NIST NCSTAR 1-1E (Draft)

Federal Building and Fire Safety Investigation of the World Trade Center Disaster

Comparison of Codes, Standards, and Practices in Use at the Time of the Design and Construction of World Trade Center 1, 2, and 7 (Draft)

Joseph C. Razza
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For Public Comment

NIST National Institute of Standards and Technology • Technology Administration • U.S. Department of Commerce

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U.S. Department of Commerce
Carlos M. Gutierrez, Secretary

Technology Administration
Phillip J. Bond, Under Secretary for Technology

National Institute of Standards and Technology
Hratch G. Semerjian, Acting Director

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In addition, a substantial portion of the evidence collected by NIST in the course of the Investigation has been provided to NIST under nondisclosure agreements.

Disclaimer No. 4

NIST takes no position as to whether the design or construction of a WTC building was compliant with any code since, due to the destruction of the WTC buildings, NIST could not verify the actual (or as-built) construction, the properties and condition of the materials used, or changes to the original construction made over the life of the buildings. In addition, NIST could not verify the interpretations of codes used by applicable authorities in determining compliance when implementing building codes. Where an Investigation report states whether a system was designed or installed as required by a code *provision*, NIST has documentary or anecdotal evidence indicating whether the requirement was met, or NIST has independently conducted tests or analyses indicating whether the requirement was met.

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No part of any report resulting from a NIST investigation into a structural failure or from an investigation under the National Construction Safety Team Act may be used in any suit or action for damages arising out of any matter mentioned in such report (15 USC 281a; as amended by P.L. 107-231).

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ABSTRACT

This report was prepared to support the goals and objectives of the analysis of building and fire codes and practices of the National Institute of Standards and Technology World Trade Center (WTC) Investigation. The report provides a comparison and summary of significant differences between the 1968 Building Code of the City of New York (determined to be the current building code at the time of construction of WTC 1 and WTC 2), the provisions of the New York State Building Construction Code, and the City of Chicago Building Code that were available at that time.

Keywords: Building code, emergency power, fire alarm, fire protection, fire suppression, interior finish, means of egress, reference standard, sprinklers, standpipe, World Trade Center.

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronyms

ASTM	ASTM International
BBC	Basic Building Code
BCNYC	Building Code of the City of New York (Local Law 76)
BOCA	Building Officials and Code Administrators
HVAC	heating, ventilating, and air conditioning
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NYC	New York City
RS	Reference Standard to the Building Code of the City of New York
WTC	World Trade Center
WTC 1	World Trade Center 1 (North Tower)
WTC 2	World Trade Center 2 (South Tower)
WTC 7	World Trade Center 7

Abbreviations

cfm	cubic feet per minute
ft	feet
ft^2	square feet
gpm	gallons per minute
h	hour
in.	inch
min	minute
psi	pounds per square inch
V	volt

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GLOSSARY

combustible – A material that is not determined to be noncombustible.

fire resistance rating – The time in hours that materials or their assemblies will withstand fire exposure as determined by a standard fire test.

fireproofing – Materials or assemblies used to provide a fire resistance rating to a building component.

firestop – A solid or compact, tight closure to retard the spread of flames or hot gases within concealed spaces.

noncombustible – A material that, in the form in which it is used in construction, will not ignite and burn when subjected to fire. However, any material which liberates flammable gas when heated to any temperature up to 1,380 ºF for 5 min shall not be considered noncombustible.

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PREFACE

Genesis of This Investigation

Immediately following the attack on the World Trade Center (WTC) on September 11, 2001, the Federal Emergency Management Agency (FEMA) and the American Society of Civil Engineers began planning a building performance study of the disaster. The week of October 7, as soon as the rescue and search efforts ceased, the Building Performance Study Team went to the site and began their assessment. This was to be a brief effort, as the study team consisted of experts who largely volunteered their time away from their other professional commitments. The Building Performance Study Team issued their report in May 2002, fulfilling their goal "to determine probable failure mechanisms and to identify areas of future investigation that could lead to practical measures for improving the damage resistance of buildings against such unforeseen events."

On August 21, 2002, with funding from the U.S. Congress through FEMA, the National Institute of Standards and Technology (NIST) announced its building and fire safety investigation of the WTC disaster. On October 1, 2002, the National Construction Safety Team Act (Public Law 107-231), was signed into law. (A copy of the Public Law is included in Appendix A.) The NIST WTC Investigation was conducted under the authority of the National Construction Safety Team Act.

The goals of the investigation of the WTC disaster were:

- To investigate the building construction, the materials used, and the technical conditions that contributed to the outcome of the WTC disaster.
- To serve as the basis for:
  - Improvements in the way buildings are designed, constructed, maintained, and used;
  - Improved tools and guidance for industry and safety officials;
  - Recommended revisions to current codes, standards, and practices; and
  - Improved public safety.

The specific objectives were:

1. Determine why and how WTC 1 and WTC 2 collapsed following the initial impacts of the aircraft and why and how WTC 7 collapsed;
2. Determine why the injuries and fatalities were so high or low depending on location, including all technical aspects of fire protection, occupant behavior, evacuation, and emergency response;
3. Determine what procedures and practices were used in the design, construction, operation, and maintenance of WTC 1, 2, and 7; and
4. Identify, as specifically as possible, areas in current building and fire codes, standards, and practices that warrant revision.

NIST is a nonregulatory agency of the U.S. Department of Commerce's Technology Administration. The purposes of NIST investigations under the National Construction Safety Team Act are to improve the safety and structural integrity of buildings in the United States, and the focus is on fact finding. NIST investigative teams are required to assess building performance and emergency response and evacuation procedures in the wake of any building failure that has resulted in substantial loss of life or that posed significant potential of substantial loss of life. NIST does not have the statutory authority to make findings of fault or negligence by individuals or organizations. Further, no part of any report resulting from a NIST investigation into a building failure or from an investigation under the National Construction Safety Team Act may be used in any suit or action for damages arising out of any matter mentioned in such report (15 USC 281a, as amended by Public Law 107-231).

Organization of the Investigation

The National Construction Safety Team for this Investigation, appointed by the NIST Director, was led by Dr. S. Shyam Sunder. Dr. William L. Grosshandler served as Associate Lead Investigator, Mr. Stephen A. Cauffman served as Program Manager for Administration, and Mr. Harold E. Nelson served on the team as a private sector expert. The Investigation included eight interdependent projects whose leaders comprised the remainder of the team. A detailed description of each of these eight projects is available at http://wtc.nist.gov. The purpose of each project is summarized in Table P–1, and the key interdependencies among the projects are illustrated in Figure P–1.

Table P–1. Federal building and fire safety investigation of the WTC disaster.

Technical Area and Project Leader	Project Purpose
Analysis of Building and Fire Codes and Practices; Project Leaders: Dr. H. S. Lew and Mr. Richard W. Bukowski	Document and analyze the code provisions, procedures, and practices used in the design, construction, operation, and maintenance of the structural, passive fire protection, and emergency access and evacuation systems of WTC 1, 2, and 7.
Baseline Structural Performance and Aircraft Impact Damage Analysis; Project Leader: Dr. Fahim H. Sadek	Analyze the baseline performance of WTC 1 and WTC 2 under design, service, and abnormal loads, and aircraft impact damage on the structural, fire protection, and egress systems.
Mechanical and Metallurgical Analysis of Structural Steel; Project Leader: Dr. Frank W. Gayle	Determine and analyze the mechanical and metallurgical properties and quality of steel, weldments, and connections from steel recovered from WTC 1, 2, and 7.
Investigation of Active Fire Protection Systems; Project Leader: Dr. David D. Evans	Investigate the performance of the active fire protection systems in WTC 1, 2, and 7 and their role in fire control, emergency response, and fate of occupants and responders.
Reconstruction of Thermal and Tenability Environment; Project Leader: Dr. Richard G. Gann	Reconstruct the time-evolving temperature, thermal environment, and smoke movement in WTC 1, 2, and 7 for use in evaluating the structural performance of the buildings and behavior and fate of occupants and responders.
Structural Fire Response and Collapse Analysis; Project Leaders: Dr. John L. Gross and Dr. Therese P. McAllister	Analyze the response of the WTC towers to fires with and without aircraft damage, the response of WTC 7 in fires, the performance of composite steel-trussed floor systems, and determine the most probable structural collapse sequence for WTC 1, 2, and 7.
Occupant Behavior, Egress, and Emergency Communications; Project Leader: Mr. Jason D. Averill	Analyze the behavior and fate of occupants and responders, both those who survived and those who did not, and the performance of the evacuation system.
Emergency Response Technologies and Guidelines; Project Leader: Mr. J. Randall Lawson	Document the activities of the emergency responders from the time of the attacks on WTC 1 and WTC 2 until the collapse of WTC 7, including practices followed and technologies used.

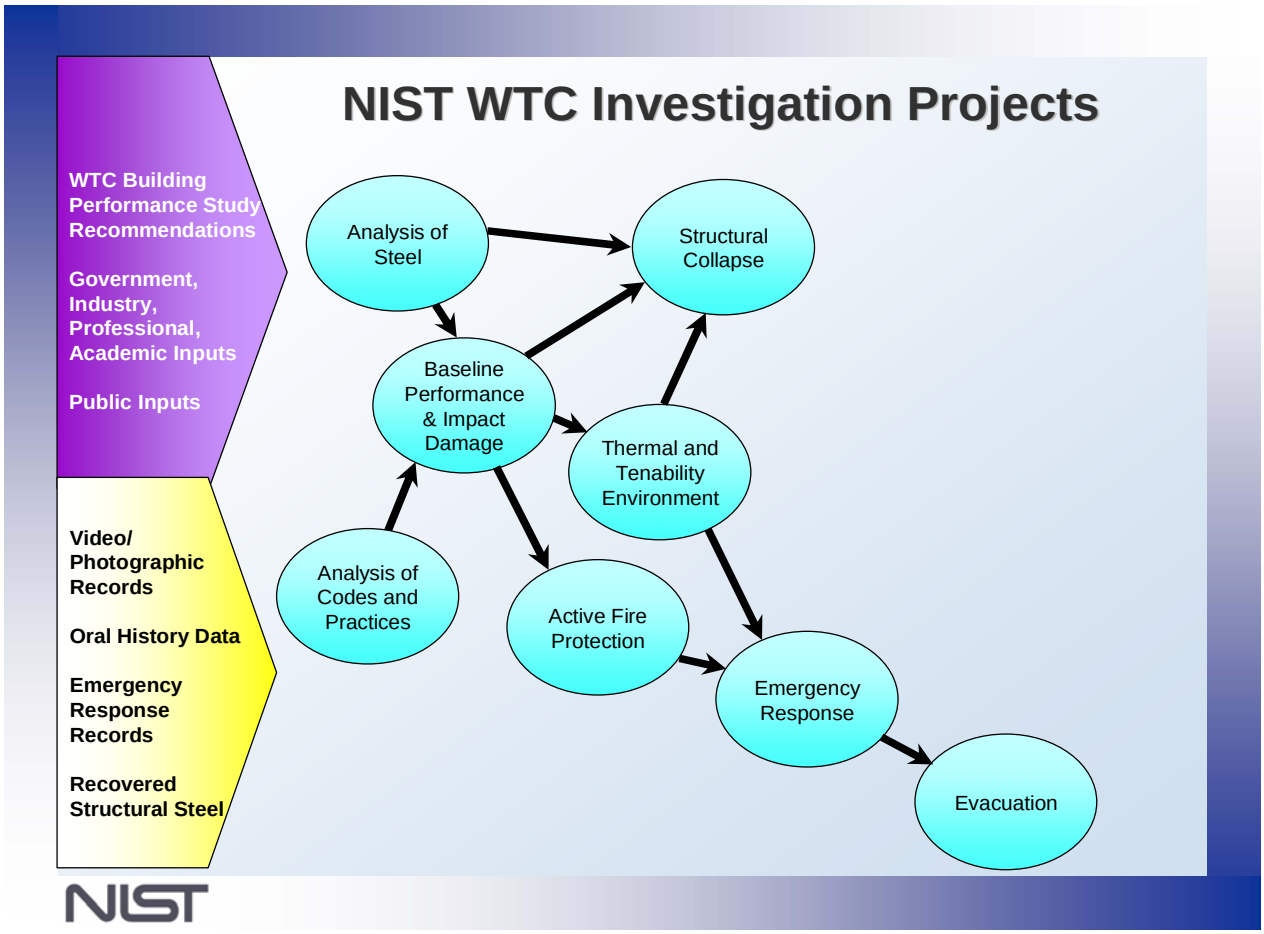

Figure P–1. The eight projects in the federal building and fire safety investigation of the WTC disaster.

National Construction Safety Team Advisory Committee

The NIST Director also established an advisory committee as mandated under the National Construction Safety Team Act. The initial members of the committee were appointed following a public solicitation. These were:

- Paul Fitzgerald, Executive Vice President (retired) FM Global, National Construction Safety Team Advisory Committee Chair
- John Barsom, President, Barsom Consulting, Ltd.
- John Bryan, Professor Emeritus, University of Maryland
- David Collins, President, The Preview Group, Inc.
- Glenn Corbett, Professor, John Jay College of Criminal Justice
- Philip DiNenno, President, Hughes Associates, Inc.

- Robert Hanson, Professor Emeritus, University of Michigan
- Charles Thornton, Co-Chairman and Managing Principal, The Thornton-Tomasetti Group, Inc.
- Kathleen Tierney, Director, Natural Hazards Research and Applications Information Center, University of Colorado at Boulder
- Forman Williams, Director, Center for Energy Research, University of California at San Diego

This National Construction Safety Team Advisory Committee provided technical counsel during the Investigation and commentary on drafts of the Investigation reports prior to their public release.

Public Outreach

During the course of this Investigation, NIST held public briefings and meetings (listed in Table P–2) to solicit input from the public, present preliminary findings, and obtain comments on the direction and progress of the Investigation from the public and the Advisory Committee.

NIST maintained a publicly accessible Web site during this Investigation at http://wtc.nist.gov. The site contained extensive information on the background and progress of the Investigation.

NIST's WTC Public-Private Response Plan

The collapse of the WTC buildings has led to broad reexamination of how tall buildings are designed, constructed, maintained, and used, especially with regard to major events such as fires, natural disasters, and terrorist attacks. Reflecting the enhanced interest in effecting necessary change, NIST, with support from Congress and the Administration, has put in place a program, the goal of which is to develop and implement the standards, technology, and practices needed for cost-effective improvements to the safety and security of buildings and building occupants, including evacuation, emergency response procedures, and threat mitigation.

