 General Requirements.--Owners of all existing buildings which are required to comply with the provisions of sections C26-504.16(a) (elevator vestibules), C26-605.1 and C26-605.2(b) (exit lighting), C26-606.2(b) (exit signs), C26-609.3 (signs in sleeping rooms), C26-1300.9 (ventilation in J-1 buildings), C26-1700.7 (b) (sprinklers, fire alarm systems, fire command and communication systems), C26-1800.8(c) (2) (elevators in readiness), C26-1801.4 (locks on hoistway doors) and C26-1901.5 (firemen's service) shall file with the department a report on or before April 1, 1987 certifying to the installation of the required fire protection systems in accordance with approved plans and appropriate permits prior to such date. Owners of all existing buildings not already subject to the requirements of sub-article 608.0 as of January 18, 1973 shall file with the department a report on or before October 1, 1985 certifying to the installation of stair and elevator signs meeting the requirements of sub-article C26-608.0 prior to such date. Such reports shall be on such forms and in such manner as prescribed by the commissioner. Failure to file such report by such dates shall be a violation of this section, which shall be punishable pursuant to section 643a-11.0 of this code.

§ 13. Sub-article 201.0 of article two of such part, title, chapter and code as amended by local law number thirty for the year nineteen hundred eighty, is amended by inserting therein between the definitions of assembly space and attic, the definition of atrium to read as follows:

ATRIUM. --A vertical opening or series of openings within a building connecting 3 or more floors, which may be covered at the top, and which is used for purposes other than an enclosed stairway, elevator hoistway or utility shaft.

§ 14. Such sub-article of such article, part, title, chapter and code, as amended by such local law, is amended by inserting therein between the definitions of elevator and emergency interlock release switch, the definition of elevator vestibule to read as follows:

ELEVATOR VESTIBULE. --A room or space enclosed with noncombustible smoke barrier partitions with smoke stop doors conforming to section C26-604.4 (c). Except for such smoke stop doors, openings to elevators shall be the only other door openings permitted in the enclosing partitions,

§ 15. Such sub-article of such article, part, title, chapter and code, as amended by such local law, is amended by inserting therein between the definitions of escalator and existing office building, one hundred feet or more in height, the definitions of existing building and existing high rise building to read as follows:

EXISTING BUILDING. --A building, whether high rise or low rise:

(1) Which on April 1, 1984 is complete or under construction, or

(2) For which an application for approval of plans has been filed with the department prior to October 1, 1984 and construction commenced prior to April 1, 1986, provided that those requirements of this code applicable to existing buildings classified in the same occupancy group as the proposed building shall be complied with in accordance with the time limitations set forth in this code.

EXISTING HIGH RISE BUILDING. --A building, classified as a high rise structure:

(1) Which on April 1, 1984 is complete or under construction, or

(2) For which an application for approval of plans has been filed with department prior to October 1, 1984 and construction commenced prior to April 1, 1986, provided that those requirements of this code applicable to existing buildings classified in the same occupancy group as the proposed building shall be complied with in accordance with the time limitations set forth in this code.

§ 16. Such sub-article of such article, part, title, chapter and code, as amended by such local law, is amended by inserting therein between the definitions of fire door and fire protection rating, the definition of fire protection plan to read as follows:

FIRE PROTECTION PLAN. --A report containing a narrative description of the life and fire safety systems and evacuation system for a structure, in accordance with section C26-124.2.

§ 17. Such sub-article of such article, part, title, chapter and code, as amended by such local law, is amended by inserting therein between the definitions of fire retardant treated wood and fire section, the definition of* fire safety plan to read as follows:

FIRE SAFETY PLAN. --A description of the fire drill and evacuation procedures for a structure which is required to be submitted to the fire department in accordance with the requirements of section C19-161.2 of the administrative code and the regulations of the fire commissioner.

§ 18. Such sub-article of such article, part, title, chapter and code, as amended by such local law, is amended by inserting therein between the definitions of heretofore and hoisting machine, the definition of high rise to read as follows:

HIGH RISE. --A structure 75 ft. or more in height.

§ 19. **Such sub-article of such article, part, title, chapter and code,** as amended by such local law, is amended by inserting therein between the definitions of lot line and manual fire pump, the definitions of low rise and mail to read as follows:

LOW RISE. --A structure less than 75 ft. in height.

MALL. --An enclosed or roofed area used as a pedestrian circulation space and connecting no more than 3 stories or portions of stories of a building or buildings housing single and/or multiple tenants.

§ 20. Such sub-article of such article, part, title, chapter and code, as amended by such local law, is amended by inserting therein between the definitions of projecting sign and public garage, the definition of public areas to read as follows:

PUBLIC AREAS. --Area(s) within a building usually open to or used by the general public, such as lobbies, corridors, waiting rooms, reception rooms, rest rooms, etc.

§ 21. Such sub-article of such article, part, title, chapter and code, as amended by such local law, is amended by inserting therein between the definitions of single pole scaffold and smoke stop door, the definition of smoke barrier to read as follows:

SMOKE BARRIER. --Any continuous non-combustible construction, vertical, horizontal, or otherwise, such as a wall, floor, or ceiling assembly, that is designed and constructed to restrict the spread of smoke.

§ 22. Section C26-308.1 of article three of such part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

§ C26-308.1 Classification. --Buildings, building sections and spaces shall be classified in the educational occupancy group when persons occupy them for instruction or other educational purposes except those spaces occupied as a place of assembly. These spaces shall be classified in Occupancy group F--assembly, under the provisions of sub-article 307.0. Such buildings, building sections and spaces occupied for instruction and used exclusively by adults may be classified by the commissioner in occupancy group E-business and if so classified such buildings, building sections and spaces shall comply with the requirements for such classification.

§ 23. Table 4-1 and table 4-2 of article four of such part, title, chapter and code, table 4-1 as amended by local law number thirty for the year nineteen hundred eighty-two and table 4-2 as amended by local law number five for the year nineteen hundred seventy-three, are amended to read, respectively, as follows:::

TABLE 4-1 AREA AND HEIGHT LIMITATIONS FOR UNSPRINKLERED BUILDINGS AND SPACES

Occupancy Group		NONCOMBUSTIBLE CONSTRUCTION GROUP I					COMBUSTIBLE CONSTRUCTION GROUP II				
		Class IA	Class IB	Class IC	Class ID	Class IE	Class IIA	Class IIB	Class IIC	Class IID	Class IIE
HIGH HAZARD A ^c	Area	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
	Height	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
STORAGE B-1	Area	1,000	1,000	1,000	1,000	1,000	1,000	1,000	N.P.	1,000	N.P.
	Height	75'-0"	75'-0"	65'-0"(5)	65'-0"(5)	40'-0"(3)	50'-0"(4)	50'-0"(4)	N.P.	40'-0"(3)	N.P.
STORAGE B-2 ^b	Area	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	2,100
	Height	75'-0"	N.L.	75'-0"	75'-0"	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)
MERCANTILE C	Area	7,500	7,500	7,500	7,500	7,500	7,500	7,500	5,600	8,400	2,100
	Height	75'-0"	75'-0"	75'-0"	75'-0"	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)
INDUSTRIAL D-1	Area	7,500	7,500	7,500	7,500	3,500	7,500	7,500	N.P.	1,400	N.P.
	Height	75'-0"	75'-0"	65'-0"(5)	65'-0"(5)	40'-0"(3)	50'-0"(4)	50'-0"(4)	N.P.	40'-0"(3)	N.P.
INDUSTRIAL D-2	Area	N.L.	N.L.	N.L.	17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height	75'-0"	75'-0"	75'-0"	75'-0"	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)
BUSINESS E	Area				17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height	75'-0" d.f.	75'-0" d.f.	75'-0" d.f.	75'-0" d.L.	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)
ASSEMBLY F-1	Area	N.L.	N.L.	N.L.	17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height	N.L.	N.L.	75'-0"	75'-0"	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)
ASSEMBLY F-2	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height	N.L.	N.L.	N.L.	N.L.	75'-0"	75'-0"	75'-0"	65'-0"(5)	75'-0"	65'-0"(5)
ASSEMBLY F-3	Area	N.L.	N.L.	N.L.	17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height	N.L.	N.L.	75'-0"	75'-0"	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)
ASSEMBLY F-4 ^e	Area	N.L.	N.L.	N.L.	17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height	N.L.	N.L.	75'-0"	75'-0"	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)
EDUCATIONAL G	Area	N.L.	N.L.	N.L.	17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height	75'-0"	75'-0"	75'-0"	75'-0"	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)
INSTITUTIONAL H-1	Area	17,500	14,000	10,500	7,000	N.P.	4,200	4,200	N.P.	N.P.	N.P.
	Height	N.L.	75'-0"	65'-0"(5)	50'-0"(4)	N.P.	50'-0"(4)	50'-0"(4)	N.P.	N.P.	N.P.
INSTITUTIONAL H-2	Area	17,500	14,000	10,500	7,000	N.P.	4,200	4,200	N.P.	N.P.	N.P.
	Height	N.L.	75'-0"	65'-0"(5)	50'-0"(4)	N.P.	50'-0"(4)	50'-0"(4)	N.P.	N.P.	N.P.
RESIDENTIAL J-1	Area	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
	Height	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.	N.P.
RESIDENTIAL J-2	Area	N.L.	N.L.	N.L.	17,500	N.P.	10,000	10,000	5,600	N.P.	N.P.
	Height	N.L.	N.L.	75'-0"	75'-0"	N.P.	75'-0"	75'-0"	40'-0"(3)	N.P.	N.P.
RESIDENTIAL J-3	Area	N.L.	N.L.	N.L.	17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height	N.L.	N.L.	75'-0"	75'-0"	40'-0"(3)	75'-0"	75'-0"	40'-0"(3)	40'-0"(3)	40'-0"(3)

N.L.—No Limit

N.P.—Not Permitted

Not permitted inside Fire Districts^d

Note: Tabulated areas are given in sq. ft. and establish maximum gross area permitted on any one story within a building or fire area. See Sections C26-405.3 and C26-502.6e for permissible area increases. Tabulated heights are given in feet and number of stories (in parentheses)

^a See section C26-403.2 for construction exemptions.

^b See sub-article 710.0 for area and height limitations of open parking structures.

^c See section C26-803.1 (b) (2) for grandstand limitations.

^d See section C26-504.1(c) for area limitations for existing office buildings 100 feet or more in height with mechanical ventilation and/or air-conditioning systems that serve floors other than the floor on which the equipment is located.

^e Spaces in occupancy group A solely due to their containing gas distribution piping at pressure levels above 15 psig may be unsprinklered and conform with the area and height limitations set forth in table 4-2, provided other fire protection requirements set forth in section C26-701.5 and articles 5 and 17 are met.

^f See section C26-1703.1(2) for area limitations for buildings less than 75 ft. in height.

TABLE 4-2 AREA AND HEIGHT LIMITATIONS FOR SPRINKLERED BUILDINGS AND SPACES

Occupancy Group		NONCOMBUSTIBLE CONSTRUCTION GROUP I					COMBUSTIBLE CONSTRUCTION GROUP II				
		Class IA	Class IB	Class IC	Class ID	Class IE	Class IIA	Class IIB	Class IIC	Class IID	Class IIE
HIGH HAZARD A	Area	N.L.	17,500	14,000	10,500	3,500	7,700	7,700	N.P.	1,400	N.P.
	Height		75'-0" (6)	65'-0" (5)	65'-0" (5)	40'-0" (3)	50'-0" (4)	50'-0" (4)		50'-0" (4)	
STORAGE B-1	Area	N.L.	N.L.	N.L.	17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height			85'-0" (7)	75'-0" (6)	50'-0" (4)	75'-0" (6)	75'-0" (6)	40'-0" (3)	50'-0" (4)	40'-0" (3)
STORAGE B-2 ^b	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)
MERCANTILE C	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)
INDUSTRIAL D-1	Area	N.L.	N.L.	N.L.	17,500	10,500	14,700	14,700	5,600	8,400	2,100
	Height			85'-0" (7)	75'-0" (6)	50'-0" (4)	75'-0" (6)	75'-0" (6)	40'-0" (3)	50'-0" (4)	40'-0" (3)
INDUSTRIAL D-2	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)
BUSINESS E	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)
ASSEMBLY F-1	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)
ASSEMBLY F-2	Area	N.L.	N.L.	N.L.	N.L.	N.L.	N.L.	N.L.	19,600	N.L.	16,100
	Height				85'-0" (7)				75'-0" (6)		75'-0" (6)
ASSEMBLY F-3	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)
ASSEMBLY F-4	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)
EDUCATIONAL G	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)
INSTITUTIONAL H-1	Area	N.L.	N.L.	17,500	10,500	7,000	11,200	11,200	3,500	4,000	N.P.
	Height		85'-0" (7)	75'-0" (6)	65'-0" (5)	50'-0" (4)	65'-0" (5)	65'-0" (5)	40'-0" (3)	50'-0" (4)	
INSTITUTIONAL H-2	Area	N.L.	N.L.	17,500	10,500	7,000	11,200	11,200	3,500	4,000	N.P.
	Height		85'-0" (7)	75'-0" (6)	65'-0" (5)	50'-0" (4)	65'-0" (5)	65'-0" (5)	40'-0" (3)	50'-0" (4)	
RESIDENTIAL J-1	Area	N.L.	N.L.	N.L.	N.L.	N.P.	N.L.	N.L.	N.P.	N.P.	N.P.
	Height				85'-0" (7)		85'-0" (7)	85'-0" (7)			
RESIDENTIAL J-2	Area	N.L.	N.L.	N.L.	N.L.	N.P.	N.L.	N.L.	12,600	N.P.	N.P.
	Height				85'-0" (7)		85'-0" (7)	85'-0" (7)	50'-0" (4)		
RESIDENTIAL J-3	Area	N.L.	N.L.	N.L.	N.L.	17,500	N.L.	N.L.	12,600	15,400	9,100
	Height				85'-0" (7)	50'-0" (4)	85'-0" (7)	85'-0" (7)	50'-0" (4)	50'-0" (4)	50'-0" (4)

N.L. — No Limit

N.P. — Not Permitted

Not permitted inside Fire Districts^a

NOTE: Tabulated areas are given in sq. ft. and establish maximum gross area permitted on any one story within a building or fire area. See Sections C26-405.3 and C26-502.6e for permissible area increases. Tabulated heights are given in feet and number of stories (in parentheses).

^a See section C26-403.2 for construction exemptions.

^b See sub-article 710.0 for area and height limitations of open parking structures.

See section C26-1703.1(a) and C26-1703.1(b) for requirements pertaining to F-4 spaces

§ 24. Section C26-502.5 of article five of such part, title, chapter and code as amended by local law number thirty-nine for the year nineteen hundred seventy-two, is amended to read as follows:

§ C26-502.5 Ceilings.--

(a) Ceilings that contribute to the required fire-resistance rating of a floor or roof assembly shall be continuous between exterior walls, vertical fire divisions, fire separations, corridor partitions or any other partitions having at least the same fire resistance rating as the ceiling. All such fire-rated partitions shall be constructed as set forth in section C26-504.2 or C26-504.3(a), as appropriate. The concealed space above such ceiling shall be firestopped into areas not exceeding 3,000 square feet with materials listed in section C-16-504.7 for full height of the concealed space. Access to each such concealed space may be through one or more openings, not exceeding 9 square feet and protected by self-closing opening protectives having the fire-protection rating required by table 5-3.

(1) Firestopping shall not be required where the structural members within the concealed space are individually protected with materials having the required fire resistance rating, or where the ceiling is not an essential part of the fire-resistive assembly; nor shall firestopping be required where a concealed space is sprinklered in accordance with the construction requirements of article 17.

(b) Electrical and other openings in ceilings.--Ceilings required to have a fire-resistance rating may be pierced to accommodate noncombustible electric outlet boxes or recessed lighting fixtures if the aggregate area of such openings does not exceed 16 sq. in. in each 90 sq. ft. of ceiling area and the electrical outlet boxes or recessed lighting fixtures are constructed of steel at least .022 in. thick and sealed tightly at the ceiling. Noncombustible pipes, ducts, and additional or larger electrical or other service facilities may pierce ceilings that are required to have a fire-resistance rating only when the type of ceiling to be used has been tested with such types of facilities installed in place and the proportionate area of openings for such facilities to be installed in the ceiling does not exceed the proportionate area of such openings in the assembly tested, and provided no opening is larger than that in the assembly tested. Protection for such opening shall be the same as provided in the test. Duct openings installed in accordance with the foregoing shall be protected by fire dampers complying with the requirements of article 13.

25. The first undesignated paragraph of subdivision c of section C26-504.1 of such article, part, title, chapter and code, as amended by local law number five for the year nineteen hundred seventy-three, is amended to read as follows:

Notwithstanding the provisions of Table 4-1, in existing office buildings 100 feet or more in height having air-conditioning and/or mechanical ventilation systems that serve more than the floor on which the equipment is located, unsprinklered floor areas, more than 40 feet above curb level, shall be subdivided by fire separations into spaces or compartments of the size required by paragraphs (1) through (5) below. Floor area shall be defined as the area within exterior walls and excluding (a) areas enclosing stairs, corridors, elevators and shafts:

§ 26, Section C26-504.5 of such article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

§ C26-504.5 Ducts, pipes and conduits through rated construction

(a) Installation of ducts which pass through construction required to have a fire-resistance rating shall comply with the requirements of article 13, provided that, notwithstanding the provisions of article 13 or reference standard RS 13-1, noncombustible ducts which pass through construction required to

have a fire-resistance rating of one hour must be provided with fire dampers unless:

- (1) The building is classified in occupancy group C, E, or H-2; and
- (2) Complete sprinkler protection is provided for the floor in accordance with article 17; or
- (3) The openings for the ventilation ducts do not exceed 3 square feet in area; or
- (4) The duct is protected on both sides of the partition for a distance equal to the maximum

duct

dimension by a sleeve affording 1-hour fire separation for such horizontal distance.

(b) Noncombustible pipes and conduits.-Noncombustible pipes and conduits may pass through construction required to have a fire-resistance rating provided that the space between the pipe or conduit and its sleeve or opening does not exceed $\frac{1}{2}$ in. and is completely packed with mineral wool or equivalent noncombustible material and is closed off by close-fitting metal escutcheons on both sides of the construction-, and provided further that the aggregate net area of such openings does not exceed 25 square inches in any 100 square feet of wall or floor area (excluding the areas of openings for sleeves which are firestopped in conformance with this section and section C26-504.7).

(c) Openings for passage (if pipe and ducts whose aggregate net area exceeds 25 sq. in. in any 100 sq. ft. of wall or floor area (excluding opening for sleeves which are firestopped in conformance with this section and section C26-504.7) may Pierce constructions required to have a fire-resistance rating only when the type of construction to be used has been tested with such types of facilities installed in place and the proportionate area of openings of such facilities to be installed in the construction does not exceed the proportionate area of openings in the assembly tested, and provided no opening is larger than that in the assembly tested. Protection of such openings shall be the same as provided in the test. All openings through hollow fire rated construction shall be sleeved with sheet metal least No. 14 U.S. std. gage thick.

§ 27. Subdivision a of section C26-504.7 of such article, part, chapter and code, as added by such local law, is amended to read as follows:

(a) Firestopping materials.-In buildings of construction group 1, firestopping or fill shall be of noncombustible material that can be shaped, fitted, and permanently secured in position. In buildings of construction i,

group 11, firestopping may be of combustible material consisting of wood not less than 2 in, nominal thickness with tight -joints, two layers of 1 in. nominal thickness assembled so that there are no through joints or of $\frac{1}{2}$ in. exterior type of plywood with joints backed, except that noncombustible firestopping shall be used in concealed spaces of fire divisions and where in contact with fireplaces, flues, and chimneys. Noncombustible firestopping may be masonry set in mortar, concrete. $\frac{3}{4}$ in, thick, mortar or plaster on noncombustible lath, plasterboard at least $\frac{3}{4}$ in. thick, fire-rated wallboard at least $\frac{5}{8}$ in. thick, sheet metal at least No. 14 U.S. std. gage thick, solid web metal structural members, asbestos-cement board at least $\frac{1}{4}$ in, thick, or equivalent rigid noncombustible material. Mineral, slag, or rockwool may be used for firestopping when compacted to a density of at least 3.5 lbs per cubic foot into a confined space of least dimension not more than $\frac{1}{3}$ its second dimension.

(1) The performance of through 1) -penetration fire stops shall be measured and specified according to reference standard RS 5-19.

(2) The commissioner may accept reference standard RS 5-19 test data results from an independent laboratory acceptable to the commissioner pursuant to section C26-106.2 (c), when such data is submitted by a registered architect or licensed professional engineer to justify the usage of fire stops or the details of their installation not specified herein.

§ 28. Subdivisions f and g of such section, article, part, title, chapter and code are relettered to be subdivisions g and b and a new subdivision f is added to read as follows:

(f) Trim and finish. --Where combustible trim and finish is permitted all hollow spaces shall be firestopped at 10 foot intervals or shall be solidly filled with noncombustible materials.

§ 29. Subdivision h of such section, article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight and relettered by section twenty-eight of this local law, is amended to read as follows:

(h) Inspection of firestopping.-The installation of all required firestopping shall be subject to the controlled inspection requirements of section C26-106.3, except that the architect or engineer need not be retained by the owner. Firestopping shall not be **concealed from view until inspected**.

§ 30. Paragraph one of subdivision c of section C26-504. 10 of such article, part, title, chapter and code, as added by such local law, is amended to read as follows:

(1) Finish flooring and floor coverings, which are subject to the requirements of section C26-504.13.

§ 31. The section heading and introductory Paragraph of **section C26-504.13 of such article, part, title, chapter and code**, as added by such local law, is amended to read as follows:

Finish flooring and floor coverings.-Finish flooring and floor coverings shall comply with the following:

§ 32. Such section of such article, part, title, chapter and code, is amended by adding a new subdivision d to read as follows:

(d) Floor coverings. -- Exits.-

Where exits are required under any provision of this code, carpets and carpet assemblies shall not be installed in such exits, except that wool carpeting may be installed in lobby areas, exit passageways and convenience stairs.

(2) Flammability requirements. --The requirements of this subdivision shall apply to carpets and carpet assemblies only when used as a floor covering (for requirements pertaining to carpets and carpet assemblies used as interior finishes, see section C26-504.10). For purposes of this subdivision, carpeting assemblies shall include the carpet, its underlay, and adhesives which when tested as a composite shall be representative of the proposed installation.

a. Pill test.-All carpets and underlayments shall pass a methanine pill test in accordance with the requirements of reference standard RS 5-20.

b. Critical radiant flux test.-Carpets and carpet assemblies shall be tested by the method for critical radiant flux in accordance with the requirements of reference standard RS 5-20. The time frame for such test shall be at least a 15 minute exposure.

1. Carpets and carpet assemblies representative of the actual installation on floors of corridors, shall have a minimum critical radiant flux of 0.5 watts per square centimeter (W/cm^2).

2. Carpets and carpet assemblies representative of the actual installation on floors of general area, shall have a minimum critical radiant flux of 0.4 W/cm^2 .

c. Smoke developed ratings. --Carpets and carpet assemblies representative of the actual installation on doors or corridors or general areas shall be tested for smoke developed ratings in accordance with the requirements of reference standard RS 5-20. The smoke developed ratings in either the flaming (i no flaming mode), shall not exceed 300 within the first 4 minutes of the test,

d The manufacturer of the carpets and carpet assemblies shall submit a certificate from an independent laboratory acceptable to the commissioner pursuant to section C26-106.2, showing the complete test data results, prior to final acceptance. The certification shall state that the material is treated for fire resistance and shall indicate the service life of the treatment or that the material is inherently fire resistant by virtue of its construction, chemical properties and/or composition. Materials which are not inherently fire resistant may be used only when the certified fire resistant service life exceeds that of the planned service life of the carpets and carpet assemblies with consideration being given to cleaning, traffic, and other conditions of use which may effect the treatment.

§ 33. Such article of such part, title, code and chapter is amended by adding a new section C26-504.16 to read as follows:

§ C26-504.16 Smoke Protection for Elevators and Escalators.-- C26-504.16(a) Elevators. --In existing buildings classified in occupancy group 1-1, at every floor above the main entrance floor, all passenger elevators shall open only into elevator vestibules, except for: () Such existing buildings which contain spaces classified in occupancy group C or F and have all automatic sprinkler system protecting all spaces (except boiler rooms) not in occupancy group J-1 and all exits and corridors serving Such spaces located on or below the lowest floor containing sleeping rooms as well as all storage closets no matter where located, except that storage closets less than 75 square feet may, in the alternative, be provided with smoke detectors which shall be of the central supervisory type connected to an approved central station; or

- (2) Such existing buildings which contain no spaces in occupancy group C or F, and have either:
 - a. An automatic sprinkler system protecting all public areas and storage closets; or
 - b. An automatic sprinkler system protecting all sleeping rooms and storage closets.
 - c. Notwithstanding paragraphs a and b of this subsection two. storage closets less than 75 square feet may be provided with smoke detectors of the central supervisory type connected to an approved central station.
 - d. Notwithstanding any other provision of this code, the sprinklers serving the storage closets may be connected with the domestic water supply.
 - (b) Escalators. -in buildings an[] existing buildings classified in occupancy group J-1, fire protection for escalators shall be provided by any one of the following methods:
 - (1) Enclosure in accordance with sections C26-604.8 and C26-604.1 1 if escalator is used as an exit; or
 - (2) Automatic rolling shutters in accordance with reference standard RS 18-1; or
 - (3) Kiosks in accordance with reference standard RS 18-1- or
 - (4) Where the building section is fully protected by a supervised automatic sprinkler system and the escalator sprinklers are spaced to protect exposed sides of the escalator opening. a noncombustible heat apron constructed to bank heat around the sprinkler heads adjacent to the opening where the bottom edge of the draft curtain is not less than 12 inches below the bottoms of sprinkler heads when heads are in operation, and in no event less than 24 inches below the ceiling: or
 - (5) Spray nozzles in accordance with reference standard RS 18-1.
 - (c) The requirements of this subdivision shall be complied with on or before April 1, 1987.
- § 34. Table 6-2 of such article six of such part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

Table 0-2 Occupant Load Requirements
Net Area Table

Occupancy	Net Floor Area per Occupant (sq. ft.)
Billiard rooms	50
Bowling alleys	50
Classrooms	20
Dance floors	10
Dining spaces (nonresidential)	12
Exhibition spaces	10
Garages and open parking structures	250
Gymnasiums	15
Habitable rooms	140
Industrial shops	200
In schools	30
Institutional sleeping rooms	
Adults	75
Children (except as listed below)	50
Day Care	
a. under 6 mos	50
b. 6 mos.--2 yrs	40
c. 2 yrs. --6 yrs	30
Institutional staff, all	30

Occupancy	Net Floor Area per Occupant (sq. ft.)
Kindergartens	35
Kitchens (nonresidential)	200
Laboratories	50
Preparation rooms	100
Libraries	25
Locker rooms	1?
Offices ~ ~	too
Passenger terminals or platforms	1.5XC
Sales areas (retail)	25
1st floor or basement	50
All other floors	50
Seating areas (audience) in all places of assembly	
Fixed seats	D
Moveable seats	10
Skating rinks	15
Stages (See Article 8)	-
Standing room (audience) in all places of assembly	4
Storage rooms	200

Notes:

C- capacity of all passenger vehicles that can be unloaded simultaneously.

1) designed number of seats or occupants.

§ 15, Section C26-602.3 of such article, part, title, chapter and code, as added by such local law, is amended to read as follows:

§ C20-602.3 Remote location. -When more than one exit is required from a floor of a building, each exit shall be placed as remote from the others as is practicable. Door openings to vertical exits in buildings in occupancy group G or J-2 shall be at least 15 ft. distant from each other. In all other buildings, the minimum distance between such doors shall be the greater of 30 ft. or be one-third the maximum travel distance of the floor. provided, however, that where such distance will result in travel distances exceeding those authorized in section C26-00 1. 1, additional vertical exits shall be provided.

§ 36. Section C26-603.2 of such article, part, title, chapter and code is amended by adding a new subdivision three to read as follows:

(3) Notwithstanding any other provision of this section, when, within a building, any place of assembly has an occupant load between 500 and 999 persons, there shall be provided at least three independent exits, remote from each other, from each floor; any such place of assembly with an occupant load of 1000 or more persons shall be provided with at least four independent exits, remote from each other, from each floor.

§ 37. Section C26-603.3 of such article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

§ C26-603.3 Exit reduction.-When a floor area has access to areas of refuge that comply with the requirements of section C26-604.5, the number of persons for whom vertical exits are to be provided may be reduced to 50 per cent of the occupant load of the floor area when one area of refuge is provided, and may be reduced to 33 1/3 per cent of the floor area when two areas of refuge are provided. This section shall not be applicable to any new or altered place of assembly, except for such places of assembly in fully

sprinklered office buildings which occupy less than twenty per cent of the floor area occupied by the principal use.

§ 38. Subdivision a of section C26-604.1 of such article, part, title, chapter and code, as amended by local law number twenty-eight for the year nineteen hundred seventy-five, is amended to read as follows:

(a) Means of egress shall be provided for all buildings by one or more of the facilities listed below. Access and exit facilities not specifically covered in this section shall not be used to satisfy the exit requirements of this code. Fire escapes shall not be permitted on new construction, with the exception of group homes. Fire escapes may be used as exits on buildings existing on the effective date of this code when such buildings are altered, subject to the approval of the commissioner, or as provided in subdivision (b) hereof. Elevators or escalators shall be provided in all new buildings exceeding four stories in height except that buildings or building sections classified in occupancy group H-2 exceeding one story in height and buildings or building sections classified in occupancy group G or J-1 exceeding two stories in height shall be provided with elevators.

§ 39. Subdivision c of section C26-604.2 of such article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

(c) Length. -Corridors shall be subdivided by smoke barriers, as defined in article 2, into the following lengths:

Educational occupancy group G	300 ft.
Institutional occupancy groups H-1 and H-2	150 ft.
Residential occupancy groups J-1 and J-2	150 ft.

Where smoke barriers are penetrated by doors, such doors shall be smoke stop doors in conformance with section C26-604.4 (c).

§ 40. Subdivision d of such section of such article, part, title, chapter and code, as added by such local law. is amended to read as follows:

(d) Dead ends.-Dead ends in corridors shall not exceed the length listed in Table 6-1, except that in all occupancy groups except occupancy group H, when a corridor is completely enclosed in construction having a 2 hr. fire-resistance rating, with all corridor doors being self-closing and having a fire protection rating of I 1/2 hr., the permissible length of dead ends may be increased 100 per cent above the length listed in Table 6-1. Dead end distance shall be measured from the centerline of the door opening nearest to the closed end of the corridor to the center of an exit door opening, or the center of that point in the corridor where travel to two or more exits becomes available in two directions.

§ 41. Subdivision h of such section of such article, part, title, chapter, and code, as amended by local law number seventy for the year nineteen hundred eighty-one, is amended to read as follows:

(h) Construction.

(1) Interior corridors.-Interior corridors shall be completely enclosed within fire separations to provide a minimum fire-resistance rating of I hour except as otherwise provided in a. through c. below:

a. For buildings or spaces classified in occupancy group J-1 or J-2 of combustible construction group 11 exceeding two stories in height, except for buildings not exceeding three stories in height and occupied exclusively by not more than one family on each story without boarders, roomers or lodgers, corridors shall be enclosed within fire separations providing it minimum fire-resistance rating of 2 hours.

b. Corridor partitions may be omitted or may be constructed of unrated noncombustible material in buildings in occupancy group H-2 in the following instances: nurses' stations not exceeding 350 square feet in area, waiting spaces, lounges and recreational spaces for patients and visitors which do not exceed 500 square feet in area, spaces used solely for public telephones, and all other spaces which are completely protected by an automatic wet sprinkler system complying with the construction requirements of article 17 of this code.

c. Corridor partitions may be **omitted** in spaces of occupancy group H-1 used for detention of persons under legal restraint.

§ 42. Subdivision c of section C26-604.4 of such article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

(c) Smoke stop doors --Smoke stop doors shall be self-closing, swinging doors of metal, metal covered, or ^{1 1/4} in. solid core wood with clear wire glass panels having a minimum area of 600 sq. in. per door and a maximum area of 1296 sq. in. per door, except that in buildings not over two stories high, smoke stop doors may be of 1 3/8 in. solid core wood with clear wire glass panels, unless the doors are also used as horizontal exits in which case they shall comply with the provisions of section C26-604.0 (b). Smoke stop doors may be double-acting but shall close the opening completely with only such clearance as is reasonably necessary for proper operation. Smoke stop doors shall normally be in the closed position, except that they may be left open if they are arranged to close automatically by an approved device which is actuated by an interior fire alarm system meeting the requirements of article 17, smoke detectors Or .sprinkler alarms

§ 43. Subdivision a of section C26-605.1 of such article, part, title, chapter and code, as added by such local law, is amended to read as follows:

(a) Illumination of at least 2 foot candles measured at the floor level shall be maintained continuously, during occupancy, in exits and their access facilities for their full length, at changes in direction in and intersections of corridors, balconies, exit passageways, stairs, ramps, escalators, bridges, tunnels, landings, and **platforms, and as provided in article 8 for places of assembly**, except that this requirement shall not apply to dwelling units.

§ 44. Such section of such article, part, title, chapter and code, is amended by adding a new subdivision e to read as follows:

(e) (1) Buildings and existing buildings containing an F-4 place of assembly with an occupant load of 300 or more persons shall install emergency lighting in each vertical exit serving the floor on which the place of assembly is located so as to provide a continuously lighted passage to the exterior of the building. Such lighting shall be connected to an emergency power source or to storage battery equipment meeting the requirements of the bureau of electrical control of the department of general services and the commissioner.

(2) Existing buildings required to comply with this subdivision shall install the emergency lighting on or before April 1, 1987,

§ 45. Section 605.2 of such article, part, title, chapter and code, as added by such local law, is amended to read as follows:

§ C26-605.2 [lower source.--(a) Where a total of more than four lights is required, exit lighting shall be connected to an emergency power source or to storage battery equipment meeting the requirements of the bureau of electrical control of the department of general services and the commissioner, provided, however, that in existing buildings, the exit lighting may be on circuits that are separate from the general lighting and power circuits, taken off ahead of the main switch.

(b) Existing, high rise buildings classified in occupancy group C, D or H and existing buildings classified in occupancy group E, G or J-1 (except for "residential hotels," as such term is defined by the commissioner pursuant to rules and regulations) shall comply with the requirements of this section on or before April 1, 1987.

§ 46. Section C26-606.2 of such article, part, title, chapter and code, as added by such local law, is amended to read as follows

§ C26-606.2 Power source. --(a) Where a total of more than four exit and/or directional signs is required, the signs, shall be connected to an emergency power source or to storage battery equipment meeting the requirements of the bureau of electrical control of the department of general services and the commissioner, provided, however, that in existing buildings, the signs may be on circuits that are separate from the general lighting and power circuit, taken off ahead of the main switch.

(b) Existing high rise buildings classified in occupancy group C, D or H and existing buildings

classified in occupancy group E, G or J-1 (except for "residential hotels." as such term is defined by the commissioner pursuant to rules and regulations) shall comply with the requirement, of this section on or before April 1, 1987.

§ 47. The heading of sub-article 608.0 of such article, part, title, chapter and code, as added by local law number five for the year nineteen hundred seventy-three, is amended to read as follows:

SUB-ARTICLE 608.0

STAIR AND ELEVATOR SIGNS

§ 48, Section C26-608.1 of such article, part, title, chapter and code, as added by such local law, is amended to read as follows:

§ C26-608.1 Applicability.-This sub-article is applicable to all buildings which have at least one elevator, any existing office building occupied or arranged to be occupied for an occupant load of more than one hundred persons above or below the street level or more than a total of five hundred persons in the entire building and to all other existing buildings which have at least one elevator,

§ 49. Section C26-608.7 of such article, part, title, chapter and code, as added by local law number five for the year nineteen hundred seventy-three, is amended to read as follows:

§ C26-608.7 Signs in existing buildings. --(a) Signs installed prior to the enactment of this sub-article may be accepted by the commissioner, provided that such signs will adequately accomplish the intended purpose.

(b) In buildings existing prior to the enactment of this sub-article, the commissioner may modify the requirements as to location of signs where compliance would cause practical difficulty or undue hardship.

(c) All existing buildings not already subject to the requirements of this sub-article as of January 15, 1973 shall comply with the requirements of this sub-article on or before October 1, 1985.

§ 50. Such article, part, title, chapter and code is amended by adding two new sub-articles 609.0 and 610.0 to read as follows:

SUB-ARTICLE 609.0

SIGNS IN SLEEPING ROOMS

§ C26-609.1 -Applicability.-This sub-article is applicable to buildings and existing buildings classified in occupancy group J-1.

§ C26-609.2 Requirements. --All buildings and existing buildings classified in occupancy group J-1 shall post and maintain a sign on the inside of every door opening onto a public corridor giving access to a sleeping room. The sign shall contain a diagram showing the location where it is posted and the location and letter identification of the exit stairs on the floor. The diagram shall indicate the number of doors opening onto the public corridor which must be passed to reach each exit stair. The sign shall be at least eight inches by ten inches, located on the inside of the door and securely attached thereto. The top of such sign shall not be more than six feet from the floor level. Such sign shall contain such additional information as the fire department may require.

§ C26-609.3 Retroactive requirements.-All existing buildings required to comply with the provisions of this sub-article shall post the requisite signs on or before April 1, 1987. Signs installed prior to such date may be accepted by the commissioner, provided that such signs adequately accomplish the intended purpose.

SUB-ARTICLE 610.0

EMERGENCY POWER

§ C26-610.1 Requirements. -Where required by this sub-article or any other provision of this code, an emergency power system shall be provided. The emergency power system shall have a power source and fuel supply sufficient to operate the following equipment in accordance with rules and regulations promulgated by the department, where such equipment is required to be provided by this Code:

- (a) Fire pumps and booster pumps.
- (b) At least three elevators at one time, with manual transfer to other elevators.
- (c) Alarm systems.

- (d) Communication systems.
- (e) Emergency lighting, if battery packs are not provided.
- (i) Ventilating systems used for smoke venting or control.
- (g) Stair pressurization.

§ (26-010.2 Registration. -Emergency power generation equipment shall be registered with the department of environmental protection, bureau of air resources in accordance with the requirements, of section 1403.2-3.09 of the administrative code.