The strategy to meet this goal is a three-part NIST-led public-private response program that includes:

- A federal building and fire safety investigation to study the most probable factors that contributed to post-aircraft impact collapse of the WTC towers and the 47-story WTC 7 building, and the associated evacuation and emergency response experience.
- A research and development (R&D) program to (a) facilitate the implementation of recommendations resulting from the WTC Investigation, and (b) provide the technical basis for cost-effective improvements to national building and fire codes, standards, and practices that enhance the safety of buildings, their occupants, and emergency responders.

Table P–2. Public meetings and briefings of the WTC Investigation.

Date	Location	Principal Agenda
June 24, 2002	New York City, NY	Public meeting: Public comments on the *Draft Plan* for the pending WTC Investigation.
December 9, 2002	Washington, DC	Media briefing on release of the *Public Update* and NIST request for photographs and videos.
April 8, 2003	New York City, NY	Joint public forum with Columbia University on first-person interviews.
April 29-30, 2003	Gaithersburg, MD	National Construction Safety Team (NCST) Advisory Committee meeting on plan for and progress on WTC Investigation with a public comment session.
May 7, 2003	New York City, NY	Media briefing on release of the *May 2003 Progress Report*
August 26-27, 2003	Gaithersburg, MD	NCST Advisory Committee meeting on status of WTC investigation with a public comment session.
September 17, 2003	New York City, NY	Media briefing and public briefing on initiation of first-person data collection projects.
December 2-3, 2003	Gaithersburg, MD	NCST Advisory Committee meeting on status and initial results and the release of the *Public Update* with a public comment session.
February 12, 2004	New York City, NY	Public meeting: Briefing on progress and preliminary findings with public comments on issues to be considered in formulating final recommendations.
June 18, 2004	New York City, NY	Media briefing and public briefing on release of the *June 2004 Progress Report.*
June 22-23, 2004	Gaithersburg, MD	NCST Advisory Committee meeting on the status of and preliminary findings from the WTC Investigation with a public comment session.
August 24, 2004	Northbrook, IL	Public viewing of standard fire resistance test of WTC floor system at Underwriters Laboratories, Inc.
October 19-20, 2004	Gaithersburg, MD	NCST Advisory Committee meeting on status and near complete set of preliminary findings with a public comment session.
November 22, 2004	Gaithersburg, MD	NCST Advisory Committee discussion on draft annual report to Congress, a public comment session, and a closed session to discuss pre-draft recommendations for WTC Investigation.
April 5, 2005	New York City, NY	Media briefing and public briefing on release of the probable collapse sequence for the WTC towers and draft reports for the projects on codes and practices, evacuation, and emergency response.

- A dissemination and technical assistance program (DTAP) to (a) engage leaders of the construction and building community in ensuring timely adoption and widespread use of proposed changes to practices, standards, and codes resulting from the WTC Investigation and the R&D program, and (b) provide practical guidance and tools to better prepare facility owners, contractors, architects, engineers, emergency responders, and regulatory authorities to respond to future disasters.

The desired outcomes are to make buildings, occupants, and first responders safer in future disaster events.

National Construction Safety Team Reports on the WTC Investigation

A draft of the final report on the collapses of the WTC towers is being issued as NIST NCSTAR 1. A companion report on the collapse of WTC 7 is being issued as NIST NCSTAR 1A. The present report is one of a set that provides more detailed documentation of the Investigation findings and the means by which these technical results were achieved. As such, it is part of the archival record of this Investigation. The titles of the full set of Investigation publications are:

NIST (National Institute of Standards and Technology). 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Final Report of the National Construction Safety Team on the Collapses of the World Trade Center Towers.* NIST NCSTAR 1. Gaithersburg, MD, September.

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EXECUTIVE SUMMARY

As part of the analysis of building and fire codes and practices of the National Institute of Standards and Technology (NIST) World Trade Center (WTC) Investigation, this report supports the effort by providing a summary of the relevant provisions of the Building Code of the City of New York (BCNYC) that was in effect at the time of the design of the WTC. This report also documents the requirements of the 1956 New York State Building Code that was amended through December 1, 1964; the 1966 edition of the Chicago Building Code; the 1965 edition of the Building Officials and Code Administration (BOCA) Basic Building Code (BBC); and the 1966 edition of the Code for Safety to Life from Fire in Buildings and Structures (National Fire Protection Association [NFPA] 101). The purpose of this report is to provide a comparison of these codes vis-à-vis the relevant requirements and to identify significant differences.

It has been previously established that WTC 1 and WTC 2 were designed and constructed in accordance with the BCNYC as enacted by Local Law 76 for the year 1968, effective December 6, 1968. The Building Code is a part of the Administrative Code of the City of New York.

The code requirements identified and compared in this report focus fire protection and life safety related issues. These include but are not limited to:

- Use and occupancy criteria.
- Height and area limitations and associated construction types.
- Fire resistance ratings for various building elements.
- Fire protection system requirements. (Project 1 focuses on the requirements for fire protection systems in the WTC buildings reflecting requirements in codes, standards, and practices. Project 4 focused on the design and performance on September 11, 2001, of the various fire protection systems.)
- Means of egress requirements including occupant load determination and egress capacity and travel distance limitations.
- Emergency lighting and power requirements.
- Elevator provisions in case of emergency.

It is important to note that NFPA 101 is focused in life safety and does not include general fire resistance requirements for construction in most types of occupancies as would typically be found in a building code. Fire resistance requirements in the 1966 edition of NFPA 101 are focused on maintaining egress and minimizing fire and smoke spread to allow for egress during fire emergencies.

Of the codes compared in this report, the then current BCNYC provided the most detailed and comprehensive requirements vis-à-vis the requirements addressed in the report. The level of detail is

apparent in the body of the code. The BCNYC also includes numerous reference standards that were based on nationally recognized standards at the time such as ASTM International (ASTM) and NFPA Standards. Some examples of detailed requirements found solely in the New York City Code were in the area of smoke and fire dampers and through penetration protection of fire rated assemblies.

While the requirements of the then current New York State Code were comparable to those of the New York City Code, they were less detailed and did not address many of the specific issues addressed by the BCNYC. An example of this is in the area of through penetration protection. The then current New York State Code had no specific requirements.

The then current Chicago Building Code is also not as detailed as the then current BCNYC. The one area that the then current Chicago Building Code was more restrictive than both the then current New York City and New York State Codes was in the area of fire resistance. Minimum fire resistance ratings for structural elements, floors, and exterior walls (where ratings are required based on separation distances) are required to be one hour higher by the Chicago Building Code. Columns under the then current Chicago Building Code would be required to be 4 h rated versus 3 h rated by the then current New York City or New York State Code.

The 1965 edition of BOCA provided more performance oriented requirements versus the then current BCNYC. The then current BCNYC and the 1965 edition of the BOCA Code both include numerous reference standards that were based on nationally recognized standards at the time such as ASTM and NFPA Standards. Examples of more detailed requirements found in the then current BCNYC compared to BOCA and NFPA 101 can be found in the sections on firestopping, through penetration protection of fie rated assemblies, interior finish criteria, and fire fighter communications related to standpipe use.

Chapter 1
INTRODUCTION

One of the goals of the World Trade Center (WTC) Investigation led by the National Institute of Standards and Technology (NIST) is to recommend appropriate revisions to current codes, standards, and practices used in the industry. Prior to recommending such changes, one of the objectives of the Investigation is to identify the codes and standards that were used during the design and construction of the WTC complex, identify local and national codes and standards that were available at that time, and identify areas in current building and fire codes, standards, and practices that warrant revision.

As part of the Investigation, it has been determined that WTC 1 and WTC 2 were constructed in accordance with the Building Code of the City of New York (BCNYC) that was enacted by Local Law 76 for the year 1968.

NIST reviewed and documented relevant provisions of the building codes for the WTC complex and summarized significant differences. This report provides a comparison of the 1968 (then current) BCNYC and other "local" and "national" building codes available at that time, including the New York State Building Construction Code Applicable to General Building Construction, the City of Chicago Building Code, the Building Officials and Code Administrators' Basic Building Code, and the National Fire Protection Association 101 Code for Safety to Life from Fire in Buildings and Structures.

The comparison is in tabular format and provides a comparison of the following fire protection and life safety related topics: building codes, reference standards, occupancies, construction, interior finish, means of egress, fire suppression systems, fire alarm, detection and signaling systems, elevators and escalators, emergency electrical and standby power systems, and special features such as parking garages and atria.

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Chapter 2
CODE COMPARISON AND SUMMARY OF SIGNIFICANT DIFFERENCES

This chapter summarizes key differences between the codes compared in this report. The side-by-side comparison of the requirements is provided in tabular format in Appendix A of this report.

2.1 GENERAL DIFFERENCES

The requirements of the 1965 edition of Building Officials and Code Administrators (BOCA) are more performance oriented than prescriptive in many areas of the document. The then current Building Code of the City of New York (BCNYC) is more prescriptive in its requirements. The requirements of National Fire Protection Association (NFPA) 101, Code for the Safety to Life, is focused on maintaining the integrity of egress elements and control of fire growth and spread to allow for occupant egress. Therefore, there are limited requirements for fire resistance of typical building elements as would be found in a typical building code. NFPA 101 is not intended to be used as a building code.

2.2 REFERENCED STANDARDS

The then current BCNYC and BOCA Code reference numerous nationally recognized standards that were available at the time, addressing areas of material testing, various building system installations, and system design. These referenced standards were incorporated as part of the BCNYC. The then current New York State Building Code and Chicago Building Codes did not have referenced standards as part of their codes. The State of New York published a Code Manual for the purpose of assisting with the application and enforcement of the State Building Code and they also published a list of "Generally Accepted Standards."

2.3 OCCUPANCY SEPARATIONS

The then current BCNYC included detailed requirements for treating mixed occupancy buildings which were not found in the other codes compared in this report. The Chicago Building Code did contain a specific requirement for a 4 h separation between buildings and below-grade public space (i.e., subways). There is no requirement of this nature in either the BCNYC or New York State Building Codes.

NFPA 101 permits the provision of fire sprinklers in lieu of 1 h fire rated construction for separations of occupancies having different hazard levels.

2.4 CONSTRUCTION

The then current BCNYC and New York State Building Codes allowed Type IA or Type IB construction for the World Trade Center (WTC) buildings. The then current Chicago Building Code would have required Type IA construction. The Chicago Building Code would require 4 h fire resistance ratings for

structural elements such as columns and bearing walls versus 3 h fire resistance required by the BCNYC or the New York State Building Code.

The BOCA Building Code allowed Type IA or Type IB construction for the World Trade Center buildings. Fire resistance rating requirements in the BOCA Building Code are almost identical to the then current New York City Building Code. One are of deviation is that the then current New York City building Code required 1 h fire rated tenant separations versus ¾ h fire rated tenant separations in BOCA. NFPA 101 does not contain construction requirements for the types of occupancies that were included in the WTC Buildings.

2.5 FIRE AND SMOKE DAMPERS

The then current BCNYC included comprehensive requirements for the use and installation of fire and smoke dampers. Smoke dampers were required at the main supply and return ducts. The other codes reviewed in this report did not have any requirements for fire and smoke dampers.

2.6 FIRESTOPPING AND THROUGH PENETRATION PROTECTION

The then current BCNYC included comprehensive requirements identifying when and where firestopping was required. The then current New York State Building Code addressed the issue in less detail and the Chicago Building Code had no requirements. NFPA 101 has limited requirements for firestopping (exterior and interior partitions at floor levels and unoccupied attic spaces) and does allow a trade off in this area for sprinklered concealed spaces.

2.7 INTERIOR FINISH AND SMOKE DEVELOPMENT RATINGS

The requirements for flame spread of interior finish are similar amongst the codes reviewed in this report. The then current BCNYC is more detailed in specifying requirements based on use of spaces and is the only code of those reviewed in this report that included requirements for maximum smoke development ratings for interior finish.

2.8 MEANS OF EGRESS

The then current BCNYC provided detailed requirements for the design of the various elements of the egress system. This includes detailed occupant loading criteria based on use, egress element widths, continuity of egress path, and criteria for horizontal egress. The then current New York State Building Code and Chicago Building Code did not have detailed requirements for the means of egress.

The then current BCNYC requirements for egress were consistent with the BOCA Building Code and NFPA 101 with minimal differences in technical requirements. The travel distance requirement of the then current BCNYC (200 ft) is less restrictive than BOCA (150 ft) but consistent with the requirement of NFPA 101.

Requirements for illumination of egress elements are most restrictive in the then current BCNYC (5 foot candle intensity) versus BOCA (3 foot candle intensity) and NFPA 101 (1 foot candle intensity).

2.9 FIRE SUPPRESSION SYSTEMS

The fire sprinkler requirements of the then current BCNYC and New York State Building Codes were driven by lack of means for exterior ventilation. The then current Chicago Building Code had no requirements for fire sprinkler protection. BOCA and NFPA 101 sprinkler requirements are driven by occupancy and area of that occupancy. Office occupancies did not require sprinkler protection by BOCA or NFPA 101. The then current BCNYC had specific design criteria within the code if a system was to be provided.

2.10 STANDPIPES AND WATER SUPPLY

The then current BCNYC and BOCA required standpipes and had detailed design and installation criteria incorporated in the code. The New York State Building Code required standpipes, but did not include design or installation criteria in the code. The then current Chicago Building Code was silent on the subject. NFPA 101 would not have required standpipes.

2.11 FIRE ALARM, DETECTION, AND SIGNALING SYSTEMS

Of the codes reviewed in this report, the then current New York State Building Code, BOCA and NFPA 101 required a fire alarm system in high rise office buildings. The BOCA requirement was triggered by height (75 ft) and the NFPA 101 requirement was driven by occupant load (greater than 200 people). The then current BCNYC and NFPA 101 had comprehensive requirements for installation of smoke detectors in heating, ventilating, and air conditioning equipment. The then current BCNYC also had requirements for a firefighter communication system with permanent telephones to provide communication between pump rooms, building entrance floor, gravity tank rooms, and at each floor near the main standpipe.

2.12 ELEVATORS AND ESCALATORS

The then current BCNYC contained the most comprehensive requirements for elevators among the codes reviewed in this report. Requirements also included application of elevators if areas of refuge were provided in buildings. Areas of refuge above the 11th floor were required to be served by at least one elevator. Emergency controls for fire department use were also required.