§ C26-610.3 Applicability. --Emergency power systems meeting the requirements of this sub-article shall be provided in the following buildings and building section:

- (a) High rise buildings and building sections classified in occupancy group C, E, G or H.
- (b) Buildings and building sections classified in occupancy group E or G which do not exceed 75 ft. in height but have a gross area of over 15,000 sq. ft. per floor or a total gross area of 100,000 sq. ft. or more.
- (c) Spaces classified in occupancy group F-4 having an occupant load of 300 or more persons.
- (d) Buildings and building sections classified in occupancy group 3-1.
- (C) Buildings and building sections containing an atrium.

§ 5 1. Sub-article 713.0 of article seven of such part, title, chapter and code is REPEALED.

§ 52. Such article, part, title, chapter and code is amended by adding two new sub-articles 720 1) and 721.0 to read as follows:

ATRIUMS
SUB-ARTICLE 720.0

§ C26-720.1 I Applicability. --This sub-article shall apply to the construction, alteration and use of atriums,

§ C26-720.2 Classification. --An atrium shall be classified in occupancy group F-3.

§ C26-720.3 Construction.-

- (a) Atrium, may be constructed only in buildings in noncombustible construction groups I-A, 1-B and 1-C.
- (b) An atrium shall be fully enclosed -Except that openings of any size into the two lowest levels of an atrium shall be permitted if such openings are provided with opening protectives having a fire-resistance rating of at least 1 1/2 hours or are provided with sprinklers no more than 6 ft. apart.
- (c) The minimum horizontal clear dimension of an atrium shall be 40 ft., provided, however that this dimension can be reduced to 20 ft. where sprinkler spacing on the occupied side adjacent to glass panels authorized by subdivision (d) is no more than 4 ft. or the minimum atrium area is 1,200 sq. ft.
- (d) Atrium enclosing walls shall be of at least 2 hour fire-resistant construction or of glass that is wired, laminated, or tempered and is provided with sprinklers on the occupied side spaced no more than 6 ft. apart, except as otherwise permitted by subdivision (c).

§ C26-720.4 Fire protection equipment

- (a) Smoke detectors.-In all spaces opening onto an atrium, a smoke detecting system shall be installed in accordance with the requirement, of reference standard RS 17-5E.
- (b) Standpipes. --At least one standpipe outlet in addition to a riser or risers within required stair ways, shall be installed in every atrium.
- (c) Sprinklers.
 - (1) Every story, or mezzanine within an atrium that overhangs another story or mezzanine within 50 ft. shall have the overhang sprinklered in accordance with section C26-1703.3, except that atrium ceilings less than 50 ft. above the atrium floor but more than 30 ft. above the floor may alternatively be provided with smoke detectors, which shall be of the central supervisory type connected to an approved central station. Every room or space opening onto the atrium shall be sprinklered, no matter where located.
 - (2) Except as otherwise *permitted by* section C26-720.3(c), at glass panels permitted by section C26-720.3(d), sprinklers (in the occupied side at all levels shall be spaced 6 ft. apart parallel to the glass

and that distance away from the glass panels so as to insure complete glass wetting upon activation. No obstructions to such wetting capability shall be permitted.

(3) Every sprinkler system for an atrium shall be provided with sources of water supply in accordance with sub-article 1703.0.

§ C26-720.5 Means of egress.

(a) No vertical exits shall discharge into an atrium at any level.

(b) Atrium corridors shall have a width equal to or greater than 150 per cent of that required by either table 6-1 of article six or table 8-1 of article eight, as applicable.

(c) An unenclosed path of travel to a required exit shall be permitted, except that access to one of the required vertical exits shall be only through an enclosed passageway or corridor conforming to the requirements for exits of article six.

§ C26-7 20.6. --Fire alarm and communication system. -An interior fire alarm and communication system shall be installed in accordance with the requirements of reference standard RS 17-3.

§ C26-720.7 Signs.-Atriums shall be provided with all signs required by sub-articles 606.0 and 608.0, regardless of the occupant load of the atrium.

§ C26-720.8 Smoke control.

(a) In all atriums there shall be provided a system of mechanical ventilation of sufficient capacity to exhaust at least 6 air changes per hour of the combined volumes of the atrium and all spaces with an open connection to the atrium, or 1 cfm/sq. ft. from all such spaces, whichever is greater, using either dedicated fan equipment or the building ventilation system arranged to shut down automatically, with manual override capability. Make-up air shall be supplied at the lowest level of an atrium at a rate equal to 75 per cent of exhaust.

(b) All atriums shall have a gravity ventilation system equipped with remote manual controls to remove smoke if the mechanical exhaust system fails.

(c) A ventilation system serving an atrium shall not be interconnected with any other system serving another space.

(d) Ventilation systems supplying occupied spaces shall not be interconnected with the general atrium supply.

§ C26-720.9 Emergency power.-All atriums shall be provided with an emergency power system meeting the requirements of sub-article 610.0.

SUB-ARTICLE 721.0

MALLS

§ C26-721.1 Applicability. -This sub-article shall apply to the construction, alteration and use of malls.

§ C26-721.2 Classification. -A mall shall be classified in occupancy group C.

§ C26-721.3 Construction -General.

(a) A mall may be constructed only in buildings in noncombustible construction groups I-A, I-B and I-C.

(b) The minimum horizontal clear dimension at any level in a mall shall be 20 feet.

(c) Where different tenancies have openings to a mall the tenancies shall be separated in accordance with section (26-504.3.

(d) All openings between a mall and other spaces shall be provided with a noncombustible draft curtain that shall extend downward a minimum of 24 inches below the lowest ceiling adjacent to such draft curtain or shall meet the requirements of section C26-604.3 (h)(3)(d)(3) relating to show windows.

§ C26-721.4 Fire protection equipment

(a) Smoke detectors.-Smoke detectors meeting the specifications of section 1705.4 shall be located at the ceiling and adjacent to each return air intake.

(b) Standpipes.-At least one standpipe outlet shall be installed in every mall.

(c) Sprinklers. --An automatic wet sprinkler system shall be installed in every mall.

(1) All spaces with openings between such spaces and a mall shall be fully sprinklered in accordance with article 17 and reference standard RS 17-2 regardless of floor area or occupancy classification.

§ C26-721.5 Egress. --The exits for a mall shall be of sufficient capacity to accommodate the aggregate occupant load of the mall and all spaces opening onto the mall.

§ C26-721.6 Smoke control.

(a) In all malls there shall be provided a system of mechanical ventilation of sufficient capacity to exhaust at least 6 air changes per hour of the combined volumes of the mall and all spaces with an open connection to the mall, or 1 cfm/sq. ft. from all such spaces, whichever is greater, using either dedicated fan equipment or the building ventilation system arranged to shut down automatically, with manual override capability. Make-up air shall be supplied at the lowest level or a mall at a rate equal to 75 per cent of exhaust.

(b) All malls shall have a gravity ventilation system equipped with remote manual controls to remove smoke if the mechanical exhaust system fails.

(c) A ventilation system serving a mall shall not be interconnected with any other system serving another space.

(d) Ventilation systems supplying occupied spaces shall not be interconnected with the general mall supply.

§ C26-721.7 Signs.-Malls shall be provided with all signs required by sub-articles 606.0 and 608.0, regardless of occupant load of the mall.

§ 53. Sub-article 1300.0 of article thirteen of such part, title, code and chapter is amended by adding two new sections C26-1300.8 and C26-1300.9 to read as follows:

§ C26-1300.8 -Smoke control requirements.

(a) In all buildings classified in occupancy group C, D, E, F, G, H, I, J-1 or J-2:

(1) Ventilation systems supplying different occupancy groups shall not be interconnected, provided however that a ventilation system may serve two occupancy groups, located on the same floor when the accessory use occupies less than twenty per cent of the floor area occupied by the principal use.

(2) Ventilation systems supplying corridors shall not be interconnected with systems serving other spaces except that this requirement still not apply to floors used exclusively as office space in buildings classified in occupancy group E which are fully sprinklered.

(3) A ventilation system supplying any part of a means of egress shall not be interconnected with any other ventilation system.

(4) A ventilation system supplying public areas and assembly spaces shall have smoke detecting devices that will shut down the system upon detecting smoke.

(5) In buildings classified in occupancy group J-2, ventilation systems supplying individual apartments shall not be directly connected with any other ventilation system.

(6) Except in buildings classified in occupancy group J-2, and as otherwise provided in section C26-504.5, either a combined heat anti smoke damper or independent heat and smoke dampers shall be installed at any penetration of construction required to have a fire-resistance rating.

(b) In all buildings classified in occupancy group C, D, E, F, G, H or J-1, there shall be provided a system of mechanical means of sufficient capacity to exhaust 6 air changes per hour or 1 cfm/sq. ft. whichever is greater, from the largest floor in the building, using either dedicated fan equipment or the building ventilation system arranged to shut down automatically with manual override capability to exhaust one floor at a time through a roof or an approved location on an exterior wall other than a lot line wall.

§ C26-1300.1) Ventilation in Existing J-1 Buildings. --In any existing building classified in occupancy group J-1, either 75 ft. or more in height or containing 30 or more sleeping rooms:

(a) Where a corridor or space above a ceiling in a corridor is being used or after February 1, 1984 to furnish direct ventilation to a sleeping room or suite, such use shall, unless continued use is permitted

by the commissioner, be discontinued by closing all openings between the corridor and sleeping room with construction having, a fire-resistance rating equal to the construction in which the opening occurs.

When continued use of corridor spaces as a plenum is permitted, smoke detecting devices shall be installed in accordance with the requirements of section C26-1705.4 and activation of any 2 detectors on a floor shall cause Closure of all openings to that floor and shut-off of ventilation service to the floor.

(b) All corridors and other public areas not provided with natural ventilation meeting the requirements of section C26-1207.5 shall be provided with manual smoke purging by means of existing ventilation systems.

(c) The requirements of this section shall be complied with on or before April 1, 1987,

§ 54. Section C26-1700.7 of article seventeen of such part, title, chapter and code is amended by adding a new subdivision a to read as follows:

(a) The provisions of this article shall apply retroactively for the specific occupancies and spaces indicated in sections C26-1703. 1(v), C26-1703. 1(w), C26-1703. 1(y) and C26-1704.5(j). Installation of all systems required by these sections shall be completed on or before April 1, 1987.

§ 55. Subdivision a of section C26-1701.2 of such article, part, title, chapter and code, as Lidded by local number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

(a) Required sprinklers.-Sprinkler systems and devices existing on the effective date of this code shall not be required to be altered to conform to the provisions of this article. except that when additional protection is required for a change in occupancy or for a building addition, the new or altered part of the system shall comply with this article. Sprinklers in any extension or alteration shall be connected to. or extended from. the existing system or a separate water supply as provided in section C26-1703.9.

Additional heads shall not be connected to existing undersized piping.

§ 56. Subparagraph six of subdivision c of section C26-1702.11 of such article, title, part, chapter and code. as amended by local law number fifty-three for the year nineteen hundred seventy and renumbered by local law number nine for the year nineteen hundred seventy-four, is amended to read as

follows:

(6) Hose may be omitted from hose racks in occupancy groups J-1 and J-2 whenever at least three open nozzles, two 1 ½ in., and two 2 1/2 inches spanner wrenches, two 2 1/2 by 1 1/2 in. non-swivel reducing couplings and 375 feet of 1 1/2 in. hose are stored and maintained in a locked cabinet located on the main entrance floor in a location near the standpipe riser enclosure subject to the approval of the commissioner. and hose valves are capped with a hose valve cap fastened to the valve with a chain. The person responsible for the maintenance of the standpipe system shall maintain on the premises a key to unlock the storage cabinet. The key shall be kept in a location where it is readily available to authorized persons, but not available to the general public. A sign shall be placed on the storage cabinet indicating the location of the key. An additional labelled key shall be kept in a locked receptacle near the storage cabinet openable by a fire department standard key. Such receptacle shall be marked "For Fire Department Use Only. A metal sign shall be placed in each stair enclosure on the main entrance floor stating clearly where the storage cabinet is located.

§ 57. Subparagraph a of paragraph one of subdivision b of section (26-1702.14 of such article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

(a) A statement furnished by the bureau of water supply of the department of environmental protection indicates a pressure in the street that is capable of maintaining a static pressure of at least 15 psig. at the highest hose outlet between the hours of 8 a.m. and 5 p.m. on a normal working day when a street level fire hydrant within 250 ft. of the building is supplied from the same street main and is discharging at least 500 gpm through a 2 1/2 in. hydrant butt.

§ 58. Subparagraph b of paragraph five of subdivision b of such section of such article, part, title, chapter and code, as added by such local law, is amended to read as follows:

(b) The automatic fire pump supplying the system or section has a capacity of at least 500 gpm with

a discharge pressure of at least 25 but not exceeding 70 psig (above the normal) static pressure at the highest hose outlet within the zone supplied by the punip plus the frictional resistance from the punip to the outlet at a flow of 500 gpm.

§ 59. Paragraph one of subdivision b of section C26-1702.16 of such article, part, title, chapter and code, as added by such local law, is amended to read as follows:

(1) Any required manual or automatic fire pump shall draw from two independent street water mains in different streets, except that an automatic fire punip may draw from a single water main if augmented by a suction tank or tanks, and if the valves at the meter and pump are provided with tamper switches that are wired to an approved central station of an operating fire alarm company. Where two services are installed, one service from the street water main shall be run directly to the pump, and the other service may be used for domestic water ^{Supply}. The connection from water to the mains to the pumps shall be at least 6 in. pipe size and shall be flushed before connection is made to the system. Connections shall be in accordance with article 16.

§ 60. Subdivision c of section C26-1703.1 of such article, part, title, chapter and code, as amended by local law, number eighty-two for the year nineteen hundred seventy-three, is amended to read as follows

(c) Buildings classified in storage occupancy group B-1 exceeding 1,000 square feet in floor area, or 75 ft. or more in height

except as modified under section C26-709.6(a), (b) and (c) of this code. § 61. Subdivision d of such section of such article, part, title, chapter and code is amended by, adding a new paragraph one to read as follows:

t 1) Such storage spaces less than 500 sq. ft., in area shall install a system of automatic sprinklers, when required by the commissioner or the fire commissioner.

§ 62. Subdivisions e, f and g Of Such section, article, part, title, chapter and code, subdivision e as amended by local law number eighty-two for the year nineteen hundred seventy-three and subdivisions f and g as added by local law -number seventy-six for the year nineteen hundred sixty-eight, are amended to read as follows:

(e) Buildings and spaces classified in storage occupancy group B-2 exceeding 5,000 square feet in floor area, or 75 ft. or more in height, except as modified under section C26-709.6 (a), (h) and (c) of this code.

(1) Spaces in high rise buildings classified in mercantile occupancy group C, spaces classified in mercantile occupancy group C exceeding 7,500 sq. ft. in floor area or with an unenclosed stair or escalator between any two or more floors.

(g) Buildings classified in industrial occupancy group D when required by section 280 of the New York state labor law or when 75 ft. or more in height.

§ 63. Paragraph one of subdivision l of such section of such article, part, title, chapter and code is REPEALED and paragraph two is renumbered paragraph one.

§ 64. Such section of Such article, part, title, chapter and code, is amended by adding seven new subdivisions i, n, v, w, x, y, and z to read as follows:

(t) Buildings classified in occupancy group I- 1.

(o) Places of assembly located within a building classified in occupancy group J-1.

(v) Catering establishments and banquet halls with an occupant load Of 300 or more persons.

(w) In all existing buildings classified in occupancy group J-1 l (except for "residential hotels," as such term is defined by the commissioner pursuant to rules and regulations) all spaces listed in subdivisions (c), (d), (1), On), (n), (o), (p), and (q), of this section, except that an approved smoke detection alarm system may be installed in those locations described under subdivisions (o) and (q) in lieu of sprinklers- Such smoke detection system shall be of the supervisory type connected to an approved central station,

(x) high rise buildings classified in occupancy group G.

(y) Spaces in existing high rise building classified in occupancy group C and any space in an existing building classified in occupancy group C with an unenclosed stair or escalator between any two or more floors.

(z) Notwithstanding the provisions of subdivision i of this section, high rise buildings classified in occupancy group E and low rise buildings classified in occupancy group E with a total gross floor area of 100,000 sq. ft. or more.

§ 65. Table 17-2 of such article, part, title, chapter and code, as amended by local law number five for the year nineteen hundred seventy-three, is amended to read as follows:

*TABLE 17-2 SUMMARY OF SPRINKLER REQUIREMENTS

Where Required Type of System	Automatic Sources Required	Partial System Permitted	Connection to Public Permitted	Alternate System Permitted (§C26-1703.2)	Same as (§C26-1703.6)	Centrals Required (§C26-1703.14)	Waterb Flow Alarm Required (§1711 of RS17-2)	Automatic Drs Sprinkler Permitted (§512 of RS17-1)	Dr.-Non- automatic Permitted
High Hazard Bldg. — Group A (§C26-1703.1(d))	2	No	§C26-1703.8(c)	No	Yes	None*	Yes	Yes	No
High Hazard Bldg. — Group A (§C26-1703.1(b))	1	Yes	§C26-1703.8(c)	No	§C26-1703.6(a)(1) If over 36 heads in a fire section	None*	Yes	Yes	No
Storage Occupancy Bldg. — Group B1 (§C26-1703.1(c))	1	No	§C26-1703.8(c)	No	Yes	None*	Yes	Yes	No
Storage Occupancy Spaces — Group B1 (§C26-1703.1(d))	1	Yes	§C26-1703.8(c)	No	§C26-1703.6(a)(1) If over 36 heads in a fire section	None*	Yes*	Yes	No
Storage Occupancy Spaces — Group B2 (§C26-1703.1(e))	1	Yes	No	No	§C26-1703.6(a)(1) If over 36 heads in a fire section	None*	Yes*	Yes	No
Measurable Occupancy Spaces — Group C Exceeding 7,500 ft. sq. ft.	3 sources, if exceeding 20,000 sq. ft. 1 source if less than 20,000 sq. ft.	No	No	No	Yes	None*	Yes	Yes	No
Industrial Occupancy Bldg. — Group D-1	1 source if not hazardous occupancy	No	No	No	Yes	None*	Yes	Yes	No
Industrial Occupancy Spaces — Group D-1 Exceeding 7,500 sq. ft. (§C26-1703.1(b))	1	No	No	No	Yes	None*	Yes	Yes	No
Business Occupancy Spaces — Group E Showrooms, when Required by §C26-1703.1(f)	1	No	No	No	Yes	None*	Yes	Yes	No
Business Occupancy Spaces — Group F-1a (§C26-1703.1(f))	1	Yes	Yes and/or standpipe riser	No	Yes	None*	Yes	Yes	No
Institutional Occupancy Group H — Corridors and Exit Passageway (§C26-1703.1(k))	1	Yes	Yes	No	§C26-1703.6(a)(1) If over 36 heads in a fire section	None*	Yes	No	No
Unventilated Areas Above or below grade (§C26-1703.1(i))	1	No	No	No	Yes	None*	Yes	No	No
Risks — Laundry and Similar Chutes (§C26-1703.1(m))	1	Yes	Yes	No	§C26-1703.6(a)(1) If over 36 heads in a fire section	None*	§C26-1703.9(e)(8)	Yes	No
Soiled Linen — Collection and Sorting Area (§C26-1703.1(n))	1	Yes	Yes	No	No	None*	None	Yes	No
Workshops (§C26-1703.1(o))	1	Yes	Yes	Yes	§C26-1703.6(a)(1) If over 36 heads in a fire section	None*	§C26-1703.9(e)(8)	Yes	No
Refuse Collection and Disposal Areas (§C26-1703.1(p))	1	Yes	Yes In Occupancy Groups E, G	No	§C26-1703.6(a)(1) If over 36 heads in a fire section	None*	§C26-1703.9(e)(8)	Yes	No
Drying Areas — Laundries or Similar Spaces (§C26-1703.1(q))	1	Yes	Yes In Occupancy Groups E, G	Yes	§C26-1703.6(a)(1) If over 36 heads in a fire section	Yes If smoke detector is used in lieu of sprinkler	Yes	No	No
Cooling Towers (§C26-1703.1(r))	1	No	Yes	No	No	None*	Yes	Yes	No

*Central station supervision required only when hoover pump is provided under §C26-1703.11 or when nonautomatic sprinkler is permitted by the commissioner.
 **Central station supervision more than 36 heads, see paragraph in a fire section of fire area.