2.13 SMOKE AND HEAT VENTING

The then current BCNYC was the only code of the codes reviewed in this report that required smoke and heat venting of elevator, dumbwaiter, and other closed shafts including stairway enclosures. NFPA 101 required automatic smoke and heat venting for underground structures with occupant loads exceeding 1,000 people.

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Chapter 3
REFERENCES

City Publishing Center Department of General Services. 1968. The City of New York Building Code. New York, NY, December 6.

New York State Building Construction Code Applicable to General Building Construction. Effective May 1, 1956; amended April 1, 1961 and December 1, 1964.

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Appendix A
TABLE OF CODE COMPARISON AND SUMMARY OF SIGNIFICANT DIFFERENCES

The side-by-side comparison of the requirements from the different codes is provided in this appendix.

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	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
A.1 Building Codes						
	Building Code of the City of New York, (Title C of Chapter 26 of the Administrative Code as enacted by Local Law 76 for the year 1968, effective December 6, 1968)	NY State Building Construction Code Applicable to General Building Construction, effective May 1, 1956; amended April 1, 1961 and December 1, 1964	City of Chicago Building Code, 1966	BOCA Basic Building Code, 1965	1966 *Code for Safety to Life from Fire in Buildings and Structures*	
A.2 Reference Standards						
	RS 5-2 Standard Methods of Fire Tests of Building Construction Materials, ASTM E 119 - 1961; RS 5-5 Standard Method of Test for Surface Burning Characteristics of Building Materials, ASTM E84-1961, RS 5-8 Installation of Fire Doors and Windows, NFPA 80 - 1967; RS 13-1 Standard for the Installation of Air Conditioning and Ventilating Systems, NFPA 90A – 1967, as modified; RS 17-1 Standpipe Construction; RS 17-2 Standard for the Installation of Sprinkler Systems NFPA 13 - 1966, as modified; RS 17-3 Standards for the Installation of Fire, Sprinkler, Standpipe, Smoke Detection…and other Alarm and Extinguishing Systems; RS 17-5 Proprietary and Auxiliary Protective Signaling Systems, NFPA 72 – 1967; RS 18-1 USA Standard Safety Code for Elevators, Dumbwaiters, Escalators, and Moving Walks, USASI 17.1 - 1965 including Supplement A17.1a-1967, as modified;	N/A A Code Manual was published by the State Building Code Council to assist in the application and enforcement of the Code. The manual indicates and illustrates acceptable methods of compliance with the performance requirements set forth in the Code, but does not exclude other possible methods. The Code is the law; the Code Manual is not. As a further guide in determining compliance with the performance requirements of the Code, the Council also publishes a list of Generally Accepted Standards.	(Chicago did not require automatic sprinklers or fire alarms in office buildings of any height until 1975. At that time and to the present, Chicago permits sprinklers or compartmentation. The following is based on a non-sprinklered building)	NFPA 73 – 1964 NFPA 71 – 1964 NFPA 72 – 1964 NFPA 90A – 1964 NFPA 90B – 1964 NFPA 80 – 1962 NFPA 10 –1963 NFPA 23 – 1963 NFPA 13 – 1964 NFPA 14 – 1963 ASA A17.1 – 1960 ASTM E-119 NFPA 54 - 1963	NFPA 13-1966, NFPA 71 & 72-1964/5/6	The NYC Building Code provided significantly more specificity of requirements through the adoption of numerous national standards addressing design and construction of buildings and systems within buildings.

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
A.3 Occupancies						
Primary Occupancy	The building is classified in Occupancy Group E (Business) with a fire index of 2, based on the dominant use, and containing the following accessory uses (C26-301.1 through C26-301.3, C26-306.1): • C4.1 – low hazard, including parking garages • C4.2 – moderate hazard	Group C1 – Business (C202.11)	Class E, Business 48-6	Chapter 13-Office Occupancies, Ordinary hazard	Chapter 13-Office Occupancies, Ordinary hazard	
Secondary/ Accessory Occupancies	Occupancy Group B-1, Storage (Moderate Hazard), Fire Index: 3	Group C4 – Storage (C202.11)	Class H-3, Garage 48-9.3	Group B, Storage (Moderate Hazard) H204.1	Chapter 15-Storage Occupancies • General storage – Low hazard – Ordinary hazard • Garages	
	Occupancy Group B-2, Storage (Low Hazard, Garage), Fire Index: 2	Group C4 – Storage (C202.11)		Group B, Storage (Low Hazard) 204.2		The Chicago Building Code does not specifically classify storage as an occupancy in office buildings.
	Occupancy Group C, Mercantile, Fire Index: 2	Group C2 – Mercantile (C202.11)	Class F, Mercantile 48-7	Group C, Mercantile 205	Chapter 12-Mercantile Occupancies, Ordinary hazard -Class A: Stores with gross area of 30,000 ft^2 or more or more than 3 floor levels. -Class B: Stores more than 3,000 ft^2 but less than 30,000 ft^2 or using any floors above or below street level for sales. -Class C: Stores less than 3000 ft^2 and at street level.	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Occupancy Group F-4, Assembly (Restaurant), Fire Index: 1	Group C5 – Assembly (C202.11) Group C5.1 – not more than 600 persons, Group C5.2 – more than 600, but not more than 1500 persons, Group C5.3 – more than 1500 persons.	Class C-1, Large Assembly 300 or more persons 48-4.1 Class C-2, Small Assembly <300 persons 48-4.2	Group F-3, Assembly (Restaurant) 208.3	Chapter 8-Assembly Occupancies -Class A: 1,000 or more occupants. -Class B: 300 to 1,000 occupants. -Class C: 100 to 300 occupants.	
Occupancy Separation	Separate Building (Building Section) - Spaces classified in occupancy groups having a higher fire index than the occupancy group classification of the building shall be separated by "Fire Divisions" constructed in accordance with Section C26-504.1(a) and treated as separate buildings (C26-301.4(a)).	Requirements in Fire Separations below.	Requirements in Fire Separations below.	When mixed uses are completely separated from adjoining occupancies by fire divisions of the highest fire grading in Table 16, each part shall be classified by use. 213.3 E – 2 B–1 – 3 B-2 - 2 C –3 F-3 – 2 Table 16	1-h enclosure or sprinklers required for occupancies that are of a higher hazard classification relative to the building occupancy (6-5111).	NFPA 101 allows fire sprinklers in lieu of fire rated separation.
	Separate Spaces – Spaces classified in occupancy groups having the same or lower fire index than the occupancy group classification of the building shall be separated by "Fire Separations" constructed in accordance with Section 27-504.1(b).		Auxiliary use, 48-12.2 <5 % of principal use: no separation required >5 % of principal use when permitted by Building and Fire Commissioners: no separation required.	Higher hazard uses incidental to main use is to be separated in accordance with Article 4 213.2	Places of assembly must be protected from all neighboring occupancies by location, separation or protection. Language in appendix section indicates flexibility on approach to protecting the place of assembly. (8-1121).	
	Separations are not required between accessory business and mercantile activities limited in area to 100 ft^2, and closets 75 ft^2 or less in area (Table 5-1 notes b,c).		Auxiliary use is defined as spaces normally provided and incidental to the principal use and under the same management and control as the principal use.		Places of assembly must be separated from storage rooms by either automatic sprinklers or by 1 h construction (8-1731 c.)	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Multiple occupancy or use - When a building or space is used for multiple purposes at different times, the building/space shall be given a separate occupancy group classification for each of the activities. The design and construction shall be in accordance with the most restrictive provisions that apply to any of the classifications (C26-301.6).		4 h separation required to public space below grade (subway). 48-12.6	Two or more use groups have the provisions of the Basic Code that apply to each use applied separately. 213.1	Boiler rooms, refrigeration machinery rooms, etc. must be enclosed in 1 h construction and cannot be located under or adjacent to exits in assembly areas (8-1731 a.)	The Chicago Building Code requirement for a 4 h separation to public space below grade was unique. The specificity of the NYC Building Code regarding the treatment of mixed use buildings was unique at the time.
	A minor variation of occupancy or use of a space is acceptable without multiple classifications if the variation is normally associated with the occupancy classification and no specific danger or hazard is created (C26-301.6).			No requirements.		
A.4 Construction						
Construction Classification	Noncombustible Construction Group I, Class IA or Class IB (unsprinklered building with unlimited height and area) in accordance with Section C26-313, C26-314 and Table 3-4 (C26-316.1, C26-403.1, C26-405.1, C26-406.1).	Noncombustible Construction, Fire Resistive Type 1a or Type 1b Permits unlimited height and fire area (C202-2, Table C202.2, C203-1(e), Table C203-1a)	Tables 51-1.2 & 51-1.3 Type I-A non-combustible fire resistive construction permits unlimited height and area except for Class F mercantile and Class H-3 garage.	Class 1A or 1B (unsprinklered building with unlimited height and area). Table 6	Not addressed for applicable occupancies and building types.	A Type I-A Construction Building under the Chicago Building Code requires some building elements to have a higher fire resistance rating than a Type IB Construction Building as defined by the NYC or NY State Building Codes. These differences are noted below.

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code		Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	This classification is based on Occupancy Group E (Business) building and Occupancy Groups B-1 (Storage, Moderate Hazard) and B-2 (Storage, Low Hazard, Parking Garage) spaces. These classifications permit unlimited height and area for the occupancy groups involved.		Height and fire area based on Group C1 occupancy (low hazard) Buildings of group C1 occupancy are classified as low hazard (C202-3(a)).	Class F is limited to a base area of 30, 000 ft^2 with a 100 % increase for automatic sprinklers and up to a 100 % increase for perimeter access. These are cumulative. For buildings over 8 stories, the area is reduced by 35 % Maximum area for Class F is 78,000 ft^2.	This classification is based on Occupancy Group E (Business) building and Occupancy Groups B-1 (Storage, Moderate Hazard) and B-2 (Storage, Low Hazard, Parking Garage) spaces. These classifications permit unlimited height and area for the occupancy groups involved.			
	The building is located inside the Borough of Manhattan Fire District without additional restrictions imposed based on its use and occupancy (C26-402.1, C26-403.1).		Fire Limits A comprising areas containing highly congested business and commercial occupancies, wherein the fire hazard is severe. (C401-2.1)	For Class G-3, base area is 25,000 ft^2 with a maximum area of 65,000 ft^2. Regardless of above, basements (all occupancies) are limited to 40,000 ft^2 between fire walls 51-2.4	No requirements.			
Minimum Fire Resistance Ratings	**Element (Table 3-4)** (Construction **Class IB**)	**Hours**	**Structural Element** Type 1b Fire-resistive (Table C202.2) Hours	Table 49-8	Element (Table 5) Type 1B		Not addressed for applicable occupancies and building types	
			Fire-resistance ratings of structural members shall be determined in conformity w/ generally accepted standard fire test procedure.					
	Exterior Walls				Exterior Walls			
	Bearing	3	3	Exterior bearing walls 4 h	Bearing	3		Chicago Building Code requirement for 4 h rated exterior bearing walls was unique. Exterior bearing walls are not common in high rise buildings.
				(Unprotected openings permitted > 12 ft separation 62-2.4)				

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code		Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Nonbearing (based on exterior separation):		(see Table C401-3.2 for minimum distance separations and Sec. C401-3.3(b))	Exterior non-bearing walls (based on exterior separation)	Nonbearing (based on exterior separation)			
	3 ft or less with 0 % openings.	2	2 (less than 5 ft)	2 h < 30 ft separation	6 ft or less	3 Bearing 2 Non-bearing		
	Greater than 3 ft up to less than 15 ft with 3½ % protected openings.	2	2 (5 ft to less than 10 ft) 0 h (with 3 ft spandrel) (10 ft or more)	2 h < 30 ft separation (Unprotected openings permitted > 12 ft separation)	Greater than 6 ft up to less than 11 ft	3 Bearing 2 Non-bearing		
	15 ft to less than 30 ft with 3½ % openings.	1½	0 h (with 3 ft spandrel) (10 ft or more)	2 h < 30 ft separation (Unprotected openings permitted > 12 ft separation)	11 ft to less than 30 ft	3 Bearing 1½ Non-bearing		NYC – 1.5 h NYS – 1 h Chicago – 2 h
	30 ft or greater with unlimited openings.	NC	0 h (with 3 ft spandrel) (10 ft or more)	1 h > 30 ft separation (Unprotected openings permitted > 12 ft separation)	30 ft or greater with unlimited openings.	NC		
	Fire Divisions				Fire Divisions	Table 16		
	Between Group B-1 and B-2, C, E or F-4.	3						
	Fire Separations		(Sec C402-4 and Table C402-4)					

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code		Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Between Groups E and B-2, C or F-4.	No requirements.	C1 and C2 – 3 h C1 and C4.1 – 2 h C1 and C4.2 – 3 h C1 and C5.1 – 2 h C1 and C5.2 – 3 h C1 and C5.3 – 4 h	Table 48-12.5 H-3 to C-1, 4 h with no openings between them H-3 to C-2, 4 h H-3 to E, 2 h H-3 to F, 3 h E to F, none required E to C-1, 4 h E to C-2, 2 h F to C-1, 4 h F to C-2, 2 h				NYC – No ratings NYS – 2 to 4 h
	Tenant Separations	1	1 (also C402-4)	2 h every 10,0000 ft^2 62.5	Tenant Separations	¾		Chicago – 2 h fire rated separation required every 10,000 ft^2.
	Constructed as Fire Separations continuous through concealed spaces of floor or roof construction above.				Constructed as Fire Separations continuous through concealed spaces of floor or roof construction above.	2		
	Interior bearing walls and partitions.	3	3	4 h Table 49-8	Interior bearing walls and partitions.	3		Chicago – 4 h
	Vertical exits and exit passageways (C26-604.8).	2	2 h on outside exposure 1 h on inside exposure	2 h > 3 stories 62-3.1 1 h < 4 stories	Vertical exits and exit passageways	2	2 h vertical exits required for noncombustible buildings 4 or more stories in height (601114). Exit passageways must be 2 h rated in buildings over 3 stories in height (5-7121(b)).	