§ 66. Subdivision a of section C26-1703.8 of such article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows.

(a) Automatic sources of water supply for sprinkler systems.—Automatic sources of water supply for sprinkler systems shall include a gravity tank, pressure tank, automatic fire pump, or direct connection to the public water systems. Automatic fire pumps where used for sprinkler supply shall comply with the applicable provisions of sections C26-1702.15 and C26-1702.16 except that no enclosures shall be

required, and provided that when an emergency power system is provided, the electric power to the motor shall be connected to the emergency power source.

§ 67. Subdivision g of section C26-1703.9 is relettered subdivision h and a new subdivision g is added to read as follows:

(g) There shall be no more than 10 sprinkler heads connected to a plumbing riser supplying anything other than sprinkler heads, and no more than 20 sprinkler heads connected to a riser supplying only sprinkler heads in any fire section separated by 2 hour enclosures from adjoining fire sections.

§ 68. Subdivision h of such section of such article, part, title, chapter and code, as added by local law number live for the year nineteen hundred seventy-three and relettered by section sixty-seven of this local law, is amended to read as follows:

(b) Standpipe risers may be used to supply water to sprinklers, in high rise buildings classified in occupancy groups E, G, H and J and in existing office buildings, 100 ft. or more in height, in accordance with applicable provisions of this article and reference standards RS 17-1 and RS 17-2.

§ 69. Such section of such article, part, title, chapter and code is amended by adding a new subdivision i to read as follows:

(i) In-lie domestic water supply in buildings classified in occupancy group J- 1 or J-2 may he used for sprinklers in corridors, in refuse chutes and in other similar areas, as approved by the commissioner. The, domestic water may be supplied by direct public water connection or equipment and pumps approved for water supply in accordance with reference standard RS-16.

§ 70. **Subdivision** d of section C26-1703. 10 of such article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is aninded to read as follows:

(d) The plans submitted in connection with the permit application shall be accompanied by a statement from the bureau of water supply of the department of environmental protection stating, the size of street main or mains, distance to and size of mains from which it or they are led, the location of control valves, the static pressure on the hydrant nearest the premises, and the residual pressure in the street main taken on a hydrant near the premises when the flow from the nearest hydrant is equal to tire flow required to meet the requirements oi' this section. A letter from the bureau of water supply of the department of environmental protection estimating available flow and residual pressure shall be acceptable ii) the borough superintendent when a hydrant rest cannot be conducted.

§ 71. Subdivision a of section C26-1703.13 of such article, part, title, chapter and code, Lis added by such local law, is aninded to read its follows:

(a) All parts of an automatic system exposed to freezing temperatures shall be protected from freezing in accordance with the provisions of section C26-1702.18, or in lieu thereof, an automatic drypipe system or a system filled with a nonfreezing, noncombustible solution shall be used, and when a system filled with nonfreezing solution is used and the system is connected to a potable water supply, it shall be subject to the requirements of the health department and the bureau of water supply oi' the department of environmental protection.

§ 72. Paragraphs two, five and nine of subdivision a of section C26-1704.1 of such article, part, title, chapter and code, paragraphs two and five as added by local law number seventy-six for the year nineteen hundred sixty-eight and paragraph nine as added by local law number five for the year nineteen hundred seventy-three, are aninded to read as follows:

(2) Buildings classified in occupancy group H-1 or H-2. --Systems installed ii) buildings where persons are restrained under the jurisdiction (if an agency of the city oi the state oi' New York may be modified to comply with the regulation, of such agency, when such modification is approve[] by the commissioner.

(5) Department stores or retail sales establishments having one or more floors above the street floor to which the public is admitted or with a total floor area of 20,000 or more gross sq. ft.

(9) Buildings classified in occupancy group E, 75 feet or more in height and buildings classified in such occupancy group occupied or arranged to be occupied by air occupant load of more than one hundred persons above or below the street level or more than a total of five hundred persons in the entire building.

§ 73, Section 1704.3 of such article, part, title, chapter and code, as amended by local law number five for the year nineteen hundred seventy-three, is amended to read as follows:

1 C26-1704.3 Existing installations.-Except as provided in subdivisions (g) and (0) of section C26-1704.5, fire alarm systems heretofore installed in buildings in accordance with rules then in force shall be accepted for use as long as they are maintained in good working order.

§ 74. Subdivision c of section 1704.5 of such article, part, title, chapter and code is REPEALED and re-enacted to read as follows:

(e) Hospitals, asylums and nursing homes. --Buildings classified in occupancy group 11-2 shall meet the following requirements:

(1) An individually coded closed circuit fire alarm system shall be provided in accordance with subdivision C26-1704.4 (c) except where the fire commissioner shall have approved an individually coded closed circuit presignal fire alarm system as described in subdivision C26-1704.4 (d). All fire alarm systems shall be activated by sprinkler waterflow and by all other fire detection devices installed in the building.

(2) Alarm systems shall be installed in zones of a maximum size of 20,000 sq. ft.

(3) Manual fire alarm sending stations shall be at staff locations only.

(4) Where two or more buildings are served by one fire brigade, a combination unit or zone and a general alarm coded closed circuit fire alarm system shall be provided and an approved indicating annunciator installed in each building. Upon initiation of a station signal, general alarm signaling devices shall sound in engine rooms and subgrade areas of each building, and unit or zoned alarm signaling devices shall sound throughout all area-, in only the building wherein the station signal was initiated. In the building where the station signal has been initiated, an approved annunciator shall indicate the station at which the signal is initiated.

§ 75. Subdivision i of such section of such article, part, title, chapter and code is re-lettered subdivision k and two new subdivisions i and j are added to read as follows

(i) High rise buildings classified in occupancy group C and buildings either 75 ft. or more in height or containing thirty or more sleeping rooms classified in occupancy group 1-1 (except "residential hotels" as such term is defined by the commissioner pursuant to rules and regulations) shall be provided with a fire alarm and communication system meeting the requirements of reference standard RS 17-3C.

(j) Existing buildings, either 75 ft. or more in height or containing thirty or more sleeping rooms, classified in occupancy group J-1, shall be provided with a fire alarm and communication system meeting the requirements of reference standard RS 17-3D. Where compliance with the requirements of this section would cause practical difficulty or undue hardship, the commissioner may waive or modify such requirements and accept alternatives fulfilling the intent of this section.

§ 76. Paragraph two of subdivision a of section C26-1704.6 of such article, part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

(2) All fire alarm stations installed or relocated after April 1, 1984 shall be installed so that the handle is approximately 4 ft. from the floor.

§ 77. The introductory paragraph of section C26-1704.8 of such article, part, title, chapter and code, as added by local law number five for the year nineteen hundred seventy-three, is amended to read as follows.

Buildings classified in occupancy group E 75 ft. or more in height, or, if less than 75 ft. in height, with a total gross area of 200,000 sq. ft. or more and existing office buildings 100 ft. or more in height shall be provided with the following:

§ 78. Section C26-1705.2 of such article, part, title, chapter and code, as added by local law number sixty-two for the year nineteen hundred eighty-one, is amended to read as follows:

§ C26-1705.2 Smoke detecting devices; where required

(a) On and after January one, nineteen hundred eighty-two, all dwelling units within occupancy

group J-1 I and occupancy group J-2, except such units which contain operational automatic wet sprinkler systems pursuant to Sub-article 1703.0 of this code, and dwelling units in buildings within occupancy group J-3 for which plans are approved by the department on or after January one, nineteen hundred eighty-two, shall be equipped with approved and operational smoke detecting devices as hereinafter provided. Buildings, within occupancy i,

group J-1 may, in the alternative, be equipped with a line-operated zoned smoke detecting system with central annunciation and central office tie-in for all public corridors and public spaces, pursuant to rules and regulations promulgated by the commissioner. The commissioner **may, upon good cause shown, extend the period of** compliance for occupancy groups J- I and J-2 to **Junk: thirtieth, nineteen** hundred eighty-two.

(b) Approved and operational smoke detecting devices shall be installed in mechanical rooms, electrical switch gear rooms and electric and telephone closets over 75 square feet in gross floor area in all buildings in all occupancy groups.

§ 79. Section C26-1800-8 of article eighteen of such part, title, chapter and code, is amended by local law number eighty-six for the year nineteen hundred seventy-nine, is amended to read as follows:

§ C26- 1800.8 Elevator in readiness.

(a) Except as provided in subdivision (b) of this section, in every building 75 feet or more in height, all floors shall be served by at least one elevator which shall be kept available for immediate use by the fire department, during all hours of the night and day, including holidays, Saturday, and Sundays. There shall be available at all times a person competent to operate the elevator, except that no attendant shall be required for buildings having elevators of automatic or Continuous pressure operation with keyed switches meeting the requirement, of reference standard RS 18-1 so as to permit sole use of the elevators by the fire department.

(b) In high rise buildings classified in occupancy group A, B, C, D, E, F, G, or H in buildings classified in occupancy group E with a gross area of 200,000 sq. ft. or more, in buildings classified in occupancy group P-I or J-2. in existing, high rise buildings classified in occupancy groups, C, F, G and H. in existing, buildings classified in occupancy group J-1 (except "residential hotels," as such term is defined by the commissioner pursuant to rules and regulations) and in existing office buildings 100 ft. or more. in height file number of elevators that shall be kept available for immediate use by the fire department as provided for in subdivision (a) of this section, shall be as follows:

(1) Where a floor is serviced by three or less elevator cars every car shall be kept available.

(2) Where a floor is serviced by more than three elevator cars, at least three elevator cars with a total rated load capacity of not less than 6,000 pounds shall be kept available for every floor. Such cars shall include not more than two cars which service all floors and at least one other car in another bank serving that floor. If the total load capacity of all cars servicing the floor is less than 6,000 pounds, all such cars shall be kept available.

(3) Such elevators which have automatic or continuous pressure operation shall be controlled by keyed switches meeting the requirements of reference standard RS 18-1.

(4) In high rise buildings classified in occupancy group A, B, C, D, E, F, G or H in low rise buildings classified in occupancy group E with a gross area of 200,000 sq. ft. or more and in buildings classified in occupancy group J-1 or J-2, all other automatically operated cars shall have manual Operation capability.

(c) Notwithstanding the retroactive provisions of section C26-1801.1:

(1) Existing office buildings 100 feet or more in height shall comply with the requirements of this section by September 13, 1981. Complete plans of installation shall be filed with the commissioner by June 13, 1980. A permit shall be secured from the commissioner by September 13, 1980.

Existing high-rise buildings classified in occupancy group C, F, G, or H, and existing buildings classified in occupancy group J-1 subject to the requirements of this section shall comply with the requirements of this section on or before April 1, 1987.

§ 80. Sub-article 1801.0 of such article, part, title, code and chapter, as amended by local law number twenty-nine for the year nineteen hundred seventy-three is amended by adding two new sections C26-1801.4 and C26-1801.5 to read as follows:

§ C26-1801.4 Locks on elevators and elevator hoistway doors.

Notwithstanding the retroactive provisions of section C26-1801.1, in high rise buildings and existing high rise buildings, no switch, lock or device of any kind shall be installed on any floor on or above the street floor on any elevator car or elevator hoistway door, except elevators used exclusively for freight, that shall prevent opening of such doors by anyone not having a key, unless fire department access to cars and hoistways is provided for by a city-wide standard key as described in reference standard RS18-1. Existing high rise buildings shall comply with the requirements of this section on or before April 1, 1987.

1-26-1801.5 Firemen service operation in existing elevators.

(a) Notwithstanding the retroactive provisions of section C26-1801.1, where required by reference standard RS18-1, firemen service operation shall be installed in all existing elevators serving any of the following:

(1) High rise buildings or building sections classified in occupancy group C.

(2) All buildings or building sections classified in occupancy group F, G, H or J-1 (except for "residential hotels," as such term is defined by the commissioner pursuant to rules and regulations).

(b) All work necessary to meet the requirements of this section shall be completed on or before April 1, 1987.

§ 81. Subdivision b of section C26-1802.4 of such article, part, title, chapter and code, is re-lettered subdivision c and a new subdivision b is added to read as follows:

(b) In addition to the requirements of subdivision (a), all reports filed on or after April 1, 1987 for existing buildings required to install stair and elevator signs pursuant to section C26-608.1, elevator in readiness systems pursuant to section 1800.8 (c) (2) or firemen service operation pursuant to section C26-1801.5, shall contain a certification that the required installation has been made. The reports shall be on such forms and in such manner as the commissioner may require. Failure to file such report by such a date shall be a violation of this section, and shall be punishable pursuant to section 643a-11.0 of this code,

§ 82. Subdivision i of section 1900.8 of article nineteen of such part, title, chapter and code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended to read as follows:

(a) Temporary elevators. --[If,] Whenever in the course of building construction the work is at a height greater than 75 ft., at least one elevator meeting the requirements of article 18 shall be kept in readiness at all times for fire department use.

§ 83 Section 1905.4 of such article, part, title, chapter and code is amended by adding a new subdivision h to read its follows:

(h) Temporary elevators. --Whenever, in the course of building demolition, the work is at a height greater than 75 ft., at least one elevator meeting the requirements of article 18 shall be kept in readiness at all times for fire department use.

§ 94. The list of referenced national standards of reference standard RS-5 of the appendix to such chapter of such code, as revised by board of standards and appeals calendar numbers 71-79-BCR, 308-81-BCR and 252-82-BCR, is amended by adding four new standards to read as follows:

ASTM		ES 14 Standard		
	method of fire tests of through-penetration			
			DOC	FF1
				fire stops . 1981 Methanine Pill Test 1970
ASTM	E648	Standard test method for critical radiant flux of floor covering systems using a radiant heat energy source		1978
ASTME662		Standard test method for specific optical density of smoke generated by solid materials .		1979

§ 85. Reference standard RS-5 of the appendix to such chapter of such code is amended by adding two new reference standards RS 5-19 and RS 5-20 to read as follows:

ASTM	REFERENCE STANDARD RS 5-19 E814-1981 Standard method of fire tests of through-penetration fire stops.
of carpets DOC	REFERENCE STANDARD RS 5-20 Standards for the flammability FFI-1970 Methanone pill test.
ASTM	F648-1978 Standard test method for critical radiant flux of floor covering systems using a radiant heat source.
ASTM	E662-1979 Standard test method for specific optical density of smoke generated by solid materials.

§ 86. The list of referenced national standards of reference standard RS- 13 of the appendix to such chapter of such code, as amended by local law number fifty for the year nineteen seventy-five and revised by board of standards and appeals calendar number 913-81--BCR, is amended by adding a new standard to read as follows:

ANSI/NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems, as modified
1981

§ 87. Reference standard RS 13-1 of the appendix to such chapter of such code is REPEALED and re-enacted to read as follows:

REFERENCE STANDARD RS 13-1

NFPA No. 90 A- 198 1, as modified, Standard for the Installation of Air Conditioning and Ventilating Systems.

Those provisions of ANSI/NFPA No. 90 A-1981 as herein set forth with the modifications thereto shall constitute Reference Standard RS 13- 1.

Wherever reference is made to the "National Electrical Code" it shall be changed to read Code of the City of New York." Wherever reference is made to "exceptions for small buildings" such exceptions shall be eliminated.

STANDARD FOR THE INSTALLATION OF
AIR CONDITIONING AND VENTILATING SYSTEMS
ANSI/NFPA No. 90 A-1981, AS MODIFIED
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	CHAPTER I

1-1 Definitions

Accepted. Means "Accepted" by the Materials and Equipment Acceptance Division of the Department of Buildings.

Note: The MEA Division is the "authority having jurisdiction" in the use of materials, assemblies, methods, and service equipment Subject to the acceptance requirements of Building Code Sections C26-106.2 and C26-107-2.

Air Filters.

(a) A Class 1 air filter is one which, when clean, does not contribute fuel when attacked by flame, and emits only negligible amounts of smoke when tested by UL, 900-1977 Standard (Revision: 1983) for Air Filter Units.

(b) A Class 2 air filter is one which, when clean, burns moderately when attacked by flame or emits moderate amount of smoke or both when tested by UL IX-1977 (Revision: 1983) for Air Filter Units.

Air Inlet. Any opening through which air is removed from a space back to a system.

Air Outlet. Any opening through which air is delivered to a space from a system.

Air Terminal Unit. An appliance receiving, conditioning, and delivering air supplied through a duct

Approved. Means "Approved" by the Board of Standard, and Appeals.

Note: The Board is the "authority having jurisdiction" in the testing and approval of materials and appliances to be used for fire Protection in the city of New York.

Authority Having Jurisdiction. Means "The Commissioner of the Department of Buildings" or his designee.

Blower. A fan used to force air under pressure into an area.

Ceiling Damper. A device to limit radiative heat transfer through an air outlet or inlet opening in the ceiling of a floor/roof-ceiling assembly having not less than a 1 hour fire resistance rating. Such a device is described in the construction details for some tested floor/roof-ceiling assemblies.

Duct, A conduit for conveying air,

Duct Covering. Duct covering includes materials such as adhesive, insulation, banding, coating(s), film, and jacket used to cover the outside surface of a duct, fan casing, or duct plenum.

Duct Lining. Duct lining includes materials such as adhesive, insulating, coating, and film used to line the inside surface of a duct, fan casing, or duct plenum.

Duct System. A continuous passageway for the transmission of air which, in addition to ducts, may include duct fittings, dampers, plenums, fans, and accessory air handling equipment.

Fan. An assembly comprising blades or runners and housing or casing, and being either a blower or exhaust fan.

Fire Damper. A device, installed in an air distribution system, designed to close automatically upon detection of heat, to interrupt migratory air flow, and to restrict the passage of flame. A combination fire and smoke damper shall meet the requirements of both.

Fire Resistance Rating. The time, in minutes or hours, that materials or assemblies have withstood a fire exposure as established in accordance with the test procedures of NFPA 251-1979 Standard Methods of Fire Tests of Building Construction and Materials.

Fire Wall. A wall having adequate fire resistance and structural stability under fire conditions to accomplish the purpose of subdividing buildings to restrict the spread of fire.

Flame Spread Rating. The flame spread rating of a material refers to a number or classification of a material obtained according to NFPA 255-1979, Third Edition, Method of Test of Surface Burning Characteristics of Building Materials.

Labeled. Equipment or materials to which has been attached a label, symbol or other identifying mark of an organization acceptable to the "authority having jurisdiction" and concerned with product evaluation, that maintains periodic inspection of production (of labeled equipment or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Limited Combustible Material. A building construction material not complying with the definition of noncombustible material, which, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (see NFPA 259-1982 Standard Test Method for Potential Heat of Building Materials) and complies with one of the following paragraphs (a) or (b). Materials subject to increase in combustibility or flame spread rating beyond the limits herein established through the effects of age, moisture, or other atmospheric conditions shall be considered combustible.

(a) Materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of 1/8-in. which has a flame spread rating not greater than 50.

(b) Materials, in the form and thickness used, other than as described in (a), having neither a flame spread rating greater than 25 nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread rating greater than 25 nor evidence of continued progressive combustion.

Listed. Equipment or materials included in a list published by an organization acceptable to the "authority having jurisdiction" and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or material and whose listing states *either that* the equipment or material meets appropriate standards or has been tested and found suitable for use in a specified manner.

Note: The mean,; for identifying listed equipment may vary for each organization concerned with product evaluation, some of which do not recognize equipment as listed unless it is also labeled. The "authority having jurisdiction" should utilize the system employed by the listing organization to identify a listed product. Noncombustible Material.

The provisions in sub-article 201.0 of the Building Code for noncombustible shall govern the application of this definition.

Plenum. All air compartment or chamber located in one story only to which one or more ducts are connected and which forms part of the air supply or return system and may be part of the building construction such as the concealed space above a ceiling. Any such air compartment or chamber in more than one contiguous story shall meet the requirements of 3.3.3.2.

Shall. Indicates a mandatory requirement.

Smoke. The airborne solid and liquid particulates and gases *evolved when* a material undergoes pyrolysis or combustion.

Smoke Barrier. Any continuous noncombustible construction, vertical, horizontal, or otherwise, such as a wall, floor or ceiling assembly that is designed and constructed to restrict the spread of smoke.

Smoke Damper. A *device* to resist the passage of smoke which:

- (a) Is arranged to operate automatically, and
- (b) Is controlled by a smoke detector, and
- (c) May be capable of being positioned manually from a remote command station.

A smoke damper may be a fire damper or a damper serving other functions, if its location lends itself to the multiple functions. A combination fire and smoke damper shall meet the requirements of both.

Smoke *Detector*. A device which senses visible or invisible particles of combustion.

Smoke *Developed Rating*. A smoke developed rating of a material refers to a number or classification of a material obtained according to NFPA 255-1979, Method of Test of Surface Burning Characteristics of Building Materials.

CHAPTER II

2-1 Ducts, Connectors and Appurtenances.

2-1.1 Ducts.

2-1.1.1 Ducts shall be constructed of the following materials:

(a) Ducts shall be constructed of iron, steel, or other approved metal or materials such as clay or other masonry, except as provided in subdivision (b).

(b) Ducts need not conform to (the provisions of 2-1.1.1 (a) provided they are not used for vertical risers in air duct systems serving more than two stories, are not used in assembly or institutional occupancies and comply with the following:

1. They shall conform to Class I ducts when tested in accordance with Underwriters' Laboratories, Inc., Standard for Air Ducts, U.L. 181-198 1.
2. They shall not be used in air duct systems larger than 20,000 cfm.
3. Such ducts shall be installed in accordance with the conditions of their approval.
4. They shall not be used in air duct systems which operate with an air temperature higher than 250 degrees F. entering the ducts.

(c) Ducts need not conform to the provisions of 2-1.1.1 (a) and (b) provided they are not used in buildings more than two stories in height and are not used in assembly or institutional occupancies and comply with the following:

1. They shall conform to Class I ducts when tested in accordance with Underwriters' Laboratories, Inc., Standard Air Ducts, U.L. 181-1981.

2. Such ducts shall be installed in accordance with the conditions of their approval.

3. They shall not exceed 14 feet in length.

4. They shall not be used on systems which operate with an air temperature higher than 250 degrees F. entering the ducts.

(d) Duct risers used for exhaust, return air, spill air, or relief air only may be constructed of gypsum, masonry, or concrete having a fire resistance rating of 2-hr. provided they conform to the following:

1. Masonry ducts shall be completely lined with troweled, smooth cement mortar coating at least 1/2-in. thick, or with an equivalent smooth, noncombustible sealing material, to make them airtight throughout. Concrete ducts shall not be required to be completely lined, but all construction joints, honeycombs, etc., shall be finished smooth on the inside.

2. All duct and register connections shall be sealed with noncombustible material to make them airtight.

3. No pipes, conduits, or unprotected structural members shall pass through the walls of these ducts. 2-1.1.2 ducts shall be made reasonably tight throughout and have no openings other than those required for proper operation and maintenance of the system,

2-1.1.2.1 Ducts that run in a space containing a boiler or all incinerator, and that carry air under negative pressure to be supplied to other parts of the building, shall be sealed air-tight either by welding or the use of noncombustible tape or gaskets, or other equivalent sealing material throughout that portion of the duct work within the space containing the boiler or incinerator.

2-1.1.2.2 Ducts subject to air pressure differentials, shall be designed to withstand the maximum design pressure.

2-1.1.2.3 Ducts shall be substantially supported. Hangers and brackets supporting ducts shall be of metal.

(a) Hangers shall have sufficient strength and durability, and sufficient resistance to the corrosive affect of the atmosphere to which they will be exposed, to properly and safely support the ductwork. Hangers shall not be used in direct contact with a dissimilar metal that would cause galvanic action in the hanger, duct, fastenings, or structure. Hangers shall conform to minimum requirements as follows:

(1) Hangers shall be fastened to the sides of the duct.

(2) For ducts over 48 in. wide, hangers shall turn under duct at least 2 in. and shall be fastened to the bottom as well as to the sides.

(3) For ducts with a cross-sectional area of 2 square feet or less, hangers shall be constructed of at least 1 in. by 1/16-in. steel strap.

(4) For ducts with a cross-sectional area of over 2 square feet, hangers shall be constructed of at least 1 in. by 1/18-in. steel strap.

(5) For ducts with a cross-sectional area 4 square feet or less, hangers shall be no more than 8 feet apart; for ducts with a cross-sectional area of more than 4 square feet but not over 10 square feet, hangers shall be no more than 6 feet apart; and for ducts with a cross-sectional area of more than 10 feet, hangers shall be no more than 4 feet apart. The distances between hangers shall be measured linearly along the duct.

(b) Vertical ducts shall be securely supported at each floor level by continuous lengths of structural angles of a size at least equivalent to that of stiffening. The angles shall be fastened to the opposite sides of the duct and shall extend across the opening and bear upon the structure or slab on both sides of the opening.

(c) Sections of ducts containing filters, coils, or fans shall be provided with metal framing and hangers of adequate strength to support such equipment.

(d) Except as hereinafter provided, ducts and all parts of the duct system shall be substantially supported and securely fastened to the structural members of the building with approved devices of noncombustible material designed to carry the required loads. The use of expansion bolts in cinder concrete is prohibited. Connections shall not lessen the fire protection of structural members.

(e) Ducts shall not be hung from or supported by suspended ceilings.

2-1.1.3 The materials, thickness, construction and installation of ducts shall provide structural strength and durability in conformance with recognized good practice.

2-1.1.4 Ducts may be part of the building structure provided they are in accordance with the requirements of this standard.

2-1.2 Duct Connectors.

2-1.2.1 Flexible duct connectors which do not pass through floors of buildings need not conform to the requirements for ducts if they conform to the following provisions:

(a) Connectors not exceeding 8 in. in diameter shall conform to the requirements for Class 2 Air Duct Connectors when tested in accordance with UL 181-198 1, Standard for Factory-Made Air Duct Materials and Air Duct Connectors.

(b) Connectors exceeding 8 in. in diameter shall conform to the requirements for Class I Air Duct Connectors when tested in accordance with UL 181-198 1, Standard for Factory-Made Air Duct Materials and Air Duct Connectors.

(c) Connectors shall not exceed 14 ft. in length.

(d) Connectors shall not pass through any wall, partition, or enclosure of a vertical shaft which is required to have a fire resistance rating of 2 hours or more.

2-1.2.2 Flexible duct connectors used to connect ducts with air terminal units on a different floor shall not pass through more than one floor and shall conform their full length to all of the following provisions (see also Sections 3-2 and 3-3):

(a) The flexible duct connectors shall meet the following criteria for a 1-hour fire exposure, as set forth in National Bureau of Standards NBSIR 75-675, Development of a Fire Test Method for Flexible Connectors in Air Distribution Systems.

1. There shall be no passage of hot gases or flame through the blocking at the penetration of the

2. The outlet air temperature at the architectural enclosure shall not rise more than 250°F.

(b) Connectors shall not exceed 20 sq. in. in cross-sectional area.

(c) Connectors shall not exceed 14 feet in length.

(d) Openings around connectors shall be firestopped in accordance with 3-3.9.

2-1.2.3 Vibration isolation connectors in duct systems shall be made of an approved flame retardant fabric or shall consist of sleeve joints with packing of approved material having a flame spread rating of not over 25 and a smoke development rating of not over 50. Vibration isolation connectors constructed of fabric shall not exceed 10 in. in length.

2-1.3 Coverings, Linings and Panels.

2-1.3.1 Duct coverings (see Section 1-6), duct linings (see Section 1-6), vapor barrier facings, tapes, and core materials in panels used in duct systems shall have a flamespread rating not over 25 without evidence of continued progressive combustion and a smoke developed rating no higher than 50. If coverings and linings are to be applied with adhesives, they shall be tested as applied with such adhesives, or the adhesives used shall have a flamespread rating not over 25 and a smoke developed rating no higher than 50 when in the final dry state. (see 2-7.2)

Exception: Duct coverings shall not be required to meet these requirements where they are located entirely outside of a building, do not penetrate a wall or roof, and do not create an exposure hazard.

2-1.3.2 Duct coverings and linings shall not flame, glow, smolder, or smoke when tested in accordance with ASTM 411-61, Test for Hot-Surface Performance of High Temperature Thermal Insulation, at the temperature to which they are exposed in service. In no case shall the test temperature be below 250°F.

2-1.3.3 Duct coverings shall not extend through walls or floors required to be firestopped or required to have a fire resistance rating, unless such coverings meet the requirements of 3-3.8. 1.

2-1.3.4 Duct linings shall be interrupted at fire dampers and fire doors so as not to interfere with the operation of devices.

2-1.3.5 Duct coverings shall not conceal any serving opening. 2-1.3.6 Pipe insulation and covering shall meet the requirements of 2-1.3.1 and 2-1.3.2 when installed in ducts, plenum, or concealed spaces used as part of the air distribution system. 2-1.3.6.1 Insulation on local branch piping to heating and cooling terminal units need not conform to the above requirements provided the following are met:

- (a) The insulation does not exceed 2 inch nominal pipe size.
 - (b) Continuous runs are limited to 20 feet horizontally, and confined within one story height vertically.
 - (c) The insulation does not continue through a fire-rated partition, and is effectively fire stopped.
 - (d) The insulation is not installed in the plenum of a central air-handling system.
 - (e) The maximum flamespread rating is 25, and
 - (f) The maximum smoke developed rating is 150.
- 2-1.3.7 Work involving use of torches shall not be undertaken on ducts until the system has been shut down, the duct cleaned and all lining and covering material has been removed from the portion of the duct being repaired. 2-1.3.8 The materials, thickness and construction of sheet metal ducts shall provide structural strength and durability in conformance with recognized good practice. 2-1.3.9 Ducts shall be made reasonably light throughout and shall have no openings other than those required for proper operation and maintenance of the system. Tape may be used at waling, joints but where exposed to the air in the duct, it shall be not more combustible than approved flameproofed fabric. 2-1.4 Duct Access and Inspection Provisions.

2-1.4.1 A service opening or a telescoping or removable duct section shall be provided in ducts adjacent to each fire door, fire damper, smoke damper, and smoke detector. The opening shall be large enough to permit maintenance and resetting of the device.

2-1.4.2 Service openings, telescoping or removable duct sections shall be identified with letters no less than 1/2-in. in height to indicate the location of the fire protection device(s) within.

2-1.4.3 Horizontal ducts and plenums shall be provided with service openings (see 2-1.4.1) to facilitate cleaning the duct of accumulations of dust and combustible materials. Service openings shall be placed at approximately 20-ft. intervals along the duct and at the base of each vertical riser.

Exception No. 1: Removable air outlet or air inlet devices of adequate size may be accepted in lieu of service openings.

Exception No. 2: Service openings may be omitted in supply duct, when the supply air has previously passed through air filters or a water spray.

Exception No. 3: Service openings are not required when all of the following conditions prevail:

(a) The occupancy does not produce combustible material such as dust, lint, greasy vapors, etc. Such occupancies include banks, office buildings, churches, hotels, and health care facilities (but not kitchens, service rooms, and manufacturing portions of such facilities).

(b) The air inlets are at least 7 ft. above the floor or are protected by corrosion-resistant metal screens of at least 14 mesh, installed at the inlets so that they will not draw papers, refuse, cigarettes or other combustible solids into the return air duct.

(c) The minimum design velocity in the return duct from the particular occupancy is 1,00 ft/min. 2-1.4.4 Inspection windows are permitted in ducts provided they are glazed with wired glass. However, service openings shall be provided, as required in 2-1.4.1.

2-1.4.5 Openings in walls or ceilings shall be provided so that service openings in ducts are accessible for maintenance and inspection needs.

2-1.1.6 Where a service opening is necessary in a duct located above the ceiling of a floor/roof-ceiling assembly which has been tested and assigned a fire resistance rating in accordance with NFPA 251-1979, Standard Methods of Fire Tests of Building Construction and Materials, access shall be provided in the ceiling and shall be designed and installed so as not to reduce the fire resistance rating of the assembly.

2-1.5 Duct Protection.

2-1.5.1 Ducts shall be located where they are not subject to damage or rupture or they shall be adequately protected.

2-2 Plenums and Corridors.

2-2.1 Plenums.

2-2.1.1 Plenums, other than those regulated by fire provisions of 2-2. 1.1 and 2-2.1.3 shall be constructed to comply with the applicable provisions of Section 2-1. Access openings to plenums shall be no larger than is necessary for operation and maintenance of the respective plenum, Plenums shall not be used for storage purposes or otherwise occupied.

2-2.1.1.1 Walls, partitions and other enclosures or plenum chambers or shafts, Subject to air pressure differentials, shall be designed to withstand the maximum pressure that may be developed under any conditions.

2-2.1.2 The space between the ceiling and the floor of floor/roof-ceiling assemblies which have been tested or investigated and assigned a fire resistance rating of not less than 1-hour is permitted to be used as a plenum provided that:

- (a) Such space shall be used for a supply air plenum. (It also may be used for a return air plenum if tested for that purpose-)
- (b) Only noncombustible or limited combustible materials, having smoke developed ratings not greater than 50, shall be incorporated in the floor/roof-ceiling construction.
- (c) Openings in such ceilings shall be permitted only when the area of such openings does not exceed the proportionate areas of such openings in the assembly tested.
- (d) The integrity of firestopping shall be maintained.
- (e) Materials used for building service equipment such as pneumatic tubing, pipe insulation, and piping exposed in plenums shall have smoke developed ratings not greater than 50 and be noncombustible or limited combustible.

(f) The electrical wiring in the space shall conform to the provisions of 2-2.1.2(e) above, and the New York City Electrical Code, and Bulletin No. 126 of the Bureau of Electrical Controls.

2-2.1.3 The space between a ceiling and the floor or roof immediately above, where the ceiling is not a component of a fire-rated assembly, may be used as a plenum of an air distribution system provided that:

- (a) All construction exposed to the airflow shall have smoke developed ratings not greater than 50 and be noncombustible or limited combustible.
- (b) Material used for building service equipment such as pneumatic tubing, pipe insulation, and piping exposed in plenums shall have smoke developed ratings not greater than 50, and be noncombustible or limited combustible.
- (c) The electrical wiring in the space shall conform to the provisions of 2-2.1.3(b) above, or be listed as having adequate fire resistant and low smoke producing characteristics.
- (d) The temperature of the air delivered to these plenums shall not exceed 250oF.
- (e) The ceiling is constructed to resist collapse or deformation, so that:

1. The ceiling material shall not deteriorate or deform during long exposures to temperatures of 250°F, during exposures to high humidity or excessive moisture, nor be adversely affected by mildew.
2. The ceiling material shall be supported by noncombustible material having a melting point above 1400°F.

2-2.2 Means of egress corridors. Except in fully sprinklered office buildings, public corridors shall not be used as a portion of direct supply, return, or exhaust air system serving adjoining areas. Air transfer because of pressure differential in health care occupancies and infiltration into residential occupancies from corridors is acceptable, provided door clearances do not exceed those specified for fire doors in NFPA 80-1983 Standard for Fire Doors and Windows. Grills and louvers, including automatic closing louvers, and openable transoms shall not be installed in walls or in doors.

Exception No. 1: In penal occupancies with corridor separations of open construction (grating doors or grating partitions).

2-2.3 Exits. Exit passageways, stairs, ramps, and other exits shall not be used as a part of a supply, return, or exhaust air system serving other areas of the building.

2-3 Air Outlets, Air Inlets, and Fresh Air Intakes.

2-3.1 General. Air shall not be recirculated from any space in which flammable vapors, flyings, or dust are present in quantities and concentrations which would introduce a hazardous condition into the return air system.

Exception: Where appropriate air cleaning equipment is installed to the acceptance by the commissioner.

2-3.2 Location of Outlets and Inlets.

2-3.2.1 Outlets and inlets shall be located at least 3 in. above the floor.

Exception: Where provisions have been made to prevent dirt and dust accumulations from entering the system.

2-3.2.2 When located less than 7 feet above the floor, inlet and outlet openings shall be protected by a substantial grill or screen having openings through which a $\frac{1}{2}$ in. sphere will not pass.

2-3.2.3 Grilles may be located in floors provided they are installed so that they may be removed for cleaning purposes and provided they are constructed as follows:

(a) Grilles up to 3 square feet in gross area shall be designed to support a concentrated live load of 250 lbs. on any 4 square inches of surface.

(b) Grilles over 3 square feet in gross area shall be designed to support the same loads as the floor in the area where used,

(c) If located where they may be walked upon, the opening in grilles shall reject a $\frac{1}{2}$ in.

2-3.3 Installation and construction. Air inlet and air outlet ceiling devices shall be constructed of non-combustible materials.

2-3.4 Fresh Air Intakes.

2-3.4.1 Intakes shall be located to avoid drawing in combustible material or flammable vapor and to minimize the hazard from fires in other structures.

2-3.4.2 Intakes shall be protected by screens of corrosion-resistant material, not larger than $\frac{1}{2}$ -in. mesh.

2-3.4.3 To minimize the hazard from fires in other structures, an exhaust duct to the outdoor air shall terminate at or above the roof of the building or in an exterior wall adjoining a street, yard or court. When terminated in an exterior wall, the exhaust duct shall be at least 10 feet above the sidewalk or ground and shall terminate at least 10 feet from any window in another building or from any window in a residential portion of the same building, or from any fire escape, exterior stair, or balcony. No exhaust duct or outdoor air intake shall be located where conflict with the operation of an existing intake or other ventilating opening. Exhaust openings shall be provided with vanes or louvers constructed so as to direct the air away from windows, other openings and pedestrians.

An outdoor air intake opening with gross area of more than 144 square inches shall be provided with fire dampers when such opening is located as follows:

(a) Less than 30 feet above grade.

(b) Less than 30 feet in any direction from any opening in another building.

(c) Less than 15 feet from a lot line.