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code		Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Separation of above and below grade portions in common enclosures (C26-602.4)	1	1 or 2 h (based on exposure) (C212-6(e), C402-4.6(g))		Separation of above and below grade portions in common enclosures			No comparable requirement in the Chicago Building Code.
	Hoistways and shafts (C26-504.6, C26-1800.6).	2	2	Hoistways 2 h 62-3.3 Shafts 1 h 62-3.4	Hoist ways and shafts	2	2 h shafts required for noncombustible buildings 4 or more stories in height (6-1113)	
	Columns, girders, trusses (other than roof trusses) and framing.			Columns	Columns, girders, trusses (other than roof trusses) and framing.			
	Supporting one floor.	2	2	- Exterior 4 h - Interior supporting floor 4 h - Interior supporting roof only 3 h	Supporting one floor.	2		Chicago – 4 h
	Supporting more than one floor.	3	3	Beams, girders, trusses Supporting roof only 2 h Supporting floor 3 h	Supporting more than one floor.	3		
	Structural members supporting walls.	3			Structural members supporting walls.	3		
	Floor Construction, including beams.	2	2	Floor construction 3 h	Floor Construction, including beams			Chicago – 3

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code		Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Ceilings that contribute to the required rating shall be continuous between exterior walls, vertical fire divisions or vertical partitions having the same rating as the ceiling (C26-502.5).							
	Roof construction including beams, trusses and framing, arches, domes, shells, cable supported roofs and roof decks (based on height of lowest member above floor).				Roof construction including beams, trusses and framing, arches, domes, shells, cable supported roofs and roof decks (based on height of lowest member above floor).			
	15 ft or less	1½	1	2 h	15 ft or less	1½		
	Greater than 15 ft up to 20 ft	1	1	1 h	Greater than 15 ft up to 200 ft	¾		
	20 ft or greater	NC	0 (C402-3(c))	NC	20 ft or greater	0		
	Exit access corridors (C26-604.2(h)).	1	1	1 h w/unlimited ¼ plate glass. 62-5	Exit access corridors	2		
	Area of refuge separation (C26-604.5, C26-604.6).	2			Area of refuge separation	2		NYC Building Code requirements addressing areas of refuge were unique.
	Escalators not used as exits (C26-604.11).	¾	0 (C211-1(b), C402-4.6)	6 ft sprinkler spacing w/18 in. draft curtain 62-3.3	Escalators not used as exits	No requirements.		
	Escalators that connect two stories may be unenclosed.		Stairs used as intercommunicating or access stairs between not more than 2 floors need not be enclosed		Escalators that connect two stories may be unenclosed	No requirements.		

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
Minimum Fire Resistance Ratings of Enclosures	Transformer vaults (greater than 35,000 V) (NEC).	3		Heating plants and boilers >15 psi & 10 HP or >200 people in building, 2 h, otherwise 1 h 62-4	Addressed above	Addressed above in "Occupancy Separations."	
	Emergency generator and fire pump rooms.	2					
	Storage rooms (B-1) greater than 75 ft^2 (Table 5-1 note c).	1					
Protection of Openings	Openings in a 3 h rated Fire Division or Fire Separation wall (Class "A") (C26-504.4 and Table 5-3).	3	3 (C402-4.10, Table C402-4.10)	Openings in 4 h wall, double Class "A" doors 62-1.5	3 908.3	Fire doors must be installed in accordance with NFPA 80 -1966 edition (6--6112).	
	Openings in 2 h or 1½ h rated Fire Division or Fire Separation wall or vertical communication enclosure (Class "B") (C26-504.4, Table 5-3, C26-604.4(a), C26-1800.6).	1½	1½	Openings in stair enclosures "B" 62-3.6	1½ 908.4	Smoke stop doors must self-closing metal or metal covered or of treated wood construction and with wired glass panels permitted (6-6111).	
	Openings in 1 h rated vertical communication enclosure (Class "B).	1		Openings in corridors equal to or > 1.75 in. solid slab doors or noncombustible doors. 62-5	1	Hazardous enclosures require self-closing or automatic fire doors (6-5112).	
	Openings in 1 h rated Fire Division or Fire Separation walls, corridors or partitions (Class "C") (C26-504.4, Table 5-3, C26-604.4(b)).	¾	¾		1	Fire doors must be positive latching. Smoke stop doors are not required to be positive latching (6-6113).	
	Non-combustible mail slots not exceeding 40 in.^{2} may be provided in corridor doors (C26-604.4(b)).		No requirements.		No requirements.		

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Non-combustible louvers may be installed in corridor doors opening into toilets, service sink closets and electrical closets (C26-604.4(b)).				No requirements.		
	Required protected openings in exterior walls (Class "E" or Class "F") (C26-503.1(b)).	¾			Required protected openings for other than F-4, L-2 and L-3, or Type 4 construction 916		
	Openings in Fire Divisions and Fire Separations shall not exceed the size limits in Section C26-504.4(a).		Openings shall not exceed 120 ft^2 (240 ft^2 w/ sprinklers) or an aggregate width of 25 % of the length of the wall (C402-4.10i)		Openings in Fire Divisions and Fire Separations shall not exceed the size limits in 908.1 and 910.3		
	In shafts that contain only one opening below the roof, no opening protective is required (C26-504.6(c)).				Shall be in accordance with Article 8 and Table 5		
	Exterior street floor exit doors with a fire separation distance of more than 15 ft need not have a fire resistance rating (C26-604.4(a)(1).				Required protectives may be omitted for openings facing street or 30 ft wide public way and not more then 25 ft above grade 916.4		
Fire and Smoke Dampers	Fire dampers shall be provided in accordance with Reference Standard 13-1, NFPA 90A-1967 (C26-504.5(a)).				Fire dampers shall be provided in accordance with Reference Standard NFPA	Required to have means of control of smoke spread in AC systems serving Class A assembly or Class A store; smoke damper could serve this purpose (7-1123).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Duct penetrations of walls with a 2 h fire resistance rating or greater (RS 13-1 §902(a)).			Openings in fire partitions need to have opening protectives in accordance with 903 and 918 909.42	Fire dampers required in HVAC systems that serve more than one floor or fire area (7-1122).	
	Each opening in required vertical shaft enclosures (RS 13-1 §902(b)).			Openings in shafts shall be protected with approved fire doors, curtains, shutters, or fixed metal sash with wired glass. 911.7	HVAC systems shall be installed in accordance with NFPA 90A – 1966 edition; fire damper location and smoke damper locations in NFPA 90A shall be followed (7-1111).	
	Each outlet or inlet opening in vertical shaft enclosure of duct systems serving two or more floors (RS 13-1 §902(c).			See above.	Automatic fire doors (Class A) must be provided at fire walls (NFPA 90A 131).	
	As an alternate, dampers may be provided at each point where the vertical duct pierces a floor it serves (RS 13-1 §902(c).			See above.	Fire damper at fresh air intake (NFPA 90A 136).	
	Branch duct penetrations of vertical duct shaft enclosures (RS 13-1 §902(c).			See above.	Fire damper at duct shaft enclosures (NFPA 90A 135).	
	Fresh air intakes (RS 13-1 §902(e)).			Installed not less than 12 ft above grade located less than 30 ft exposure distance shall be protected with approved opening protectives.	Fire damper at fire partition penetrations (NFPA 90A 134).	
	Aluminum or Class I duct penetrations of fire resistance rated floors (RS 13-1 §902(d)).			No requirements.	Smoke dampers (or other means of smoke spread control) on main supply and return ducts suggested for systems over 15,000 cfm that serve large numbers of people or have valuable contents (NFPA 90A 135 (b)).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Fire dampers are not required at the following locations (RS 13-1 §903).			No exceptions.		
	Non-aluminum or Class I vertical shaft branch duct penetrations with a cross-sectional area of less than 20 $in.^2$ which supply only air conditioning units discharging air at not over 4 ft above the floor (RS 13-1 §903(a)).			No requirements.		
	Non-aluminum or Class 1 duct penetrations of a floor (at one place only) with a cross-sectional area of less than 20 $in.^2$ which supply air conditioning units in one story only that discharge air at not over 4 ft above the floor (RS 13-1 §903(b)).			No requirements.		
	Duct penetrations in systems serving only one floor and used only for exhaust to the outside and not penetrating a fire wall or fire partition or passing entirely through the vertical shaft enclosure (RS 13-1 §903(d)).			Exterior exhaust openings shall be located not less than 12 ft above grade and not less than 20 ft from a fire escape stairway or other required exit.		
	Branch ducts connected to a return riser where subducts are extended at least 22 in. upward (RS 13-1 §903(e)).			No requirements.		
	Fire dampers shall be automatic closing 1½ h fire rated with a fusible link or other heat actuated device rated approximately 50 °F above the maximum system operating temperature (RS 13-1 §905(a) and §905(g)).			No requirements.		
	Duct openings permitted in fire resistance rated ceilings shall be protected with fire dampers (C26-502.5(a)).			Duct openings permitted in fire resistance rated ceilings shall be protected with fire dampers (913.2).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Smoke dampers shall be installed in the main supply duct and the main return duct in systems over 15,000 cfm capacity (RS 13-1 §1003).			No requirements.		
	Smoke dampers shall be arranged to close automatically when the system is not in operation, by the operation of duct smoke detectors, and by the manual emergency fan stop (RS 13-1 §1003).			No requirements.		
Firestopping	All firestopping or fill materials shall consist of approved noncombustible materials that can be shaped, fitted and permanently secured in place (C26-504.7(a)).	Firestopping or fill shall be nonflammable material shaped and fitted and permanently secured in position. (C402-5.2)	Only mentioned for ducts <9 ft^2 not in shafts. Space around ducts to be filled with noncombustible material securely held in place. 62-3.4	All fire stopping or fill materials shall consist of approved noncombustible materials that can be shaped, fitted and permanently secured in place (921.2).	The following concealed spaces that have materials with a flame spread rating greater than Class A must be fire-stopped unless they are sprinklered (6-1311):	The NYC Building Code included the most comprehensive requirements for firestopping.
	Concealed spaces within partitions, walls, floors, roofs, stairs, furring, pipe spaces, column enclosures, etc. that would permit passage of flame, smoke, fumes or hot gases from floor-to-floor shall be firestopped or filled with noncombustible material in the following locations (C26-504.7):	Concealed spaces within walls, partitions, floor, stair, around duct openings, etc. shall be firestopped or filled with noncombustible materials to prevent the passage of flame, smoke, fumes and hot gases. (C402-5.1)		Shall be designed and constructed to close all concealed draft opening for subdivision of attics, combustible wall partition and floor framing, ceiling spaces, open spaces behind finishes, floor sleeper spaces, pipes, ducts and for fire dampers and curtains.	Exterior and interior walls and partitions must be fire-stopped at each floor level.	
	Hollow partitions and furred spaces			See above.	Space between the ceiling and floor above for full depth of the space along the line of support for the floor or roof structural members. Areas formed must be 1,000 ft^2 or less and up to 3,000 ft^2 between ceiling and roof.	
	Concealed spaces within stair construction.			See above.		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Ceiling spaces within rated floor or roof assemblies			See above.		
	Exterior cornices			See above.		
	Duct and pipe spaces (C26-504.5 and RS 13-1 §313, §314)			See above.		
	Hollow vertical Fire Division (C26-504.2(i))			See above.		
	The concealed space above a fire resistance rated ceiling shall be firestopped into areas not exceeding 3,000 ft^2 (C26-502.5), except where:			See above.		
	Structural members within the concealed space are individually protected, or			Structural members within the concealed space are individually protected.		
	The concealed space is sprinklered.			No requirements.		
Through Penetration Protection	Noncombustible pipes and conduits may pass through fire resistance rated construction provided the following (C26-504.5):			Protect in accordance with 921.1	Not addressed.	The NYC Building Code was unique with its comprehensive requirements for through penetration protection.
	Space between the pipe or conduit and its sleeve or opening does not exceed ½-in. and is packed with noncombustible material.			Space between the pipe or conduit and its sleeve or opening does not exceed ½ in. and is packed with noncombustible material 1117.1.		
	Close-fitting metal escutcheons are provided on both sides of the construction.			No requirements.		
	Aggregate net area of openings does not exceed 25 $in.^2$ in any 100 ft^2 of wall or floor area.			No requirements.		
	Openings in excess of this limit are not permitted unless tested as part of a rated assembly and so protected.			No requirements.		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Ceilings required to have a fire resistance rating may be pierced to accommodate noncombustible electric outlet boxes, recessed lighting fixtures, pipes and ducts as follows (C26-502.5(a)):			Ceilings required to have a fire resistance rating may be pierced to accommodate noncombustible electric outlet boxes, recessed lighting fixtures, pipes and ducts as follows 913.2		
	The aggregate area of outlet boxes and lighting fixtures does not exceed 16 in.^{2} in each 90 ft^2 of ceiling area.			The aggregate area of such openings in the ceiling shall be not greater than 100 in.^{2} in any 100 ft^2		
	Outlet boxes and lighting fixtures are constructed of steel at least .022 in. thick and sealed tightly at the ceiling.			No requirements.		
	Additional or larger services are permitted only when tested as part of the assembly and protected as provided in the test.			No requirements.		
	The concealed space above fire resistance rated ceilings may be used as a supply and return air plenum if tested for that purpose (RS 13-1 §316), provided:			The concealed space above fire resistance rated ceilings may be used as a supply and return air plenum 1814.1		
	All openings are tested as part of the assembly and protected in the test,			No requirements.		
	The integrity of firestopping is not destroyed,			No requirements.		
	No combustible materials are incorporated in the floor and ceiling construction, and			No requirements.		
	Electrical wiring complies with NEC NFPA 70 §300-22).			No requirements.		