(d) Less than 50 feet above and less than 50 feet in any direction from a roof of combustible material or a building in which the exterior walls are constructed wholly or partly of wood, When required by the commissioner, approved heat actuated devices shall be installed at intake openings to shut down fans in case of an exterior fire.

2-3.4.4 Drains for intake plenums or ductwork shall be installed in accordance with the provisions for drainage or Reference Standard RS-16.

2-3.5 Segregation of air supply- Air supply for ventilation systems for means of egress, corridors and different occupancy groups shall be completely independent of each other except in the air intake/filter room.

2-4. Air Filters. 2-4.1 General.

2-4. 1.1 Air filters shall be of approved types that will not burn freely or emit large volumes of smoke or other objectionable products of combustion when exposed to fire. Filters qualifying as Class I and Class 2 shall be accepted as meeting these requirements.

2-4.1.1.1 Combustible filters, such as excelsior shall not be used as a water evaporation medium in evaporative coolers.

2-4.1.2 In all new and existing filter installations, there shall be installed approved automatic extinguishing equipment employing water, inert gas or other approved means in the enclosure of the air conditioning system to protect against combustion of material that may accumulate for filter systems which exceed 15,000 cfm and which include any of the conditions listed under sections 4-2 and 4-4 unless the filter plenum is fitted with smoke dampers downstream of the filter bank. The automatic extinguishing equipment, or the smoke dampers as appropriate, shall be actuated by smoke detectors installed downstream of the filter bank, where sprinklers are installed, suitable provision should be made for drainage including adequate provision for overflow drains from any oil reservoirs installed at filters.

In buildings not equipped with automatic sprinklers, the water supply may be taken from the house piping, if the supply is adequate for the purpose. Existing buildings using only Class I filters shall be exempt from this subdivision, provided the control system is arranged to shut down the fresh air intake, return air, and exhaust air dampers, as well as the supply and return air fans automatically. The shut down shall be actuated by smoke detectors located down-stream of the filter bank.

24.2 Air Filters Employing Liquid Adhesive Coatings.

24.2.1 Liquid adhesive coatings used on air filters shall have a flash point no lower than 325°F as determined by the standard method of test for flash point by ASTM D 93-1980 Pensky-Martens Closed Tester.

24.2.2 Liquid adhesive tanks into which removable filters are dipped should preferably be located outside the building or in a separate fire resistive room and stored in accordance with NFPA 30-1981, Flammable and Combustible Liquids Code. Such tanks shall be of metal, equipped with tight-fitting covers and shall be kept tightly covered when not in actual use.

2-4.2.3 Where filters are flushed with liquid adhesives, the system shall be arranged so that the filter cannot be flushed while the fan is in operation.

2-4.2.4 All air filters shall be kept free of excess dust and combustible material. Unit filters shall be reviewed or cleaned when the resistance to air flow has increased to two times the original resistance or when the resistance has reached a value of recommended replacement by the manufacturer. A suitable draft gauge should be provided for the purpose. Draft gauges, of a type, which will operate a warning light or produce an audible signal when excessive dust loads have accumulated, are recommended. If the filters are of the automatic liquid adhesive type, sludge shall be regularly removed from the liquid adhesive reservoir, 2-5 Fans. 2-5.1 Access. Fans shall be located, arranged, and installed to afford ready access for inspection and maintenance.

2-5.2 Exposed Inlets. Exposed fan inlets shall be protected with substantial metal screens to prevent the entry of paper, trash, and similar foreign materials. They should be placed on proper foundations or firmly secured to substantial supports.

2-5.3 Fans and air handling equipment connected thereto such as washers, filters, and heating and cooling units shall be located in a room cut off from other portions of the building used for storage or occupational

purposes by construction having a fire resistance rating equivalent to that required for the enclosure of the main supply or return ducts but not less than one hour, where either (if the following conditions prevail (see also 3-3.3):

- (a) The main portion of the duct system served by the fan passes through floors of fire-resistive, protected non-combustible, or heavy timber construction, in which vertical openings are generally protected, or
- (b) The system serves more than a single room of a public or institutional building. Examples of public buildings are schools, libraries, exhibition buildings, assembly halls, dance halls and theatres; and of institutional buildings, hospitals, asylums, sanitariums and jails
 Note: If the fan room is used as a plenum chamber, see 2-2. 1.
- (c) The above requirements shall not apply to small fan assemblies of less than 1 000 cfm or to heating or cooling coils in ductwork.

2-6 Electric Wiring and Equipment. 2-6.1 Electric wiring and equipment shall be installed in accordance with the New York City Electrical Code. Lamps within the working spaces of the conditioning system shall be enclosed in fixtures of the marine (vaptight) type, except that germicidal lamps of a type which operate at relatively low exposed surface temperatures need not be so enclosed. A disconnecting means shall be installed within sight and easy reach, in the underground leads of each power circuit to electrically operated components which are in unprotected locations and in other locations not readily accessible for service.

2-6.2 Motor, shall be located so that maintenance, such as oiling of bearings and replacing of brushes, can readily be accomplished. Open motors having commutators or collector rings shall be located or protected so that sparks cannot reach adjacent combustible material. Motors installed inside air ducts or plenum chambers, or inside unit type air conditioning equipment should be provided with protection devices designed to cut off current before temperatures reach a point where smoke may be generated. These may be inherent over-temperature protective devices or over-current protective devices of the thermal overload relay type.

2-7 Air Cooling and Heating Equipment.

2-7. 1 Mechanical refrigeration used with air duct systems shall be installed in accordance with nationally recognized safety practices and the ANSI/ASHRAE 15-1978 Safety Code for Mechanical Refrigeration as modified in reference standard RS 13-6.

2-7.2 Heating equipment shall be installed in a standard manner with due regard to proper clearance between hot surfaces and woodwork and other combustible materials.

2-7.3 Heating furnaces and cooling units using the same duct system and blower shall have the refrigeration coil located down-stream from the heating furnace, unless the heating furnace is specifically approved for installation down-stream from the coil, or the coil is located parallel to the heating furnace. When the heating furnace is located upstream from the coil, the coil shall be so designed or equipped as to not develop excessive temperatures or pressures. In those cases where the coil is located parallel to the heating furnace, dampers or other means used to control flow of air shall be adequate to prevent chilled air from entering the furnace section. If the dampers are manually operated means shall be provided to prevent operation of either unit unless the damper is in the full heat or cool position. Adequate means shall be provided for disposal of condensate and to prevent dripping of condensate on the heating element.

The capacity of the blower shall be adequate to overcome the external static resistance imposed by the combined heating and cooling units at the air throughout required for heating or cooling, whichever is greater.

Furnaces (including duct furnaces may be installed down-stream from evaporative coolers or air washers if the heating element is made of corrosion-resistant material. Stainless steel, ceramic-coated steel, or an aluminum-coated steel in which the bond between the steel and the aluminum in an iron-aluminum alloy, are considered to be corrosion-resistant. Air washers operating with chilled water which

3-3.3 Enclosure of Ducts.

3-3.3.1 Ducts passing through two or more floors, or through a floor and a roof, and having a cross-sectional area of more than 2 square feet shall be encased in shafts of noncombustible construction having a 2 hour fire resistance rating. Where the cross-sectional area is 2 square feet or less, such ducts may be fire protected with construction having a fire resistance rating of 1 hour placed as close as possible to the duct in lieu of a shaft, with the space between the duct and the floor construction filled solidly with inert noncombustible material for the full depth of the floor construction. Exceptions and qualifications are as follows:

(a) The encasing of ducts shall not be required for branches which are cut off from the main portion of the duct by approved fire dampers.

(b) Ducts which are located in one story and have all duct openings extending through a floor to the story next above or below may in lieu of such fire resistive enclosure be provided with approved fire dampers at each such point where the floor is pierced.

(c) Two or more ducts serving separate floors shall not be encased in the same fire resistive enclosure unless approved fire dampers are installed where each branch is taken from such encased ducts.

(d) A branch duct having a cross-sectional area of less than 20 square inches which passes through one floor only and pierces the floor at one point only to supply air conditioning units in one story only is not required to be encased. Where a branch serves connectors which pierce the floor at more than one point, the portion of the duct below the floor shall be encased with not less than 1/2-inch of noncombustible insulating material such as metal lath and plaster or shall be enclosed with noncombustible material such as by locating above a noncombustible ceiling.

Exception: When ducts extend through only one floor and fire dampers are located at each such point where the floor is pierced, the fire dampers may be accepted in lieu of enclosure.

3-3.3.2 A fire-resistive enclosure used as a vertical duct more than two stories in height shall conform to 3-3.3.1 and shall be constructed of masonry, concrete or clay tile or approved equivalent. Such enclosures not more than two stories in height shall meet the requirements of 3-3.3.1 and 2-1.1.

3-3.3.3 Shafts that constitute ducts or that enclose ducts used for the movement of environmental air shall not enclose: exhaust ducts used for the removal of smoke and grease-laden vapors from cooking equipment; ducts used for the removal of flammable vapors; ducts used for moving, conveying, or transporting stock, vapor, or dust; ducts used for the removal of nonflammable corrosive fumes and vapors; oil refuse and linen chutes.

3-3.3.4 Fire dampers shall be installed at each direct or ducted opening into or out of enclosures required under 3-3.3.1.

Exception No. 1: In a duct system serving only one story when used only for exhaust of air to the outside, and

(a) not penetrating a fire wall or partition required to have a fire resistance rating of 2 or more hours, or

(b) not passing entirely through the enclosure for a vertical shaft.

Exception No. 2: Where branch ducts connect to enclosed exhaust risers meeting the requirements of 3-3.3.1 or 3-3.3.2 in which the airflow is upward and subducts at least 22 in. in length are carried up inside the riser from each inlet. (see figure 3-3)

Exception No. 3: Where such openings are provided for ducts or duct connectors serving air terminal units and the ducts or duct connectors meet all of the following conditions (see figure 3-1)

(a) They have a cross-sectional area of less than 20 sq. in. (See also 3-3.8.1)

(b) They meet the requirements specified in 2-1.2.2 (a)

(c) They serve air terminal units which directly abut the shaft enclosure or have continuous architectural enclosures constructed the same as the air terminal unit.

(d) They meet the requirements of 3-3.8.1. 3-3.4 Floor, Required to Have a Fire Resistance Rating.

Where ducts or duct connectors extend through only one floor serve only two adjacent stories, the ducts or duct connectors shall be enclosed (see 3-3.3. 1) or fire dampers shall be installed at each point where the floor is penetrated.

Exception: Where openings are provided for ducts or duct connectors serving air terminal units and the ducts or duct connectors meet all the following conditions:

- (a) They have a cross-sectional area of less than 20 sq. in. (See also 3-3.8. 1)
- (b) The ducts or duct connectors and branch duct shall meet the test requirements specified in 2-1.2.2 W.
- (c) They are protected, down to the floor level, by the air terminal unit enclosure of noncombustible materials and constructed to resist damage during construction and use.
- (d) They meet the requirements of 3-3.8.1

3-3.5 Floor/Roof-Ceiling Assemblies, Having a Fire Resistance Rating. When ducts and openings for ducts are used in a Floor/Roof-Ceiling assembly required to have a fire resistance rating, all of the materials and construction of the assembly, including the duct materials and size of openings, and the protection of the opening,, shall conform with the design of the resistive assembly, as tested in accordance with NFPA 251-1979, Standard for Fire Tests of Building Construction and Materials. (If dampers are required, see 3-3.7.1.4).

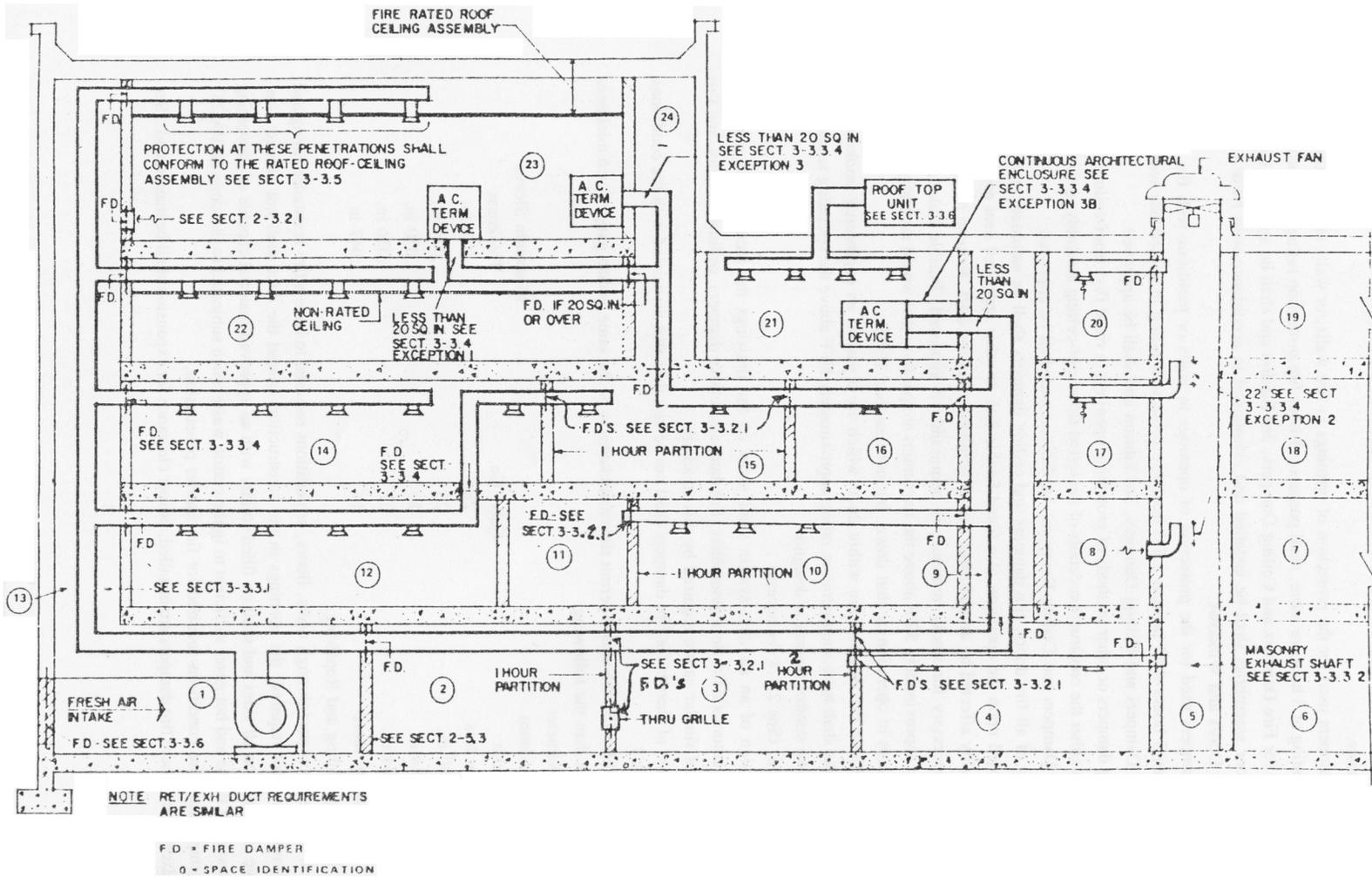


Figure 3-3 Typical building duct installation illustrating required protection of walls, ceilings, floors, and shafts.

3-3.6 Fresh Air Intakes. Intakes shall be located so as to prevent the introduction of fire into the building from combustible buildings and hazardous facilities, or the intake shall be equipped with an approved fire damper. (See 3-3.7. 1),

3-3.7 Fire Door Assemblies. Fire Dampers, Smoke Dampers and Ceiling Dampers. 3-3.7.1 Performance.

3-3.7. 1 .1 Fire dampers used for the protection of openings in fire walls, or walls and partitions having a fire resistance rating of 3 hours or more, shall possess a 3-hour fire protection rating in accordance with UL 555 Standard for Fire Dampers and Ceiling Dampers, 3rd Edition and shall be approved (see 3-3. 1). 3-3.7.1.2 Fire door assemblies shall be installed and maintained in accordance with NFPA 80-1983, Standard for Fire Doors and Windows.

3-3.7.1.3 Fire dampers used for the protection of openings in walls or partitions with fire resistance ratings of less than 3 hours shall possess a 112 hour fire protection rating in accordance with UL 555, Standard for Fire Dampers and Ceiling Dampers, 3rd Edition and shall be approved.

3-3.7.1.4 Ceiling dampers or other methods of protecting openings in rated floor/roof-ceiling assemblies shall comply with either the construction details of the tested floor/roof-ceiling assembly or with UL 555, Standard for Fire Dampers and Ceiling Dampers, 3rd Edition and shall be approved.

3-3-7.1.5 Closing of all fire doors, fire dampers and ceiling dampers shall be automatic and they shall remain tightly closed upon the operation of a listed fusible link or other approved heat actuated device located where readily affected by an abnormal rise of temperature in the duct. Remote reopening of fire dampers, when necessary for smoke removal, is permissible if approved. Fusible links shall have a temperature rating approximately 50°F above the maximum temperature that would normally be encountered with the system in operation or shut down, but not less than 160°F.

Exception: Where fire dampers are within ducts which are a part of an engineered smoke control system, fusible links shall have a temperature rating approximately 50°F above the operating temperature for which the smoke control system is designed.

3-3.7.2 Installation. (See 2.1.4 for access)

3-3.7.2.1 The design of an air duct system shall show on the drawings the location and mounting arrangement of all automatic fire door assemblies, fire dampers, smoke dampers, ceiling dampers, and fire protection means of similar nature required by this standard.

3-3.7.2.3 Thickness of sleeves for fire dampers shall not be less than that associated with the conditions of rating under 3-3.7.

Exception: Where UL 555 would permit sleeve thickness to be the same as duct gauge, such thickness shall mean not less than the following:

Duct Diameter or Maximum Width	Galv. Ga.	Minimum Sleeve Thickness
12 in. or less	28	.018 in.
13 in-30 in.	25	.024 in.
31 in-54 in.	23	.030 in.
55 in-84 in.	21	.036 in.
85 in. or more	18	.047 in.

3-3.8 Patching, Filling and Repairing.

3-3.8.1 Where ducts pass through walls, floors, or partitions required to have a fire resistance rating and fire dampers are not required, the openings in the construction around the duct shall not exceed 1-in. average clearance on all sides and shall be filled solidly with an approved material capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste when subjected to the same NFPA

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time-temperature fire conditions required for fire barrier penetration.
Exception: Where fire dampers are installed, proper clearance for expansion shall be maintained, (See 3-3.7.2.2).

3-3.8.2 Where the installation of the hangers for the components of an air duct system penetrates an existing ceiling of a fire-resistive floor/roof-ceiling assembly and requires removal of a portion of that ceiling, the replacement material shall be the same as, or approved equal to, that which was removed.

Exception: Instead of repairing the existing ceiling, a new ceiling may be installed below the duct system provided the fire resistance rating of the floor/ roof-ceiling design is not reduced (see C26-504.12 (b)).

4-1 Manual Controls. Each air distribution system shall be equipped with not less than one manually operated device that will stop the operation of supply, return, and/or exhaust fan(s) in all emergency. The device shall be mounted at an approved location or incorporated in an emergency smoke control system. 4-2 Smoke Control-Special Situations- A building having two or more stories or zones required to be separated by construction that will restrict the spread of smoke or fire and (a) in which it is determined that evacuation time is excessive, or (b) in which evacuation is not practical because occupants are incapable of self-preservation because of age, physical or mental disability, or because of security measures not under occupant control, shall have the duct systems arranged so that, in the event of a fire, flow of smoke from the fire zone will be inhibited from spreading to required interior ways (if exit access, interior enclosed stairs and ramps, interior exit passageways, and designated refuge area,). Such an arrangement may involve air conditioning systems alone or in combination with other systems such as emergency venting, pressurizing and fire suppression, taking into account stack and wind effect of multistory buildings. Smoke control systems are required to be engineered for the specific occupancy and building design.

4-2.1 Additional Special Situations.

(a) A space leading from elevators to a street or the exterior of a building.

(b) A system used to supply spaces on more than one story or spaces in different fire areas in the same story.

(c) The area of a building or space served is over 15,000 square feet in mercantile and or indoor assembly occupancies or accommodates more than 250 persons, regardless of floor area.

(d) There is a duct opening in a required interior fire division having a fire resistance rating of 2 hours or more.

(e) A duct used for a system passes through a fire wall.

(f) If a corridor is used as a plenum.

4-3 Automatic Shutdown or Exhaust. Except as required by provisions of Section 4-2 in systems of over 2,000 cfm capacity, smoke detectors approved for duct installation shall be installed at a suitable location in:

(a) The main supply duct on the downstream side of the filters to automatically stop the fan, and

(b) The return air stream, prior to exhausting from the building or being diluted by outside air, to automatically exhaust the smoke laden return air or to stop the fan.

Exception No. 1: The smoke detector in the return air stream may be omitted in systems of less than 15,000 cfm capacity.

Exception No. 2: Both detectors may be omitted provided that the system is less than 15,000 cfm capacity, the entire system is within the space served and such space is protected by an area smoke detection system.

4-3.1 In any building where an air system utilizing recirculated air and requiring a thermostatic device is installed on a floor protected by an automatic sprinkler or a manual or automatic fire alarm system, provision shall be made to automatically stop the fans serving the affected area when the sprinkler or fire alarm system operates. Where both sprinkler and fire alarm systems are installed in the area, it shall be required to have only one of these systems arranged to stop the fans.

4-3.2 Any building in occupancy group E, 75 feet or more in height, and any existing office building 100 feet or more in height, where a system serves more than the floor on which the equipment is located in

addition to the controls required by this chapter, shall be provided with:

(a) Manual controls for operating individually each air supply and each exhaust or return fan in the system located as follows:

(1) At the Fire Command Station or in the Mechanical Control Center.

(2) In the room containing the affected air handling fans.

(b) Manual controls for operating individually each remote control reversible fire shutter, when such shutters are provided in accordance with the provisions of Section C26-1704.5, shall be located at the Fire Command Station or in the Mechanical Control Center.

(c) An approved product of combustion ionization detecting device or a combination of an approved smoke detecting device and an approved fixed temperature thermostatic device shall be located at the air return shaft at each floor and so located as to monitor each inlet to the air return shaft except that in an existing office building 100 feet or more in height where compliance would cause practical difficulty or undue hardship, the Commissioner may approve other locations for such devices fulfilling the intent of the requirement.

4-3.3 Required exit corridors in hotels, hospitals, institutions, and similar occupancies (J- I, H-1, H-2) shall not be used as a portion of the supply or return system, or used to supply make-up air to rooms or dwelling units to replace air exhausted from bathrooms or toilet rooms, or kitchenettes. Where a corridor is permitted by this code to be used as a plenum, the system serving the corridor shall have smoke detectors and thermostatic devices located as required in this chapter that will shut down fans upon activation.

Note: Institutions shall be those structures so classified in sub-article 309.9 of the building code. 4-4 Smoke Detectors and Dampers. In systems of over 2,000 cubic feet per minute capacity, approved smoke detectors shall be installed, arranged to automatically shut down fans. Smoke dampers shall be installed in the main return duct, and the main supply duct downstream of the filter bank in systems over 15,000 cubic feet per minute, as well as in other locations noted in sections 4-2 and 4-2.1.

4.5 Detectors.

4-5.1 Detectors shall be installed in accordance with NFPA 72 E-1982. When an approved detection system is installed in the building, the smoke detectors required by the provisions of Section 4-3 shall be connected thereto in accordance with the requirements of the appropriate Signaling System Standard (NFPA 71-1982, 72A- 1979, 72B- 1979, 72C- 1982, or 72D- 1979) so that actuation of any smoke detector will sound the fire alarm as well as provide the function of controlling the ventilation systems.

4-5.2 Activation of smoke detectors, required by Section 4-3 and installed in a building not equipped as outlined in 4-5. 1, shall sound an audible alarm in a normally occupied area or through the building fire alarm system.

4-5.3 Detector trouble condition shall be indicated visually or audibly in a normally occupied area and shall be identified as air duct detector trouble.

4-5.4 Except as provided in Section 2-4.1.2. Approved smoke detectors and smoke dampers shall be provided in buildings constructed before the effective date of this code and those constructed under this code, as follows:

(a) In a ventilating, air conditioning, or other systems utilizing recirculated air, an effective means for detecting smoke and controlling its spread by stopping the system fans shall be provided when any of the following conditions exists:

(1) a system is used to supply an exit passageway, or a space leading from elevators to a street or the exterior of a building.

(2) a system is used to supply spaces on more than one story or spaces in different fire areas in the same story.

(3) the area of a building or space served is over 15,000 square feet in mercantile or indoor assembly occupancies or accommodates more than 250 persons, regardless of floor area.

(4) there is a duct opening in a required interior fire division having a fire resistance rating of 2 hours or more.

(51) a duct used for a system passes through a fire wall.

(6) where a corridor is used as a plenum. See section 2-2.2 of this reference standard.

(b) Smoke detecting devices, whether of the photoelectric cell or other approved type, shall be installed in the main supply duct on the downstream side of the filters and located to detect smoke in any portion of the air stream.

The sensitivity of the photoelectric smoke detecting device shall be such that a reduction of less than 4 per cent in light beam intensity will not result in operation. The device shall operate whenever there is a deduction in light beam light intensity not exceeding 2 percent per feet of length of the light beam or a maximum of 36 per cent total light cut-off.

Devices shall be installed and maintained so as to minimize the possibility of initiating operation due to accumulation of dust, deterioration of the equipment, fluctuation in electric current supply, or to any other condition in system operation not associated with fire or smoke. Measuring screens shall be available for checking and adjusting the sensitivity of the devices.

(c) Wherever smoke detectors are required, arrangements shall be made to provide a distinctive visual or audible signal at a local supervisory control board within the building when any condition arises that would interfere with the proper operation of any smoke detecting or fan shut-off device, or when any defect occurs in the detector, wiring, or connections. Also, a signal shall be provided to show the location of any such device whose proper functioning has been interfered with by any cause. Such control board may be included in a control board serving another alarm system in the building, in the office of the engineer of surveillance of any **employee at all times while the building** is occupied. Such employee shall be trained to take proper action on the receipt of a trouble signal.

(d) Thermostatic shut-off, for fans, smoke detectors, signal apparatus, actuating devices, and the local central supervisory control board shall be connected and operated on 120 volt closed electric circuits installed and maintained in accordance with the requirements of reference standard RS-17 and the Electrical Code of the City of New York insofar as such requirements are applicable, and in accordance with the manufacturer's wiring diagrams and instructions.

§ 88. Subdivision a of section seven of reference standard RS 17-3 of the appendix to such chapter of such code is amended by adding a new paragraph one to read as follows:

(1) A floor warden station with a speaker mechanism having a fire resistant assembly and a manual fire alarm station may be installed in the same housing. A self-restoring push button that will silence an alarm speaker while being held in place, shall be required wherever such speaker is within 8 feet of a floor warden station.

§ 89. Subdivision a of section eight of such reference standard of such appendix to such chapter of such code, as added by local law number seventy-six for the year nineteen hundred sixty-eight, is amended **to read as follows:**

(a) Alarm sounding devices shall be sufficient in number to be clearly audible to all occupants of a building. Approved gongs shall be provided as the sounding devices. Where gongs or bells are not audible, approved horns or whistles may be provided. Chimes and other alarm sounding devices may be installed **only with the approval of the commissioner.**

§ 90. Subdivision k of section nine of such reference standard of such appendix to such chapter of such code is amended by adding a new paragraph nine to read as follows:

(9) Control boards may be of the solid state circuitry type with modular construction and replacement Components.

§ 91. Section eighteen of such reference standard of such appendix to such chapter of such code, as added by local law number seventy-six for the year nineteen hundred sixty-eight is amended to read as follows:

18. Licensed Contractors. --Only a person holding a license, or a special license in accordance with the provisions of the New York City electrical code, shall install, alter, or repair electrical wiring or

apparatus for fire alarm systems in any building. Upon approval by the commissioner, a manufacturer's designated representative may alter or repair a specific fire alarm system.

§ 92. Paragraph E of subdivision III of section twenty of such reference standard of such appendix to such chapter of such code, as amended by board of standards and appeals calendar number 515-75-BCR, is amended to read as follows:

E. Where a loud speaker system is used for the evacuation sounding, its amplifiers shall be designed for one hundred and fifty (150%) percent of rated load with a minimum of two discrete amplifiers. The load speaker system may be used for voice communication, provided the evacuation signal use has priority. Speakers used for fire alarm systems shall be rated for 400 degrees F. and approved by the Board of Standards and Appeals. These speakers and amplifier requirements apply to all systems installed under any and all provisions of this code.

§ 93. Subdivision a of section eleven of reference standard RS 17-3A of the appendix to such chapter of such code, as added by local law number five for the year nineteen hundred seventy-three, is amended to read as follows:

(a) Information display systems used in connection with Class E Fire Alarm Signal Systems shall be of an approved electrically supervised type. The indicating devices shall describe the purpose they serve. The printed designation on unit or building information display system indicators shall be legible. The mechanism shall be so arranged that once operated, the indicating device must be reset manually. All conditions indicated shall remain displayed until manually cleared at the Fire Command Station. Fire Command Stations shall provide alarm information in a direct manner; no references to numeric codes shall be permitted. Where a CRT display is provided, a specially marked control shall be provided that will enable the system operator to determine the alarm source and other related pertinent information.

§ 94. Section fifteen of such reference standard of such appendix to such chapter of such code is amended by adding a new subdivision e to read as follows:

(e) Where a fail-safe reentry door has been converted to conform to the requirements of this code by means of an electric strike release, provision shall be made to insure that the door will remain "Latched" even if "Unlocked".

§ 95. Paragraph three of subdivision d of section eighteen of such reference standard of such appendix chapter of such code, as added by local law number five for the year nineteen hundred seventy-three, is amended to read as follows:

(3) Proper isolation and by-pass signal devices shall be installed on the building power distribution system to insure an interference free and safe transmission path for carrier current transmission systems and shall be acceptable to the bureau of electrical control.

§ 96. Section eighteen of such reference standard of such appendix to such chapter of such code, as added by such local law, is amended to add two new subdivisions f and g to read as follows:

(f) The system shall not be used for alarm purposes.

(g) Elevator intercommunications systems shall be acceptable for communication with fire command stations if stations are within sight of elevator intercommunications systems control panels.

§ 97. Reference standard RS- 17 of the appendix to such chapter of such code is amended to add two new reference standards RS-17-3C and RS 17-3D to read as follows:

REFERENCE STANDARD RS 17-3C
STANDARD FOR THE INSTALLATION OF
FIRE ALARM SIGNAL SYSTEMS
AND COMMUNICATION SYSTEMS FOR HIGH
RISE BUILDINGS IN OCCUPANCY GROUP
C-MERCANTILE, AND
J-1--RESIDENTIAL (TRANSIENT), AND
BUILDINGS IN OCCUPANCY GROUP J-1
RESIDENTIAL CONTAINING 30 OR MORE
SLEEPING ROOMS

1. Sources of Electrical Energy.

(a) Two sources of electrical energy shall be provided for direct wire fire alarm signal systems as follows:

(1) The primary source shall be generated electric power, not exceeding a potential of 277 volts supplied by utility company power or isolated plants.

(2) The secondary source shall be adequate emergency power if available or storage battery power.

(b) Systems utilizing radio or combination radio wire system shall be connected on each story to a reliable power source, suitably fused, such as the floor lighting panel where either a tap shall be made from the bus bar or a spare non-switched fuse gap or circuit breaker shall be utilized. Circuit breakers if used shall be painted red and locked in the "on" position.

(c) One source of energy shall be connected to the system at all times. The primary and secondary power sources shall be so arranged and controlled by automatic transfer devices or circuitry that when the primary source of power fails, the secondary source will be connected automatically to the fire alarm signal system. Intermediary devices between the fire command station and the source of current supply other than the transfer switch are prohibited. All installations shall comply with the applicable sections of the New York City electrical code.

2. Utility Company Power

(a) Connections to utility company power service shall be made on the street side of the service switch. When the utility company requires the installation of a metering current transformer cabinet to be installed ahead of the main switch, connections to fuse cutouts shall be made on the house side of the current transformer cabinet.

(b) Fuses shall be of the enclosed cartridge type. The use of set, plug fuses is prohibited. The cutouts for the fire command station shall be three pole cartridge fuse type with the neutral fuse replaced by a solid copper bar,

(c) Where the service to the building exceeds 277/480 volts a.c., a stepdown transformer with fusible switch protection for the primary windings, shall be supplied for the fire alarm signal system. The transformer shall be adequate for the combined total requirements of the systems and shall have an additional capacity of 50 per cent above normal requirements. A fuse cutout panel shall be supplied, connected to the load side of the stepdown transformer, with three-pole cartridge fuse cutouts for supply to the system. No other load shall be connected to this transformer.

3. Isolated Plants

(a) Energy front isolated electric light and power plants may be used as a primary source of supply only when there is more than one generating unit and the plant is always in operation when the building is occupied. Where an isolated plant is installed in a premises for emergency light and power supply it shall be automatically connected to the power supply, via an automatic transfer switch, when there is utility company power failure. The fire alarm service connection shall be taken from the main bus of the house switchboard and installed in accordance with the service requirements for utility company power supply.

(b) Where the generated voltage of the isolated plant exceeds 277/480 volts a.c., section 2 (c) shall be applicable.

4. Storage Battery Supply--

(a) The battery supply except for radio systems shall be designed to provide for 24 hour supervisory operation of the system followed by a 2 hour total system load. An approved type trickle charger shall be provided to maintain the battery supply at full charge. The battery and the trickle charger shall be located in a cabinet where the battery exceeds 75 cu. in. in size. Smaller batteries and chargers may be an integral component of the equipment being powered. The cabinets shall be ventilated unless the battery is a sealed unit type requiring no ventilation. Cabinets shall be elevated at least 1 foot, but not more than 5 feet above the floor and shall be located in clean, dry places where the temperature will be at least 40 degrees Fahrenheit but not more than 110 degrees Fahrenheit. Battery cabinets shall be constructed so that the

condition of the elements may be observed without disturbing the cells. In no case shall a storage battery be located in the same room with a gas meter. Installations shall be equipped with a switchboard or panel of approved material on which are mounted volt meters, ammeters, circuit breakers, fuses, resistors, switches, charging devices for motors, field rheostats for generators and other apparatus for charging and operating the battery, except where the battery and chargers are an integral component of the equipment being powered.

(b) Battery power for radio systems and radio/wire systems shall be supplied by NICAD or equivalent type trickle charged batteries designed by the manufacturer to meet the above operational requirements.

5. Associated Systems

(a) Smoke detection systems.

(b) Sprinkler waterflow alarms.

(c) Thermostatic alarms.

(d) Locked door-fail safe release systems.

(e) Elevator communication and interconnection.

6. Wiring

(a) This standard shall apply to the wiring of all the components of the system including all the associated systems enumerated in 5 above. Radio systems and carrier current transmission systems shall be exempt except for conductors used for service wiring and wire extensions.

(b) Wiring shall be in multi-conductor cable installed from each floor to a terminal box located to supply the circuitry for a maximum of five floors above and five floors below the terminal box. This terminal box with its cover fastened with machine screws, painted fire department red and stenciled "INTERIOR FIRE ALARM SYSTEM" shall be located in a satisfactory closet or cabinet.

(c) Multi-conductor cable used for signaling communication shall be no. 22 A.W.G. minimum. Voice communication pairs shall be no. 22 A.W.G. minimum, twisted and shielded pairs. Power supply conductors shall be no. 16 A.W.G. minimum and may be part of the multi-conductor cable. Multiconductor cable shall be provided with a minimum of 10 per cent spare pairs. Insulation of conductors shall be teflon, halon, kynar, or equivalent and THHN when enclosed in heavy wall or intermediate metal conduit. Cable used shall be protected with a sheath and an outer jacket of 25 mils minimum insulation colored fire department red and labeled for its entire length --"FIRE ALARM SERVICE."

(d) Multi-conductor cable and its branches may be installed in cable form, suitably supported and fastened, without enclosure in raceways or conduits provided the cable approved for such is not subject to tampering or physical hazard and is otherwise protected by the building construction. Cable otherwise exposed to view it' not run in shafts or closets designed for the vertical distribution of telephone or light and power shall be enclosed and protected by heavy wall or intermediate metal conduit. Flexible steel armor will be permitted only for final connections to sensing or alarm devices and shall be Underwriters Labs. Inc. labeled and of lengths not exceeding 24 inches where a rigid connection cannot be practically made.

(e) Alarm signaling systems using multi-conductor cable shall operate on 50 volts or less.

(f) Remote manual or automatic control for the air handling systems from a mechanical control center may be multiplexed using conductors of no. 22 A.W.G. minimum.

(g) Conductors for wiring speakers in alarm signal systems shall be at least no. 16 A.W.G. Speakers shall be wired independently in order to provide reliable alarm signals so that loss of a portion of the wiring on a floor shall not disable the entire alarm reproductive capability of that floor. Insulation for speaker wiring shall be teflon or its equivalent designed for 600 volt breakdown test and Underwriters Labs. Inc. listed.

(h) Associated systems listed in 5 above shall be interconnected with Class E fire alarm signal systems and shall have their actuation indicated at the fire command station.

(i) All conduits shall be grounded to a water main by approved ground clamps or by other means

conforming with the electrical code of the city of New York with a conductor equal in size to the largest conductor used in the system; but in no case shall the ground conductor be smaller than no. 10 A.W.G.

(i) Splices in electrical conductors in vertical risers are prohibited except when the length of conductors exceeds 150 feet in vertical risers, an approved terminal cabinet may be used. Splices in horizontal runs shall be avoided. Splices when necessary in horizontal runs shall be made in approved junction boxes. Splices shall be made with Underwriters Labs. Inc. listed mechanical connectors or shall be soldered and taped to assure reliable service. Telephone company type punch down terminals may be used. The covers of terminal cabinets and junction boxes shall be painted fire department red to indicate that it contains splices or terminal strips.

(k) Electrical conduits shall enter only at the sides or bottom of control cabinets, unless designed and approved for entry on the top.

(l) All openings in walls, floors, or ceilings where conduits pass through shall be firestopped in accordance with parts 11, title C of this chapter.

(m) Conductors for fire alarm signal systems and associated systems may be run in the same conduits. Conductors for other electrical systems in the building shall not be installed in these conduits. Conduits shall be installed in accordance with tables 1 and 2 of article 5, section B30-47.0 of the administrative code.

(n) Connections of conductors to binding posts shall be made in a manner to assure reliable service.