	Then Current NYC Building Code		Then Current NY State Building Code		Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code		Summary of Significant Differences
A.5 Interior Finish									
Interior Finish and Flame Spread Ratings	Exits and shafts (C26-504.10(c), Table 5-4, C26-604.8 (i)(3)):	Class A (0-25)	Exit stairway, passageways (C403-2, C403-3b)	Class A (0-25)	62-9.3 Class 1 0-15 Class2 16-30 Class 3 31-60 Class 4 61-160	Class I Table 16B			NYC and NYS same. The Chicago Building Code used different classifications. However, requirements are similar. The NYC Building Code is more detailed in its requirements.
								Class B; Class C if sprinklered	
	Corridors (C26-504.10(c), Table 5-4, C26-604.2(k)):		Corridors and passageways not part of enclosed exit (C403-3b)	Class A or B	Stairs, elevator shafts and stair connections to outside, Class 1 62-9.5		Class B		
							Business - including corridors (13-132)	Class A	
	Group B-1:	Class A (0-25)	See above.		Business, Class 3, 62-9.5	Class III Table 16B	Mercantile (12-132)	Class A	
							Assembly , including exit access (8-172)		

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code		Summary of Significant Differences
	Groups B-2, E, F-4	Class A or B (0-75)	See above.	Assembly and Mercantile >100 people, Class 1	Groups B-2 E Class III Table 16B	Storage	Ceilings-Class B; Class C if sprinklered Walls-Class C Exposed structural members may be heavy timber	
					F-3 Class II Table 16B	Other spaces	Class B Exposed structural members may be heavy timber	
	Group M:	Class A or B (0-75)	See above.	Public lobbies, Class 1, 62-9.5	Group C Class III Table 16B	Mercantile – Class A or B Store	Class C Exposed structural members may be heavy timber	
								Assembly - Class A & B places of assembly
	When used in corridors, Class B finish material shall not extend more than 50 ft between separations of Class A finish material that are at least 2 ft wide (Table 5-4 note b).			Class 4 permitted up to 5,000 ft^2 in each 2 h compartment. 62-9.5	No requirements.	Where Class A or B interior finish is required, up to 10 percent of wall and ceiling areas may be Class C (6-2141).		Assembly – Class C place of assembly
	Spaces through which it is necessary for occupants of an adjacent room to pass in order to reach the only exit are considered as corridors.				No requirements.	Class E interior finish is discouraged; where permitted by AHJ, Class E interior finish cannot exceed 10 percent of wall and ceiling areas (6-2153).		
	Rooms and enclosed spaces:				No requirements.			

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Rooms greater than 1,500 ft² (C26-504-10(c), Table 5-4):				No requirements.		
	Groups B-1, B-2, F-4	Class A or B (0-75)			See above.		
	Group E	Class A, B or C (0-225)			See above.		
	Rooms less than 1,500 ft² (C26-504.10(c), Table 5-4):				No requirements.		
	Group F-4	Class A, B or C (0-225)			See above.		
	Groups B-1, B-2, E	Class A, B or C (0-225)			See above.		
	Interior finish in kitchens, cooking spaces, pantries, repair and maintenance shops, boiler rooms and incinerator combustion rooms shall be Class A or B (0-75) (Table 5-4 note f).		Kitchen, pantries, repair and storage rooms – Class A or B. (C403-3c)		No requirements.		
			When sprinkler system is provided, Class B permitted where Class A required and Class C permitted where Class B required (C403-3)				
Smoke Development Ratings	25 or less in exits and corridors.				No requirements.	Not required.	The NYC Building Code was unique in having requirements for smoke development ratings. Requirement in NYC only
	100 or less in rooms where the net floor area per occupant is 10 ft² or less.				No requirements.		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	No material shall be used in any interior location that upon exposure to fire will produce products that are more toxic in point of concentration than those given off by wood or paper (C26-504.10(e)).			No requirements.		
Interior Trim	Up to 20 % of the aggregate wall and ceiling area of any room or corridor may be finished with Class A, B or C (0-225) materials and be exempt from the smoke developed rating requirements (C26-504.10 (c)(4), C26-504.10 (d)).	Use of interior trim (C403-4). Attachment of interior finish and trim (C403-5).	Exit enclosures and exit connections, Class 2, 62-9.6 Assembly rooms >1,000 persons, Class 2, 62-9.6 All other rooms and spaces, Class 4, 62-9.6	No requirements.	Addressed above in "Interior Finish."	
	This allowance shall include the area of doors, folding partitions, windows, glazing, skylights, luminous ceilings, trim, bases, chair rails, panels, moldings, etc.			No requirements.		
Finish Flooring	Finish flooring in all exits shall be of noncombustible material (C26-504.13, C26-604.8(h)).		Wood applied directly to noncombustible floor construction or to sleepers with all spaces filled with noncombustible material in buildings >100 ft in height. Composition flooring not exceeding 0.5 in. thickness may be used. 62-10.3	Finish flooring in all exits shall be of noncombustible material (924.0).	Finish flooring and floor coverings are exempt from interior finish requirements (6-2112).	
	In all other areas, combustible finish flooring may be used when installed in accordance with Section C26-504.13 (b).	Wood finish flooring shall be attached directly to noncombustible floor construction or to wood subfloor fastened to wood sleepers or over insulation board (C403-5f).		In all other areas, combustible finish flooring may be used when installed in accordance with (924.0).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
A.6 Means of Egress						
General	Clear width measurement is the net, unobstructed width of a means of egress without projections in such width (C26-604.2(a), C26-604.3(b)).		Doors – nominal width Stairs – clear width with 4 in. projection on each side permitted. 67-7.3	No requirements.	Clear width measurement is the narrowest point in means of egress. A handrail may project into the measured width on each side by not more than 3½ in. A stringer may project by not more than 1½ in. (5-1152).	The NYC Building Code requirements addressing exits are more detailed as illustrated below.
	In corridors, projections up to 18 in. wide to the extent of 2 in. per unit of egress width are permitted if the total area of such projections does not exceed 5 % of the area of the wall on which they occur (C26-604.2(a)).		Corridors – Clear width with zero tolerance door projection when open to any position. 67-7.3	No requirements.		
	Handrails shall project not more than 3½ in. and stringers 2 in. (each side) into the required stair width (C26-604.8(b), C26-604.8(f)).			Projection of handrails to be not more than 3½ in. (618.5).		
	Corridor and exit passageway minimum height 7 ft - 6 in. for at least 75 % of the floor area with no point less than 7 ft (C26-604.2(b), 604.3(c)).	Minimum floor to ceiling height of 7 ft-6 in. (C212-2a)	7 ft in stairs. Other areas not mentioned. 67-10.6	A minimum clear ceiling height of 8 ft (613.2).	Ceiling height must be at least 7 ft 6 in. (5-1231).	NYC min. 7 ft 6 in. BOCA min. 8 ft NFPA min 7 ft 6 in.
	Projections from the ceiling shall be at least 7 ft above the floor and located so as not to obstruct full view of exit signs (C26-604.2(b), 604.3(c)).			No requirements.	Projections from ceiling are required to be at least 6 ft 8 in. from floor (5-1231).	NYC min. 7 ft above floor NFPA min. 6 ft 8 in. above floor
	Changes in elevation in means of egress:					
	Changes in level requiring less than two risers in a corridor or exit passageway shall be by a ramp (C26-604.2(e), C26-604.8(d)(2)).			No requirements.	Changes in level must be negotiated with stairs or ramps (5-1206).	
	Obstructions to means of egress:					

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	The required width of a means of egress shall not be obstructed or reduced in any manner (C26-604.2).			It shall be unlawful to obstruct, or reduce in any manner the clear width of any doorway, hallway, passageway or any other exit way (607.1.).		
	Corridors shall be kept free of combustible contents (C26-604.2).			No requirements.		
	All exterior means of egress elements, including exterior corridors and stairs, shall be maintained free of ice and snow accumulation (C26-604.2, C26-604.9).			All exterior means of egress elements, including exterior corridors and stairs, shall be maintained free of ice and snow (607.3).		
	Corridors may be used as supply or return air ducts or plenums if equipped with an approved smoke detector or thermostatic device to shutdown fans (C26-604.2(j), RS 13-1 Sec. 316(d).			In all corridors, hallways or exit ways which are used as return exhaust of air conditioning systems, an approved smoke detector or other device shall be provided to automatically and instantaneously stop the exhaust fan in the presence of smoke (1814.6).		
	Stairways connecting two or more stories shall not be used as plenums (RS13-1 Sec. 316(e)).					
Exits	Every floor area shall be provided with at least two approved independent exits (C26-603.2).		2 exits from every floor. 67-4	Every floor area shall be provided with at least two approved independent exits (611.1).	Every floor must have at least two exits for the occupancies and building configuration considered, including parking garages; more exits are required from Class A and Class B places of assembly (8-122 12-124 13-125	The NYC Building Code contains more detailed requirements.
	Public garages shall be provided with at least two exits from each tier of parking (C26-709.8).	Each fire area in excess of 5,000 ft^2 of a garage shall be provided with 2 exits (C213-1d).		No requirements.	Storage floors areas may have one exit if they are less than 15,000 ft^2 in area or have less than 10 persons present (15-1211).	

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	A minimum of two exits or exit access doors shall be provided from every room or space in which the occupant load exceeds the following limits (C26-603.1):			Number of exits per room only required for assembly occupancies	In business buildings not over 3 stories in height of 4,000 ft^2 in area or type 1 construction or protected noncombustible (type 2-A) construction and in other construction types not more than 2 stories in height nor more than 3,000 ft^2 in area one exit stairway is permitted (611.32) Every room with an occupancy of more than 75 or exceeds 1,500 ft^2 in area, shall have at least 2 exit doorways ((614.1)).	One exit is permitted from street level Class C Mercantile occupancies that have no portion of the store that is not within 50 ft of from the street door (12-1244)	
	Occupancy Group	Occupant Load					
	B (Storage)	50			See above.	One exit is permitted from street level office spaces having less than 100 occupants and a maximum travel distance of 100 ft	
	C (Mercantile)	75			See above.		
	E (Business)	75			See above.		
	F (Assembly)	75			See above.		
	All required exits shall be located such that they are clearly visible, accessible and unobstructed access at all times C26-602.1).				Direct access shall be provided to stairways or other required means or egress through continuous passageways, aisles, or corridors, conveniently accessible to all occupants and maintained free of obstruction. (612.1).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	In multi-tenant configurations, each tenant shall have access to the required numbers of exits without passing through other tenant spaces (C26-602.2).					
	Whenever more than one exit or exit access is required from any room, space or floor of a building, they shall be located as remote from each other as practicable (C26-602.3).		Whenever more than one exit is required they shall be placed as far apart as practicable. 67-5.2	Whenever more than one exit or exit access is required from any room, space or floor of a building, they shall be located as remote from each other as practicable (609.2).	Exits must be remote from each other as practicable; no specific separation distances for exits.	
	Door openings to scissor stairs shall be at least 15 ft apart (C26-602.3).					
	All vertical exits shall extend in a continuous enclosure to discharge directly to an exterior space or at a yard, court, exit passageway or street floor lobby of the required width and size to provide all occupants with a safe access to an open exterior space (C26-602.4).		No requirement that stairs discharge directly to the outside.	Every required interior and exterior stairway, which does not adjoin a street, shall be directly connected to the street or to an open court leading to the street be unenclosed passageway, hallway, lobby or other unobstructed exit way (613.1)	Exits must be continuous to the exterior, except for sprinklered street floors that have a 2 h fire rated floor slab at street level (5-1222) and: -In Mercantile occupancies, 50 percent of required exit units can discharge on the street floor provided that the travel distance on the street floor is 50 ft or less. (12-1271). -In fully sprinklered Office occupancy buildings, 50 % of required exit units can discharge on the street floor provided that the travel distance on the street floor is 50 ft or less (13-1271). -Not permitted for Assembly and Storage occupancies.	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	A maximum of 50 % of the required number of vertical exits is permitted to discharge through a single exit passageway (C26-604.3).			No requirements.		
	100 % of the number of vertical exits may discharge through a street floor lobby if egress is provided in two different directions from discharge points to open exterior spaces remote from each other (C26-604.3(h)(1)).			No requirements.		
	The clear width of an exit passageway serving two or more vertical exits shall be equal to 75 % of the width of all vertical exits it serves (C26-604.3(b)).			The effective width of the lobby or other enclosed passageway shall be not less than ¾ of the aggregate width of all exit doors opening into lobby ((613.2).).		
	The width of street floor lobbies serving as exit passageways shall be increased to accommodate the occupant load of all communicating spaces on the lobby floor that exit through them (C26-604.3(h)(2)).		Grade floor exits sufficient for occupant load of grade floor plus capacity of stairs from above and below. 67-7.4	No requirements.	Street floors used for exit discharge in Mercantile occupancies must be wide enough to accommodate both exit discharge occupants and occupants of street floor (12-1271(d)).	
	No openings other than exit doors are permitted in exit passageways (C26-604.3(f)), except:			No requirements.		
	Openings between street floor lobbies serving as exit passageways and elevators or communicating spaces and show windows protected in accordance with Section C26-604.3(h)(3) are permitted (C26-			Show windows opening on lobbies that serve as exit passageways shall be protected with automatic sprinklers or shall be backed with fire partitions of 2 h rating (613.92) Sprinklered buildings are exempt from (613.42), (613.44).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Street floor lobbies serving as exit passageways may be occupied by newsstands, candy and tobacco stands, information booths or similar occupancies if constructed of noncombustible materials, occupying not more than 5 % of the net lobby floor area, and if not reducing the required clear width at any point (C26-604.3(h)(4)).			Sales spaces not exceeding 100 ft^2 in area shall be permitted (613.0).		
	Horizontal and Supplemental Vertical Exits (C26-604.5 to C26-604.7).			Horizontal exits (616.0).	Horizontal Exits (5-5)	The NYC Building Code was unique in addressing horizontal exits.
	The occupant load capacity for vertical exits may be reduced by 50 % when one area of refuge is provided and by 66 % when two or more areas of refuge are provided (C26-603.3).			Horizontal exits shall be accepted as an approved means of exit (616.0). The capacity per story per unit exit width or stairway may be increased 50 % above the value in table 12, (610.4).	Horizontal exit may be substituted for other exits so that the exit capacity will not be reduced below half that required for the entire area of the building if there were no horizontal exits (5-5112.)	
	At least 3 ft^2 per person of clear public space, or space occupied by the same tenant or owner, shall be provided within the area of refuge for the occupant load received in addition to its own occupant load (C26-604.5(b)).			The capacity of required areas of refuge enclosed within fire partitions of firewalls shall be computed on a net floor allowance of 3 ft^2 (610.6).	The floor area on either side of a horizontal exit must be sufficient to hold occupants of both floor areas allowing not less than 3 ft^2 clear floor area per person (5-5124.)	
	Each area of refuge shall be provided with at least one vertical exit and when located above the 11th floor, the vertical exit shall be supplemented by at least one elevator (C26-604.5(c)).			There shall be at least 1 interior enclosed stairway of fire tower on each side (616.51).	Every area of refuge (fire section) must be served by a vertical exit or a door leading directly outside (5-5121).	
	Access to an area of refuge, on the same floor, through a horizontal exit, may consist of doors, balconies, bridges and tunnels (C26-604.6).			Access to an area of refuge may be accomplished by protected openings in firewall by a vestibule, or by open – air balcony or bridge (616.0).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Doors must swing in the direction of exit travel and be self-closing having a fire resistance rating of 1½ h. Where areas of refuge are provided on both sides of a horizontal exit, two door openings shall be provided, each swinging in opposite directions (C26-604.6(b)).		Doors must swing in the direction of egress when: Outside serving > 50 people. From offices serving >100 people All exit stair enclosures 67-9.1	Shall be protected with a one by 1½ h self-closing fire doors swinging in the direction of exit travel (616.1). Where areas of refuge are provided on both sides of a horizontal exit, two door openings shall be provided, each swinging in opposite directions (616.1).		
	Balconies, bridges and tunnels serving as horizontal exits shall comply with Section C26-604.6(c).			No requirements.	Bridges and balconies serving as horizontal exits must comply with Section 5-513.	
	Access to an area of refuge on a floor nearer to the street, through a supplemental vertical exit, may consist of enclosed interior stairs, ramps, or escalators (C26-604.7).			No requirements.	If a building has horizontal exits on its upper floors and the street floor is one fire area, the street floor and floors below it must be sprinklered (5-5152).	
	Supplemental vertical exits shall comply with the requirements for interior stairs, and serve no other purpose than to connect a floor area with an area of refuge with no openings in the enclosure other than exit doors (C26-604.7).			No requirements.	If a building has horizontal exits on it's below grade floors and the street floor is one fire area, the building construction must be fire resistive or have a fully sprinklered building. Also, all required exit must discharge directly outside (5-5153).	
	Every supplemental vertical exit shall have a sign at the entrance stating EXIT TO AREA OF REFUGE ON _____ FLOOR (C26-604.7).			No requirements.		