7. Fire Alarm Sending Stations --Non-Coded Manual Station

(a) There shall be at least one (1) fire alarm sending station in each story of a building located in each path of escape. Additional stations shall be installed so that no point on any floor shall be more than 200 feet from the nearest station.

(b) Doors of sending stations shall be painted red and lettered "FIRE EMERGENCY-OPEN DOOR TO OPERATE" or words to this effect. Instructions for operating the station shall be permanently affixed or be an integral part of the station. Instruction cards shall be provided at each station protected by glass or plastic. Designation number of station shall be prominently displayed on instruction card or on cover of station.

(c) All current-carrying parts shall be insulated from parts carrying current of opposite polarity with approved insulating material.

(d) All pull-level type stations shall be constructed with a door or other approved means to protect the "pull lever" against accidental injury. The wording "IN CASE OF FIRE-OPEN DOOR AND PULL DOWN LEVER" in raised letters or equivalent instructions, shall appear on the door.

(e) For systems using break-glass or break-rod type stations, at least one extra glass rod or glass pane for each station in the system shall be kept in the building. Break glass stations shall have the glass rod or pane mounted on the surface of the station covers or mounted internally in such a manner that the glass must be broken to actuate the sending station. Suitable hammers on chains attached to the stations or other approved means of breaking the glass, shall be provided. Stations accomplishing the "break glass" principle using other approved means shall not be required to provide hammers or spare glasses.

(f) Non-Coded Stations:

(1) Non-coded closed circuit fire alarm stations may be operated by a break glass or break-rod or a pull level device so arranged that the alarm cannot be interfered with except by resetting or replacement (if the glass or rod by an authorized person).

(2) The construction and materials shall be equivalent to that of the standard approved type coded closed circuit station described in reference standard RS 17-3 except that the contacts shall be of sufficient capacity to safely carry the entire operating current of the alarm circuit without excessive heating.

(g) Station Testing Devices.-Provisions shall be made for a silent test of sending station mechanisms without operating the signaling devices. Such test device shall be designed to prevent any person, except those in authority, from operating the same and to prevent the possibility of the box being left inoperative after the test.

(h) A designated station on each floor shall have the capability of operating the loud speakers for that floor.

8. Alarm Sounding Devices

(a) Approved speakers shall be provided as the sounding devices. The alarm sound shall be a generated gong, bell, horn, whistle, or other acceptable signal. Chime sounds and other alarm sounding devices may be installed only with the approval of the commissioner. Approved speakers shall have heat resistant driven elements and shall conform to reference standard RS 17-5.

When recessed speakers are used they shall conform to the performance requirements of reference standard RS 17-5. Speakers when mounted on walls shall be mounted upon tenant walls in preference to building core walls.

(b) Recessed speakers if used shall be located not more than 100 feet from the entrance to each required exit to insure proper alarm signal reproduction. This spacing is based upon normal 8 feet-] 0 feet ceiling height. Surface mounted type speakers shall be mounted within 10 feet of each egress to insure proper alarm signal reproduction. **For unusual conditions and higher ceilings, speakers shall not be** mounted more than 20 feet above floor

(c) The alarm sounding devices may be utilized for other audio purposes including building security if means are provided to insure fire alarm priority.

9. Fire Alarm System Control Boards and Command Stations

(a) Supervising Circuit

(1) Fire Alarm system shall be supervised.

(2) The supervising circuit shall be provided with a trouble signal arranged to sound continuously in case of failure of the primary power source. The trouble signal shall be so located that it will be within audible range of a responsible person in the building.

(3) Trouble signals may be fitted with silencing switches only when the switch is connected in such a manner that the act of silencing the signal by the operating of the switch automatically transfers the trouble signal to a red lamp on the fire command station. When the trouble has been repaired the alarm signal shall sound until the silencing switch has been reset to operate under normal conditions.

(4) The trouble signal shall give a distinctive signal.

(b) Protection of Sending and Sounding Devices.-In fire alarm signal systems, sending stations and sounding devices shall be enclosed in metal casings, made dust proof and damp proof when necessary, and clearly marked with instructions for use.

(c) Standards of Electric Alarm Apparatus.-All electrically actuated apparatus used in fire alarm systems shall be so designed and constructed that it will operate satisfactorily at an input voltage level 15 per cent below or 10 per cent above normal rated voltage.

(d) Insulation

(1) Insulating materials used shall be varnished cambric, bakelite, mica, or equivalent insulating Material.

(2) The use of fiber or paper as an insulating material is prohibited.

(3) The insulating materials used shall be capable of withstanding an insulation breakdown test of 1,000 volts a.c. plus twice operating voltage applied for 1 minute.

(e) Electromagnets.

(1) Electromagnet windings shall be impregnated with an insulating, moisture repelling compound of the silicone or epoxy type.

(2) Electromagnet coils used on alternating current, when composed of enameled wire shall have additional approved insulation on each wire. The coils may be of the form-wound type.

(3) A protective cover to prevent mechanical damage shall be provided over the entire coil.

(4) Electromagnet coils shall be fastened to prevent floating.

(5) Electromagnet cores shall be of the best grade of ferrous material so as to reduce to a minimum the possibility of failure due to residual magnetism.

(6), Electromagnet cores for use on alternating current shall be of laminated construction or other approved method to prevent heating and promote efficiency.

(7) Electromagnetic cores of relays shall be **treated to prevent corrosion**, **Paint** or varnish shall not be used for this purpose.

(8) Non-magnetic freeze pins shall be used to prevent two magnetic surfaces from making physical contact with each other.

(f) Wiring

(1) All connections shall be secure and properly protected, and where subject to motion, shall be of approved flexible wire. All wiring of the fire command station and station circuits and supervisory circuits shall be approved.

(2) Binding posts when used, shall be of such a design that the wire is held between two flat surfaces. Binding posts shall be mounted on an approved terminal block or insulating strip. The space between binding posts shall be at least $\frac{1}{12}$ inch, unless they are separated by approved barriers.

(3) Printed circuit cards, when used shall be $\frac{1}{16}$ inch thick glass fiber epoxy resin, with color coded ejectors (used to group cards according to function so that they may be quickly located), with plated through holes as feed through on all logic cards. The connector fingers shall be gold plated over nickel. The boards shall be screened with ink to furnish all component designation which shall aid in locating specific circuits and components on **the board**.

(g) Relays

(1) The armatures of all relays shall depend on gravity of magnetic attraction for their operation and may be assisted by a spring.

(2) Adjustments shall be of such a character that they can be securely locked.

(h) Overload protective devices. -Electronic circuits shall provide protection of all equipment and circuits by opening up the circuit to the equipment or devices protected. The operation of this -overload circuit" shall cause the trouble signal to sound at the fire command station.

(i) Control boards shall operate so that troubles in individual zones may be shunted out without affecting the rest of the system.

(j) Provision shall be made for sufficient wire gutter space around the panel. Gutter space shall be a minimum of 2 inches at sides, top, and bottom. Wire in gutter space shall be properly laced in a neat and workmanlike manner on all control boards.

(k) Conduit Knockouts shall not be provided in the top of the control board cabinet, unless designed and approved for entry on top.

(1) A wiring diagram of the alarm system approved by the commissioner and the approved card of instruction properly marked and securely fastened shall be provided within the control board cabinet and at the fire command station. When it becomes necessary to mount the diagram outside of the cabinet, the diagram shall be framed under glass or equivalent material.

(in) Control Boards

(1) Control boards and amplifiers used for voice communication and alarms shall be located in a safe, moisture and dust free location secure from unauthorized tampering. Otherwise a ventilated cabinet provided with a lock and key, suitably identified, shall be provided.

(2) Amplifiers for the systems shall have the capacity to deliver sufficient power to operate all alarm sounding devices and voice communication system and have a 50 per cent reserve power capacity. In addition the amplifiers shall be wired in such a manner that the imminent failure or actual failure of amplifiers shall shut down the amplifier and indicate a trouble condition. Removal of an amplifier shall be indicated by a trouble signal at the fire command station. Opening of the control cabinets shall be supervised by a temper switch producing a manually resettable trouble alarm at the fire command station.

(n) Fire Command Station. --The fire command station shall contain all the components described in the Building Code

The command station console shall be provided with a hinged cover which permits the flashing

"FIRE" visible signal to be seen. The cover shall be provided with an approved lock and key. The fire command station shall be provided with an information display system so located as to provide minimum distortion due to an angular line-of-sight and ambient lighting conditions. This display shall have the capability to monitor the following systems in order of listed priority.

- (1) Manual Fire Alarm
- (2) Smoke Detection
- (3) Sprinkler Waterflow
- (4) Elevator Lobby Detector
- (5) Fire Signal Activation
- (6) Central Office Notification
- (7) Fan System on-Fan System off
- (8) Fail Safe Locked Door
- (9) Fire Systems Trouble (10) Fire Signal Trouble (11) Tamper Switch Alarm (12) Power Source (13) Test/Normal Mode (14) Other Information as Desired

10. Painting of Equipment.-All enclosing cases for fire alarm, sprinkler alarm, smoke detection, and associated systems alarm apparatus shall be painted fire department red, except where approval is given by the commissioner to deviate from this requirement. The lobby information display system may be painted or finished to suit the owner of the building.

11. Information Display Systems

(a) Information display systems used in connection with Fire Alarm Signal Systems shall be of an approved electrically supervised type. The indicating devices shall describe the purpose they serve. The printed designation on unit or building information display system indicators shall be legible. The mechanism shall be so arranged that once operated, the indicating device must be reset manually. All conditions indicated shall remain displayed until manually cleared at the Fire Command Station.

(b) A unit information display system shall be so designed that the operation of any station in the unit causes a visible and audible signal. The system shall be capable of indicating activation of tamper switch on each floor.

(c) Trouble displays shall be so arranged that the indicating device will reset automatically when the cause of trouble has been removed. The trouble information display system shall be so designed that it will indicate visible and audible trouble signals in the event of trouble occurring on any circuit monitored. The trouble information display system shall be actuated by the operation of supervisory devices.

(d) A silencing switch shall be provided for trouble signals, but shall not affect subsequent trouble signals.

(e) Information display systems shall be so designed that vibration from without or that caused by a trouble signal within will not operate the indicating devices.

(f) All remote information display systems shall be installed in a separate steel cabinet painted red, provided with an approved lock and key. Information display system cabinets shall be marked in white letters at least one inch high with the words "FIRE ALARM INFORMATION DISPLAY SYSTEM, ZONE--" or "FIRE ALARM TROUBLE INFORMATION DISPLAY SYSTEM", whichever the case may be.

(g) Information display systems located in the lobby of a building whether an integral part of the fire command station or wall mounted shall have the legend "FIRE" in red letters three inches high together with an audible signal in addition to the lamp, target drop, cathode ray tube, light emitting diode, nixie, etc. and a separate or distinctive trouble signal shall sound. The audible signal accompanying an alarm shall be automatically silenced when the fire command station is operated by the fire safety director or his

delegated substitute. Remote information display systems shall operate in the same manner.

(h) The display shall provide a minimum of four simultaneous alarm indicators with an overflow indication for additional alarms. Provisions shall be made to distinguish alarm conditions from non-alarm conditions.

The display shall be updated as new information becomes available. If the same condition exists for more than one point on a floor or for more than one floor in a building, such as a fire gong actuation or public address, a separate output entry shall be displayed for each point or floor.

(i) Display format. --Each output entry shall include self-identifying mnemonic codes for the type of signal, building or area designation, floor or stair number and point location, and time of day. Systems utilizing gravity drops or lamps as point identification, may provide a hard copy printout.

0) Maintainability

(1) Manual display of all points of annunciation for test purposes shall be provided.

(2) Capability shall be provided for interrogating any station or sensing element for test purposes, either at the remote device or by interrogation from the fire command station. Intervals of testing shall be as approved.

(3) Equipment designed shall be modular so that all repairs may be performed on-site by substitution of duplicate components by authorized personnel.

(4) One each of these parts that are of a modular nature shall be included as spares at the fire command station.

12. Licensed Contractors. --Only a person holding a license or a special license in accordance with the provisions of the New York City Electrical Code, shall install, alter, or repair electrical wiring or apparatus for fire alarm systems in any building.

(a) Upon approval by the commissioner a manufacturers' designated representative may alter or repair a fire alarm system.

13. Used or Rebuilt Apparatus.-Used apparatus shall not be re-used for any interior fire alarm system until the same has been reconditioned in the shop of any approved manufacturer of interior fire alarm apparatus. Approval shall be obtained from the commissioner prior to installation. The use of reconditioned apparatus whose manufacturer has discontinued manufacturing equipment is prohibited.

14. Standpipe Fireline Telephone and Signal System.-Where the standpipe telephone and signal system is arranged to be used as a Fire Alarm Signal System as provided in the building code, retractable telephone handsets shall be provided in pump rooms. The telephone in pump rooms shall be equipped with a loudspeaking receiver so that a voice can be distinctly heard at least 15 feet from the receiver.

15. Locked Door Fail Safe Systems.

(a) Stairway reentry doors which are locked from the stairway side as permitted in section C26-604.4 of the administrative code shall be provided with an electrical fail safe strike release mechanism that will permit the door to be opened without a key when any automatic fire detecting device operates, elevator "Fireman Service" operates or power failure shall occur. In addition, provisions shall be made to permit these doors to be opened from the command station or mechanical control center. This system shall be manually reset.

(b) Wiring for these systems shall comply with Rule 6(a), (b), (c) and (d) of this reference standard and be electrically supervised for open and shorted or grounded circuits.

(c) Transformers for release mechanisms shall be rated for the proper use load identified and located in proximity of the power supply for other fire alarm systems.

(d) The release mechanisms shall be operated from a separate control relay having the capability of indicating trouble on a separate trouble signal and at the information display system on the command console and at the mechanical control center. The mechanism shall also indicate a "failed" and "open" status on the command console and at the mechanical control center.

(e) Where a fail-safe reentry door has been converted to conform to the requirements of this code by means of an electric strike release provision shall be made to insure that the door will remain "latched even is "unlocked".

16. Radio System. --A radio and radio/wire system shall comply with the following requirements:

(a) The emergency notification portion of the system equipment shall be capable of an alarm tone and voice intelligibility.

(2) Receivers and wire extension speakers shall be permanently mounted to a wall or pillar.

(3) There shall be automatic switch over to emergency battery power supply.

(b) Communication

(1) One way communication shall be accomplished by fixed transmitters and receivers in buildings in occupancy group J-1. Receivers shall be provided in all public halls and in each guest room.

(2) Two way communication shall be accomplished by fixed transmitters and receivers in buildings in occupancy group C.

(c) Equipment shall be Federal Communications Commission (FCC) approved, FM type, solid state, above 150.8 MHz. Selective signaling shall be accomplished by a minimum of 2 tone code operation.

(d) The antenna shall be designed and installed for use at the Fire Command Station transmitter and be capable of transmitting to all fixed stations.

(e) The Fire Command Station unit shall have the capability of locking out all other remote control points.

17. Sprinkler Waterflow Alarms. --A sprinkler waterflow alarm may be arranged to be used as part of a modified class E fire alarm signal system provided the alarm signal system shall be an approved electrically supervised closed circuit information display system capable of indicating the floor where the sprinkler was activated.

18. Carrier Current Transmission System. --A carrier current transmission system shall comply with the following requirements:

(a) The emergency notification portion of the system shall be capable of the following:

(1) Have the capability of individual, group or entire building notification of an alarm tone and voice intelligibility.

(2) Receivers and wire extension speakers shall be permanently mounted to a wall or pillar.

(3) There shall be automatic switch over to emergency power supply.

(b) Two-way communication shall be accomplished by fixed transmitters and receivers.

(c) The fire command station unit shall have the capability of locking out all other remote control points.

(d) Wiring of all components including all associated systems enumerated in rule 5 above, shall comply with the following:

(1) Wiring when required in addition to the building power and lighting circuitry shall be in multi-conductor cable installed from each floor to a terminal box.

REFERENCE STANDARD RS 17-3D

STANDARD FOR THE INSTALLATION OF FIRE ALARMS SIGNAL SYSTEMS AND COMMUNICATION SYSTEMS FOR EXISTING BUILDINGS IN EITHER OCCUPANCY GROUP 1-1 RESIDENTIAL (TRANSIENT) 75 FT. OR MORE IN HEIGHT OR WITH 30 OR MORE SLEEPING ROOMS.

1. Provide a fire command station at entry floor level at a location approved by the commissioner.

2. Provide as alarm sounding devices approved speakers capable of being easily heard (80 dbs at 60 ft.) in all existing corridors, hallways, passageways and stairs.

3. Existing fire alarm sending stations shall remain only if modifications shall be made as follows:

(a) Activation of any station shall cause a signal to be transmitted to the fire command station and the engineer's office or the mechanical room.

(b) The system shall be closed-circuit non-coded with central annunciation.

§ 98. Subdivision b of section one of Rule 211.3a of Reference Standard RS 18-1 of the appendix to such chapter of such code is REPEALED and re-enacted to read as follows:

(b) Except as set forth in this subdivision, smoke detectors shall be installed in each elevator lobby at each floor and associated elevator machine rooms. The activation of a smoke detector in any elevator

lobby or associated elevator machine rooms shall cause the automatic elevator or elevators servicing the floor on which the sensing device is activated to return non-stop to the street floor. Where the lowest landing of such elevator or elevators is above the street floor, the activation of smoke sensing devices located in the elevator landing at such lowest landing floor shall cause such elevator(s) to return non-stop to a floor two stories above the lowest landing or in the absence of a stop at that floor, to the nearest landing above the lowest terminal landing which is served by the elevator or group of elevators. Such action shall override any other programming for car stops but shall not affect the elevator safety circuits. Notwithstanding the foregoing, in fully sprinklered buildings, heat sensing devices or the waterflow indicator of the sprinkler system may be used in lieu of smoke detectors to cause such elevator(s) to return non-stop to the appropriate landing.

The following buildings shall be exempt from the requirements of this subdivision:

1. Buildings classified in occupancy group J-2 or J-3; and
2. Existing buildings less than 75 ft. in height classified in occupancy group G which have at least one elevator available at all times for immediate use by the fire department and which are in compliance with the fire department's regulations governing "life safety requirements for schools with physically handicapped students".
3. Buildings classified in occupancy group 11-2 which have fire brigades and trained personnel acceptable to the fire commissioner who are capable of taking remedial action in the event of a fire.

§ 99. No action or proceeding, civil or criminal, pending at the time this local law shall take effect, brought by the city or any agency or office, shall be affected or abated by the adoption of this local law or by anything contained herein.

§ 100. This local law shall take effect immediately, except as otherwise specifically provided herein.

THE CITY OF NEW YORK, Office OF THE CITY CLERK, s. s.:

I hereby certify that the foregoing is a true copy of a local law of The City of New York, passed by the Council on March 20, 1984, and approved by the Mayor on March 27, 1984,

DAVID N. DINKINS, City Clerk, Clerk of the Council.

CERTIFICATION PURSUANT TO MUNICIPAL Home Rule LAW § 27

Pursuant to the provisions of Municipal Home Rule Law § 27, I hereby certify that the enclosed local law (Local Law 16, of 1984, Council Int. No. 72 1 -A) contains the correct text and, received the following vote at the meeting of the New York City Council on March 20, 1984: 32 for, none against.

Was approved by the Mayor on March 27, 1984.

Was returned to the City Clerk on March 27, 1984.

HADLEY W. GOLD, Acting Corporation Counsel.