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code		Summary of Significant Differences
Egress Width and Capacity	Occupant load - calculate based on the net floor areas in square feet divided by the occupant load factor (square foot/person) or the actual number of occupants from whom each occupied space is designed, whichever is greater (C26-601.2).			Occupant load 48-13 Business 100 ft^2/person Mercantile 30 ft^2/person first floor and basement 60 ft^2/person other floors Restaurant 15 ft^2/person	Shall be calculated by the net floor area multiplied by occupant load factor from table 10, (608.1).	Occupant load – calculate based on the load factors given below in square foot/person. Where gross and net area figures are given for the same occupancy, the gross area must be applied to the building. Then a separate net area calculation shall be performed and the higher of the two shall be used (5-1161).		The NYC Building Code provided more specificity regarding determination of egress width and capacity.
	Occupancy	Factor			Table 10	Occupancy	Factor	
		(net square foot per person)	(gross square foot per person)					NYC – net square foot NYS – gross square foot
	Business (offices)	100	C1 First/Grade 200 Above-/Below- 150		100		100 gross	NYC – 100 NYC – 150 to 200
	Conference rooms (Tables)	12	C5 With seats 6 or 10 (Table C212-8a footnote 1)			Office, factory and workroom	30 gross	
							60 gross	
	Conference rooms (movable chairs)	10	C5 With seats 6 or 10 (Table C212-8a footnote 1)	Assembly: 60 per/unit stairs 90 per/unit doors	15	Store: street floor and sales basement	100 gross	
						Store: other floor		
	Dining spaces	12	C5 (Restaurant) 15	50 % increase for sprinklers	w/ fixed seats – 6 w/out fixed seats - 15	Store: storage and shipping	15 net	
							7 net	

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code		Summary of Significant Differences
	Mercantile – 1st floor / basement All other floors	 25 50	C2 - Retail (general) 50 - Clothing, Dept.. 100 - Furniture, hardware 150		30 60	Places of assembly	3 net	
						Assembly areas of concentrated use without fixed seating		
	Assembly (fixed seats)	# of seats			6	Assembly: standing space		
	Waiting space (standing)	4	C5 - waiting/standee 3					
	Garages / parking	250	C4.1 First/Grade300 Above-/Below- 250					
	Storage rooms	200	C4.1 First/Grade300 Above-/Below- 250		300			
	Mechanical rooms	200						
	Nonsimultaneous Occupancy - The occupant load of toilets, locker rooms, meeting rooms, storage rooms, employee cafeterias, and similar rooms or spaces that are not occupied at the same time as other rooms or spaces on the same floor may be omitted from the occupant load calculation of the floor on which they are located (C26-601.2).							
	The occupant load of any space shall include the occupant load of all spaces that discharge through it in order to gain access to an exit (C26-601.2).				No requirements.			

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Where vertical exits serve more than one floor, only the occupant load of each floor considered individually is used in computing the required capacity of exits at that floor, except where one floor is used by another as a means of egress (C26-601.1).			The width of every exit door to a stairway shall not be less than the number of units of exit width required for the capacity of the stairway, which serves the floor (616.61).	Where exits serve more than one floor, only the occupant load of each floor considered individually need be used in computing the capacity of the exits at the floor (5-1162).	
	Exit capacity (width) shall not decrease in the direction of exit travel (C26-604.8).		Exit capacity cannot decrease in direction of travel. 67-7.4	No stairway shall reduce in width in direction of exit travel (618.23).	Exit capacity cannot be decreased in direction of exit travel (5-1162).	
					When exits from above and below converge, the capacity of the exit from the point of convergence is cumulative of the two exits (5-1162).	
	The width of each means of egress component shall be that computed using the appropriate egress unit factor but not less than the minimum width prescribed for the component (C26-601.1, C26-601.3).			An interior required stairway shall be no less than 44 in. in width ((618.21).		
	Where computations give fractional results, the next larger integral number of egress units or integral number plus 2 shall be used (C26-601.3).			No requirements.		
	A fraction less than ½ may be neglected when constituting less than 10 % of the total required number of egress units).			No requirements.		
	Egress capacity factors - capacity per egress unit (C26-601.1, C26-601.3).			No requirements.		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	One unit of egress width is equal to 22 in. (C26-601.3).		One unit of egress width is 22 in. One half unit is 12 in. 67-7.2	The unit of exit width for all approved types of exit and exit way facilities shall be 22 in. (610.1).	Exits and exit access are measured in units of exit width of 22 in. Fractions of a unit do not count, except that 12 in. added to one or more units' counts as ½ a unit (5-1151).	
	Doors to outdoors at grade:				Doors to outside at grade (less than 21 in. above or below grade) have the following capacity, measured in occupant per unit width:	
	Occupancy Group B (Storage) – 75 persons per unit.		60/unit doors	From the first or grade floor direct exits shall be provided consisting of 1 unit/100 occupants (611.2).	Office and Mercantile occupancies and places of assembly – 100 (8-1211, 12-1231 and 13-1241)	
	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) – 100				Stairs, Class B ramps and escalators in Office occupancies – 60 (13-1241)	
	Other exit and corridor doors:				Horizontal exits in Mercantile occupancies and Class A ramps and horizontal exits in public assembly and Office occupancies – 100 (8-1211, 12-1231, 13-1241)	1 unit/100 occupants
	Occupancy Group B (Storage) – 60				Stairs and escalators in Mercantile occupancies – 60 (12-1231)	
	Occupancy Group C (Mercantile), E (Business), and F (Assembly) - 80				Stairs, Class B ramps and escalators, public assembly spaces – 75 (8-1211)	
	Stairs and escalators:				Stairs in storage areas and parking garages – 45 (5-3131).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Occupancy Group B (Storage) - 45		Office and mercantile: 40/unit stairs 60/unit smokeproof tower		A single escalator is to be given 1 unit of exit width regardless of actual width (5-8125).	
	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) - 60					
	Ramps, corridors, exit passageways, horizontal exits:					
	Occupancy Group B (Storage) - 75			Door width for corridors and passageways required for egress are same as stairs ((612.3)).		
	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) - 100			75		NYC – 100 persons / unit BOCA – 75 persons / unit
	When ramp slope exceeds 1 in 10, the capacity shall be reduced by 25 % (Table 6-1 note b).			For slopes exceeding 1 in 10 ramp shall be surfaced with approved non-slip materials (617.0).		
	The capacity of horizontal exits shall be based on the width of doors swinging in the direction of exit travel (C26-604.6(a)).			Area of refuge size shall be adequate to house total occupancy load of connected areas (616.3).		
	Where a door is divided by mullions into two or more door openings each opening shall be measured separately in computing the number of egress units (Table 6-1 note m).			Where a door is divided by mullions into two or more door openings each opening shall be measured separately in computing the number of egress units (614.2).	Where a door has two or more leaves divided by mullions, units of exit width for the entire door is the sum of the units calculated separately for each leaf (5-2142).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
Doors	Minimum nominal width - 32 in. except for corridor and exit door openings which shall be 36 in. (C26-604.4(e)).		Min. width 36 in. 67-7.5	Minimum width 32 in. Minimum width of retail space doors opening to street 30 in. (614.2).	Minimum width – 28 in. (5-2151).	The Chicago Building Code requirement is based on nominal width of the door. NYC – 36 in. (corridors) BOCA – 32 in. NFPA – 28 in.
	Door jambs or stops and the door thickness when open shall not reduce the required width by more than 3 in. for each 22 in. of width (C26-604.4(e)).			No requirements.		
	In all cases where a door opening is divided by mullions into 2 or more door openings, the minimum nominal width of each such opening shall be 32 in. (C26-604.4(c)).			When doorways subdivided into 2 or more separate openings minimum width is 28 in. (614.2).		NYC – 32 in. BOCA – 28 in.
	Maximum width of leaf - 48 in. (C26-604.4(e)).			Maximum width 44 in. (614.2).	Maximum width – 48 in. (5-2152).	NYC – 48 in. BOCA – 44 in. NFPA – 48 in.
	Minimum height - 6 ft, 8 in. (C26-604.4(f)).					BOCA 44 in. NYC 48 in.
	Door jambs, stops, sills and closers shall not reduce the clear opening to less than 6 ft 6 in. (C26-604.4(f)).			No requirements.		
	The floor on both sides of all exit and corridor doors shall be substantially level and have the same elevation for a distance at least equal to the width of the leaf (C26-604.4(h)).			No requirements.	The floor on both sides of all exit and corridor doors shall be substantially level and have the same elevation for a distance at least equal to the width of the leaf (5-2153).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Where doors lead out of a building, the floor level inside may be 7 ½ in. higher than the level outside (C26-604.4(h)).			No requirements.	Where doors lead out of a building, the floor level inside may be 7 ½ in. higher than the level outside (5-2153).	
	Exit doors, corridor doors serving high hazard occupancy Group A spaces, and corridor doors from rooms required to have more than one door shall swing in the direction of egress (C26-604.4(g)).			Doors shall be hung to swing in the direction of exit travel (614.1).	Exit and exit access doors must swing in the direction of exit travel when serving more than 50 persons or when serving a high hazard space (5-1202, 5-2121).	
	Vertically sliding doors, rolling shutters, and folding doors shall not be used as exit doors or as corridor doors (C26-604.4(d)).			All required exit doors shall be self closing fire doors (614.5).	Ex and exit access doors must be side-hinged, swinging doors (5-1202, 5-2121).	
	Revolving doors designed and constructed in accordance with Section C26-604.4(m) are permitted to be used as exits except that revolving doors shall not be used as interior exit access doors, at the foot of stairs, or at the head of basement stairs (C26-604.4(d)).			Revolving door constructed in accordance with 615.9 permitted as required exits except in assembly occupancies with load of more than 200 or use group H, (615.11).	Revolving doors are permitted as street level exit doors in Mercantile occupancies (5-2201, 12-1282).	
	Turnstiles designed and constructed in accordance with Section C26-604.4(n) may also be permitted.			Turnstiles that swing in direction of travel under a total pressure of not less than 15 lb (612.1)1.	Turnstiles are permitted where revolving doors are permitted in Mercantile occupancies (5-2211).	
	Power operated or power assisted manually operated doors may be used as exit or corridor doors provided they remain closed in case of power failure and are manually operable. To be credited as a required exit, power operated doors must swing in the direction of exit travel (C26-604.4(l)).			No requirements.	Power operated doors used as exit or exit access doors must be designed so that they are manually operable during a power failure and must swing in direction of exit travel (5-218).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Exit doors and corridor doors shall normally be kept in the closed position (C26-604.4(i)).			All required exit doors shall be self-closing (614.5).	Exit doors must be self-closing. In low and moderate occupancy buildings, exit doors may be held open in accordance with 5-2134 (5-2133).	
	Latch bolts shall be provided on all exit doors and corridor doors to hold them in a closed position against the pressure of expanding gases (C26-604.4(j)(1)(c)).			No requirements.	Exit doors to enclosed, which must be fire doors, are required to be positive latching	BOCA no requirement
	Obstruction of means of egress during door opening.					
	Doors providing access to stairways or ramps shall not block stairs/ramps or stair landings or reduce the width of landings/stairs/ramps to less than 75 % of the required width or to less than the width of the door opening on them (C26-604.8(g), C26-604.10(c)(4)).			Doors shall be hung to swing without obstructing the required width of exit passageway.	Doors swinging into an aisle or exit passageway must not restrict the effective width at any point during the swing to less than the minimum width required (5-1152).	NYC allows 75 % obstruction BOCA and NFPA does not allow any restriction
	No door shall swing over the sloping portion of a ramp (C26-604.8(g)).			No requirements.		
	Exit and corridor doors and doors providing access to areas of refuge shall be readily openable at all times from the side from which egress is made without the use of a key (C26-604.4(j)(1)(a), C26-604.5(d)).			Locks and fastenings on required exit doors shall be readily opened from inner side without use of keys (619.41).	Locked exit doors must not require the use of a key to open (5-2131).	
	Locks may be used in places where extra safeguards are required (banks, museums, etc.), subject to approval of the commissioner, provided the locks are equipped with electrical release devices for remote control in case of emergency (C26-604.4(j)(1)(a)(2)).			In rooms of the institutional use groups occupied as places of detention, approved releasing devices with remote control shall be provided for emergency use (614.43)		

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code		Summary of Significant Differences
	Doors opening into interior enclosed stairs shall not be locked from either side except that doors may be locked to prevent access to the stair from the outside at the street floor (C26-604.4(j)(1)(b).				No requirements.			BOCA only allow sin instructional occupancies
Exit Access Corridors	Minimum clear width of corridors (C26-604.2(a), Table 6-1):				(612.3)	Minimum width of exit access:		
	Occupancy Groups B (Storage), C (Mercantile) - 36 in.		Occupancy C1 – 22 in. (C212-2)		Mercantile 60 in. (612.3).	28 in. (5-1207).		NYC 36 in. BOCA 60 in. NFPA 28 in.
	Occupancy Groups E (Business), F (Assembly) - 44 in.				Occupancy Groups E (Business), F (Assembly) – 44 in. (612.3).	If single exit access to an exit, then exit access must have capacity of exit (5-1207).		
	The maximum length of exit access travel shall not exceed the following limits, measured from the most remote point in an area, to the center of an exit door (C26-601.4, Table 6-1, C26-709.8, C26-801.9, Table 8-1)				Maximum length of travel, measured from the most remote point to an approved exit shall not exceed distances in Table II.	The maximum length of exit access travel distance must not exceed the following limits in feet, measured from 1 ft of the most remote point, with 1 ft clearance around corners and obstructions to the center of the exit door or the plane of the tread nosing in the case of stairs (5-1181, A-5-119):		
	Occupancy Group	Distance (Feet)			Occupancy Group Distance Feet	Occupancy	Distance (feet)	
		Unsprinkler / sprinkler			Unsprinklered/ sprinkler		Unsprinklered / Sprinklered	
	B-1 (Storage)	100/150	150/200		100/150	Storage Ordinary Hazard	No requirements.	

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code		Summary of Significant Differences
	B-2 (Storage)	125/175			100/150	Storage Low Hazard	No requirements.	BOCA 100/50 NYC 125/175
	B-2 (Parking Garage)	100/150			100/150	Parking Garage	100/150 (100 below street level)	
	C (Mercantile)	150/200	150/200		100/150	Merc.	100/150	NYC 150/200 BOCA 100/150 NFPA 100/150
	E (Business)	200/300	C1 - First/Grade 175/250 - Above-/Below- 150/225		150/150	Office	200/300	NYC 200/300 BOCA 150/150 NFPA 200/300
	F (Assembly) <75 persons: >75 persons:	150/200 varies	- First/Grade 150/200 - Above-/Below 100/150		100/100	Assmbly	150/200	NYC > 75 persons - primary and secondary travel distance requirements
	Travel distance shall be measured along the natural and unobstructed path of travel. Where the path of travel is over an access stair, it shall be measured along an inclined straight line through the center of the outer edge of each tread (C26-601.4(c).				Travel distance shall be measured along the natural and unobstructed path of travel (609.3).			
	The maximum dead-end distance shall not exceed the following limits (C26-604.2(d), Table 6-1):				Dead ends in corridors shall be avoided in so far as practicable in no case Table II limits to be exceeded (612.2)	The maximum dead end distance shall not exceed the following limits (5-1192, A-5-119):		
	Occupancy Group	Distance (Feet)			BOCA does not specifically allow dead ends.	Occupancy Group	Distance (feet)	
	B-1 (Storage)	50				Storage - Ordinary	No requirements.	

	Then Current NYC Building Code		Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code		Summary of Significant Differences
	B-2 (Storage)	No requirements.				Storage -Low hazard -Parking	No requirements. 50	
	C (Mercantile)	50				Mercantile	50	
	E (Business)	50				Office	50	
	F (Assembly)	30				Assembly	No requirements.	
	When a corridor is completely enclosed in 2 h fire resistance rated construction with 1½ h fire rated doors, the permissible length of dead ends may be increased by 100 % (C26-604.2(d)).				No requirements.			
	Exterior corridors designed and constructed in accordance with Section C26-604.2(f) may be used as a means of egress.				No requirements.			
Stairways	Minimum clear width - 44 in. (C26-604.8(b)).				Minimum clear width – 44 in. (618.21).	Minimum clear width (5-3121) - 44 in., 36 in. Class B stairs that serve 50 occupants or less on each floor that it serves		
	The width of stairs shall be the clear width between walls, grilles, guard, or newel posts (C26-604.8(b)).				No requirements.			
	Stair stringer projections which do not exceed 2 in. on each side and handrail projections of 3½ in. are permitted (C26-604.8(b), C26-604.8(f)).				Handrail projections of 3½ in. are permitted (618.5).	Stair stringer projection of up to 1½ in. permitted on each side (5-1152). Stair width may have handrail projection of 3½ in. on each side (5-3121).		
	Vertical exits in public garages may be 36 in. wide (C26-709.8).				No requirements.			

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	The minimum width of landings and platforms shall be at least the required width of the stairway (C26-604.8(d)(1)).			The minimum width of landings and platforms shall be at least the required width of the stairway (618.31).	The minimum dimension of landings in direction of exit travel is 44 in. (5-3121).	
	On a straight run stair, landing and platform widths need not be more than 44 in.					
	Minimum headroom - 7 ft (C26-604.8(c).			Minimum headroom 6 ⅔ ft	Minimum headroom – 6 ft 8 in. (5-3121)	NYC – 7 ft BOCA - 6 2/3 ft NFPA – 6 ft 8 in.
	Maximum vertical rise between landings - 12 ft (C26-604.8(d)(2)).			Maximum vertical rise between landings 12 ft (618.32).	Maximum height between landings 8 ft Class A stairs, 12 ft Class B stairs (5-3121)	
	Treads and risers (C26-604.8(e), Table 6-4).			Treads and risers (618.4).	Treads and risers (5-3121)	
	Maximum riser height - 7 ¾ in.			Maximum riser height 7¾ in. (618.41)	Maximum riser height – 7½ in. Class A stairs, 8 in. Class B stairs	
	Except - Occupancy Group F (Assembly) - 7½ in.			Except - Occupancy Group F (Assembly) – 7½ in. (618.41).		
	Minimum tread depth – 9½ in. plus nosing			Minimum tread depth 9½ in. plus nosing (618.41).	Minimum tread depth, exclusive of nosing – 10 in. Class A stairs, 9 in. Class B stairs	
	The sum of two risers plus one tread exclusive of the nosing shall not be less than 24 nor more than 25½ in. (C26-604.8(e)(1)).			No requirements.	The height of a riser and the depth of a tread exclusive of nosing cannot be less than 24 nor more than 25 in.	
	Stair riser and tread dimensions shall be constant in any flight of stairs from story to story (C26-604.8(e)(2)).			No requirements.	No variation of more than 3/16 in. tread width or riser height of risers in any flight, except as permitted for monumental stairs (5-3153).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Curving or skewed stairs that conform to Section C26-604.8(e)(4) are permitted to be used as exits.			No winders shall be permitted in required stairways (618.42.	Winders are not permitted except that monumental stairs can be curved with a radius of 25 ft or more at the inner edges (5-3121, 5-3181).	NYC permits curving stairs BOCA – not permitted
	Where exit stairways serving floors above grade continue in the same enclosure to serve floors below grade, the above and below grade portions shall be separated by 1 h fire resistance rated construction with a ¾ h door (C26-602.4).			No requirements.		
	Section C26-608.4 was added in 1973 by Local Law #5 and renumbered 27-393 in 1985.			No requirements.	Exit doors designed to be closed must have a sign stating “FIRE EXIT – Please keep door closed” (5-2133).	
	In buildings or in building sections more than three stories or 40 ft high with roofs having a slope of less than 20 degrees, access to the roof shall be provided by at least one interior stair (C26-604.8(k)).			In building more than 3 stories in height with roofs having a less than 20 degrees, access to be provided by stairway, ladder or scuttle (619.1)		
	Access to set back roof areas may be through a door or window opening to the roof (C26-604.8(k)).			No requirements.		
	No openings of any kind are permitted into stair enclosures other than windows, fire department access panels and exit doors (C26-604.8(j)).			No requirements.		
	Exterior stairs designed and constructed in accordance with Section C26-604.9 may be used as exits in lieu of interior stairs (C26-604.9).			Designed in accordance with 621.1. (621.1)	Outside stairs that serve as an exit must be designed and constructed in accordance with Section 5-4.	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	No exterior stair shall exceed 75 ft or 6 stories in height (C26-604.9).			No exterior stair shall exceed 65 ft or 5 stories (621.1).		NYC – 75 ft or 6 stories BOCA – 65 ft or 5 stories
	Escalators designed and constructed in accordance with Section C26-604.11 may be used as exits in lieu of interior stairs.			Escalators designed and constructed in accordance with (622.1). Acceptable as mean or egress (622.1).	An exit escalator must be designed and constructed in accordance with Section 5-8.	
Ramps	The minimum clear width of exit ramps is 44 in. (C26-604.10).			Shall meet width requirements of stair (617.0).	Class A ramps must be at least 44 in. wide and Class B ramps must be at least 30 in. wide (5-6121).	
	Level platforms or landings at least as wide as the ramp shall be provided at the top and bottom of all ramps and at intermediate levels as necessary (C26-604.10(c)(3)).			Shall meet width requirements of stair (617.0).		
	Level platforms shall be provided on each side of door openings into or from ramps.			Shall meet width requirements of stair (617.0).		
	Platforms shall be at least as wide as the ramp with a minimum length in the direction of travel of 3 ft (5 ft when a door swings on the platform).			Shall meet width requirements of stair (617.0).		
	Minimum headroom - 6 ft 8 in. (C26-604.10).			Shall meet width requirements of stair (617.0).	Headroom of 7 ft 6 in. minimum in exit ramps with projection from ceiling being at least 6 ft 8 in. from floor (5-1231).	
	Ramps shall be straight. Changes in direction of travel shall be made only at landings or platforms (C26-604.10(c)(1).			No requirements.	Changes in direction of travel must be made only at landing (5-6142).	
	Except - Ramps with a slope not greater than 1 in 12 at any place may be curved.			Except ramps with a slope greater than 1 in 10 (617.0).		NYC – 1 in 12 BOCA – 1 in 10

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Ramps shall not have a slope steeper than 1 in 8 (C26-604.10(b)) and sloping portions shall be at least 3 ft but not more than 30 ft long between platforms or landings (C26-604.10(c)(2)).			Slope not to exceed 1¾ in./ft (617.0).	Class A ramps must have a slope of 1 to 12 to 1 3/8 to 12 and Class B ramps must have a slope of 1 3/16 to 2 in 12. There is no limit in height between landings in Class A ramps and 12 ft maximum height between landings for Class B ramps (5-6121).	NYC 1 in 8 Boca 1¾ in 12 NFPA between 1 to 12 and 1 3/8 to 12
	Level and ramped moving walkways designed and constructed in accordance with Section C26-604.12 may be used as exits.			No requirements.	Moving walks designed and constructed in accordance with Section 5-8 may be used as exits.	
Handrails and Guardrails	Continuous handrails are required on both sides of all stairs and all ramps with a slope exceeding 1 in 12 (C26-604.8(f), C26-604.10(c)(5))			Handrails are required on both sides of stairways (618.5).	Handrails are required on both sides of Class B exit ramps and in stairs (5-6145, 5-3161).	
	Stairs less than 44 in. wide may have a handrail on one side only (C26-604.8(f)).			No requirements.		BOCA required in all
	Intermediate handrails shall be provided to divide stairs more than 88 in. wide into widths that maintain nominal multiples of 22 in. and widths not greater than 88 in. nor less than 44 in. (C26-604.8(f)(1)).			Stair widths that exceed 88 in. need an intermediate handrail with a maximum lateral spacing of 66 in. (618.5).	Every stairway that is required to be more than 88 in. in width must have intermediate handrails dividing the stairway into portions not more than 88 in. in width, with the exception of monumental stairs (5-3164(d)).	
	Handrail height shall be 30 to 34 in. measured vertically above the nosing of treads (C26-604.8(f)(2)).			Height 30 to 33 in. (618.5).	Handrails must be 30 to 34 in. from the top of the handrail to a point on the tread 1 in. back from the leading edge (5-3164(a)).	
	Handrail ends shall be returned to walls and posts when terminated (C26-604.8(f)(3).			Handrail ends shall be returned to walls and posts when terminated (618.5).	Handrails must be designed as to permit continuous sliding of the hands on them (5-3164(c)).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Handrails shall provide a finger clearance of 1½ in. and shall project not more than 3½ in. into the required stair width (C26-604.8(f)).			No requirements.	Handrails must provide a clearance of at least 1½ in. between the handrail and wall to which it is attached (5-3164(a)).	
	Stair landings and platforms shall be enclosed on sides by walls, grilles, or guards at least 3 ft height (C26-604.8(d)(3)).			No requirements.	Stairs, stair landings must have guards that at least 42 in. in height (5-3161, 5-3165(c)).	
Exit Signs and Lights	In all buildings, the location of every exit on every floor shall be clearly indicated by approved EXIT signs (C26-606.1).	Exit and directional signs, visible from the approach to the exits are required as follows (C507-2.3). Group Fire area exceeds C1, C2 2500 ft^2 C5 0 ft^2		Stair widths that exceed 88 in. need an intermediate handrail with a maximum lateral spacing of 66 in. (618.5).	Every required exit must be marked by a readily visible sign (5-11111).	
	EXIT signs shall be placed at an angle with the exit opening if such placement is required for the signs to serve their purpose (C26-606.1).			No requirements.		
	In areas where the location of the exit may not be readily visible or understood (including long corridors and open floor areas), directional signs shall be provided to serve as guides from all portions of the corridor or floor (C26-606.1).			Visible from the exit approach and, when necessary, supplemented by directional signs (626.1).		
	The size, color and illumination of EXIT signs shall conform to Section C26-606.3. Directional signs shall conform to Section C26-606.4.			The size, color and illumination of EXIT signs shall conform to Section (626.1).		
	All EXIT signs shall be illuminated at all times when the building is occupied (C26-606.3).			All EXIT signs shall be illuminated at all times when the building is occupied (626.2).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Where a total of more than four signs (exit and/or directional) are required, all EXIT signs shall be connected to circuits that are separate from the general lighting and power circuits. These circuits shall be taken off ahead of the main switch or connected to an emergency lighting power source when such source is provided (C26-606.2).			No requirements.		NYC – exit sign power circuits ahead of main switch or emergency power source.
	Any door, passageway, stair, or other means of communication that is not an exit shall be so identified with a "NOT AN EXIT" sign, a sign indicating its use or purpose or a directional exit sign shall be provided (C26-606.5).			No requirements.		
Means of Egress Lighting	Corridors and exits shall be equipped with artificial lighting facilities to provide at least 5 foot candle intensity floor lighting continuously during occupancy (C26-605.1).	During period of occupancy, electric light of intensity sufficient for safe travel is required throughout exits, and for spaces which the public has access or in which persons work, including elevators and escalators (C507-2.1b).		Corridors and exits shall be equipped with artificial lighting facilities (627.1). Intensity of floor lighting to be 3 foot candles (627. 2).	Exit and exit access must be illuminated in all buildings to provide at least 1 foot candle measured at the floor (5-10111 and 5-10113).	NYC – 5 foot candle. BOCA 3 foot candle. NFPA – 1 foot candle.
	Lighting shall be provided to illuminate changes in direction in and intersections of corridors, balconies, exit passageways, stairs, ramps, escalators, bridges, tunnels, landings and platforms.			No requirements.	Lighting must be provided so all points such as angles and intersection of corridors, stairways, stair landings and doors (5-10113).	
	Illumination shall be arranged so that failure of any one light does not leave any area in darkness.	Artificial lighting equipment must be designed and installed to avoid glare and objectionable shadow.		Lighting shall be from an independent power source to assure continued illumination (627.4).	Illumination must be arranged so that the failure of any one lighting unit will not leave any area in darkness (5-10115).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Means of egress lighting in all buildings, where a total of more than four lights is required, shall be connected to circuits that are separate from the general lighting and power circuits. These circuits shall be taken off ahead of the main switch or connected to an emergency lighting power source when such source is provided (C26-605.2).			No requirements.	Emergency lighting must be provided in places of assembly, Class A and Class B stores and office buildings with 1,000 or more occupants (5-10211, 12-129, 13-1283).	
A.7 Fire Suppression Systems						
Automatic Sprinkler Protection	Automatic sprinkler protection shall be designed and installed in accordance with Section C26-1703.1 and RS 17-2 in the following areas: Spaces in group B-2 > 5,000 ft^2; Spaces in group C > 7,500 ft^2; Any story above grade and the 1st story below grade w/o required ventilation; All other stories below grade.	A sprinkler system is required in: GroupC1, C2, C4 and C5 where fire areas or height are increased per Sec. C203-1.2. Groups C1 through C6.3 in cellar areas of 5,000 ft^2 or more used for garage or for storage of combustible materials. Groups C1 through C6.3 in buildings more than two stories in height or having a fire area of more than 2,500 ft^2 above the first story without exterior access openings on each story for firefighting. (C405-3a)		Automatic sprinkler protection shall be designed and installed in accordance with 1213 One source sprinkler system in B-2>10,000 ft^2 (1213.13) C>20,000 ft^2 (1213.16)	Sprinklers installed in accordance with Section 6-41 and NFPA 13 1966 edition. Sprinklers are required in : Mercantile buildings that are 1 story and over 15,000 ft^2; in Mercantile buildings over 1 story and over 30,000 gross ft^2; in Mercantile basements over 2,500 ft^2 used for manufacture, sale, storage or handling of goods and merchandise (12-1331). Class A and Class B places of assembly located below grade (8-1111). Underground structures that serve more than 100 persons and from which there is no direct access to the outside or another fire area and has no outside light or ventilation (16-4111).	NYS Building Code – sprinklers required in office buildings > two stories without exterior access openings on each story for firefighting. The NYC Building Code requirements for design and installation of sprinkler systems are comprehensive. Storage NYC - > 5,000 ft^2. BOCA > 10,000 ft^2. Mercantile NYC > 7,500 ft^2 BOCA > 20,000 ft^2 NFPA > 15,000 ft^2 NYC – above grade w/o required ventilation NYC – all stories below grade

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	A wet-pipe sprinkler system shall be provided throughout all areas requiring automatic sprinkler protection (C26-1703.13).			Approved automatic sprinkler systems shall be provided in all buildings specified (1213.1).		
	In areas subject to freezing the sprinkler system shall be protected (insulation, heat trace, antifreeze) or a dry-pipe system shall be provided (C26-1703.13).			In areas subject to freezing a dry-pipe system shall be provided (1215.0).		
	A sprinkler alarm system shall be provided when more than 36 heads are installed in any fire area or section (C26-1703.4).			No requirements.	Every automatic sprinkler system must be provided with a water-flow alarm device (6-4112).	NYC - >36 heads BOCA – no requirement NFPA – every system
Standpipes	Wet standpipes designed and installed in accordance with Section (C26-1702.1 and RS 17-1 shall be provided (C26-1702.1(a)(1)).	A standpipe system with outlets on each story for first-aid hose and for municipal fire department is required in: Groups C1 through C6.3 in buildings of type 1 or 2a construction more than 70 ft in height (C405-4a).		All buildings shall be provided with a wet-pipe system (1207.1).	Standpipe system is not required. However, standpipe systems, if installed, are to be designed and installed in accordance with NFPA 14, 1963 edition (Appendix B.)	The NYC Building Code provides comprehensive criteria for design and installation. NYC and BOCA – required NFPA – not required
	The number and location of standpipes shall be such that every point of every floor can be reached by a 20 ft stream from a nozzle attached to not more than 125 ft of hose connected to a riser outlet valve (C26-1702.4).			The number and location of standpipes shall be such that every point of every floor can be reached by a 30 ft hose stream from nozzle attached to a 100 ft hose (1207.31).		NYC – 125 + 20 BOCA 100 + 30
	Standpipe risers and 2½ in. hose valves shall be located within stairway enclosures (C26-1702.5(a)).			Standpipes shall be located in stairwells where practicable ((1207.4)).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	When stairway enclosures are not available within the 125 plus 20 (145) ft distance, risers and valves shall be located as near to the enclosure as practicable (C26-1702.5(a)).			When stairway enclosures are not available, the standpipes shall be located in a public corridor or accessible from an interior or exterior stairway; or a smoke proof tower ((1207.4)).		
	The highest riser shall be extended above the roof with a 3-way manifold with 2½ in. hose valves (C26-1702.11(a)(2)).			No requirements.		
	A 2½ in. hose outlet shall be provided at each standpipe riser on each floor served, and on the entrance floor above the riser control valve, located between 5 ft and 6 ft above the landing or floor (C26-1702.11(a)(1)).			A 2½ in. hose outlet shall be provided at each standpipe riser on each floor served, and on the entrance floor above the riser control valve located 5 ft above floor level.		
	Hose stations shall be located at the standpipe risers, either inside or adjacent to the entrance of stairway enclosures (C26-1702.11(b)).			No requirements.		NYC required hose stations
	Hose stations shall be located to satisfy the 125 plus 20 (145) ft requirement (C26-1702.11 (b)(1)).			No requirements.		
	Hose shall be 1½ in. "flax-line" unlined linen hose in Groups C, E and F; 2½ in. (unlined) in Group B(C26-1702.11(c)).			Hose shall be no less than 100 ft in length and have a diameter of 1½ in. (1207.7).		
	Auxiliary hose stations equipped with 1½ in. (unlined) hose are permitted in Groups C, E and F (C26-1702.11(c)(4), C26-1702.11 (d)).			No requirements.		
	Standpipe systems that include more than one riser shall have all risers cross-connected at, or below, the street entrance floor level (C26-1702.10(a)).			When more than one standpipe is required in a building they shall be interconnected at their base by pipes of size equal to largest riser (1207.62).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Standpipe systems having more than one zone shall be arranged such that the risers supplied from each zone are cross-connected below, or in, the story of the lowest hose outlets from the water source in each zone (C26-1702.10(b)).			No requirements.		
	Standpipe risers shall be at least 4 in. in diameter where the riser height is 150 ft or less from the highest hose outlet to the level of the entrance floor, 6 in. in diameter where greater than 150 ft (C26-1702.7, Table 17-1).			Buildings more than two stories or 30 ft in height and 10,000 ft^2. 2½ in. standpipes over four stories or 50 ft. 4 in. standpipes over six stories or 75 ft, 6 in. stand pipes. Over 250 ft 8 in. standpipes (1207.11) – (1207.14).		NYC – 4 in. up to 150 ft 6 in. > 150 ft BOCA – 4 in. up to 250 ft 8 in. > 250 ft
Water Supply	Standpipe systems shall have a primary water supply available at all times to every hose outlet or made available automatically when the hose valve at any outlet is opened (C26-1702.14).			Automatic sprinkler systems must be supplied by at least one of the following: public water system, gravity tank or pressure tank or fire pump (1214.1)-(1214.4).	Automatic sprinkler systems must be supplied by at least one of the following: public water system, gravity tank or pressure tank. Pressure tanks are encouraged to be used in buildings of "small" or "moderate" size where public water supply is inadequate (6-4121, A-6-4121).	The NYC Building Code has comprehensive requirements for water supplies for fire protection systems.
	Combinations of two or more of the following sources shall serve as the primary water supply, including siamese connections (C26-1702.14 (b)).			No requirements.	Sprinkler system water supply to be provided with continuous and automatic pressure (6-4121).	
	Direct connection to city water system			Direct connection to city water shall provide 15 psi at most remote head (1214.1).	Sprinkler system water supply must comply with NFPA 13 1966 edition (Appendix B).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Direct connection to a private yard main			No requirements.	Standpipe system water supply must comply with NFPA 14 1963 edition (Appendix B).	
	Pressure tank(s)					
	Automatic fire pump (C26-1702.14(b)(5)).				Fire pumps are to comply with NFPA 20 1966 edition (Appendix B).	
	In buildings higher than 300 ft, the automatic fire pump shall be used only for the lower 300 ft. Zones above 300 ft shall be supplied by either a gravity or pressure tank.			No requirements.		NYC > 300 ft – manual fire pump and gravity or pressure tanks
	An additional standpipe system water supply shall be provided for standpipes in buildings over 300 ft high (C26-1702.15(a)).			No requirements.		
	The primary water supply to the standpipe system shall be supplemented by one or more manually operated fire pumps (C26-1702.15(a)).			No requirements.		
	At least one of the following automatic source of water supply shall be provided for sprinklers (C26-1703.8(a)):			No requirements.		
	Gravity tank(s)					
	Pressure tank(s)					
	Automatic fire pump					
	Direct connection to public water system					

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Domestic water supply may be used to supply cooling tower sprinklers and sprinklers installed in buildings classified in Occupancy Group E (Business) in accordance with Section C26-1703.9(e) (C26-1703.9(c) and (d)).			No requirements.		NYC – domestic water supply permitted
	Auxiliary sources of water supply for sprinkler systems may include a manually actuated fire pump or siamese connection (C26-1703.8(b)			No requirements.		
	Combined Water Supplies					
	Fire pumps may simultaneously serve as the required auxiliary water supply for standpipe and sprinkler systems in accordance with Section C26-1702.15(d).			No requirements.		NYC – combination sprinkler/standpipe system permitted
	Tanks used to provide the required primary water supply to a standpipe system may also be used as a supply for an automatic sprinkler system (C26-1703.8(c)).			When sprinklers and standpipes are supplied from one tank the standpipe supply shall be drawn from the top (1214.5)		
	One standpipe system and one sprinkler system siamese connection shall be provided for each 300 ft of exterior building wall or fraction thereof facing each street or public space (C26-1702.9(a), C26-171703.6(a)(1)).			For standpipes (1207.8) For sprinklers (1213.8)		
	Modifications based on street frontage as permitted by Sections C26-1702.9(b)-(f).			No requirements.		
	Each siamese connection shall be connected to a riser or to a cross connection connecting other siamese connections or risers (C26-1702.10(f)).			No requirements.		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	In below grade sprinkler systems for garage occupancies, a sprinkler siamese connection shall be provided within 50 ft of every exit or entrance used by motor vehicles (C26-1703.6 (a)(2)).			No requirements.		
	Siamese connections for partial sprinkler systems shall be in accordance with Section C26-1703.6(a)(3).			No requirements.		
A.8 Interior Fire Alarm, Detection and Signaling Systems						
Fire Alarm Systems	No specific requirement for a fire alarm system unless other systems are provided that drive the requirement. See below.	A fire alarm system is required in Group C1 buildings more than six stories in height. A fire-detecting system or a sprinkler system is permitted in lieu of a required fire alarm system. (C405-1).		Mercantile buildings with two or more departments above second floor shall have fire alarm systems when not sprinklered 1219.15. Business building 75 or more than 6 stories shall be provided with fire alarm when not sprinklered 1219.17,	A manual fire alarm system is required in Office buildings with over 1,000 occupants or over 200 occupants employed above or below street level. Exception to requirement if building has an automatic sprinkler system or an automatic fire alarm system.	The NYS Building Code required a fire alarm system. If fire alarm systems are provided, the NYC Building Code has comprehensive requirements for their design and installation. NYC – No requirement for business occupancy BOCA – required > 75 ft (>6 stories) NFPA - required > 200 occupants above or below street or > 1,000 occupants in entire building NYC retroactive requirement added Local Law 5/1973 Section amended Local Law 16/1984
	A sprinkler alarm system shall be provided when more than 36 heads are installed in any fire area or section (C26-1703.4).			No requirements.	Every automatic sprinkler system must be provided with a water-flow alarm device (6-4112).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	A local water flow alarm unit shall be provided (outdoor water motor or electric alarm gongs) where there is no watchman with watch service (RS 17-2, Sec. 3722).			No requirements.		
	Central station water flow alarm service is desirable but does not waive the local alarm requirement (RS 17-2, Sec. 3721).			No requirements.		
Smoke and Heat Detector Locations	HVAC Systems (C26-1300.7(a), RS 13-1).	A fire-detecting system shall be provided in kitchens, boiler rooms, storage rooms, laundry rooms and maintenances shops (C405-2).			HVAC Systems (7-112, NFPA 90A)	The NYC Building Code required has comprehensive requirements for fire-detection in HVAC systems. BOCA – no requirement
	In systems over 5,000 cfm capacity, thermostatic devices shall be provided for automatic fan shut-down as follows (RS 13-1, Sec. 1002):			No requirements.	HVAC systems that serve more than one floor or fire area must be provided with duct smoke detection that will shut down fans in case of fire (7-1122).	
	125 °F (max) devices located in the return air stream prior to exhaust or dilution by outside air (RS 13-1, Sec. 1002(a)).			No requirements.	An AC system that serves a Class A place of assembly or Class A department store must be provided with means of stopping smoke spread through system via smoke detection in the system. Smoke detectors shall be provided at system returns and downstream of system filters. System would automatically shut down on smoke detection (7-1123).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	50 °F (max) above maximum operating temperature devices located in the main supply duct down stream of the filters (RS 13-1, Sec. 1002(b)).			No requirements.	Manual shut down permitted in lieu of automatic detection and shut down in Class A Assembly and Class A store if qualified personnel are on duty while spaces are occupied (7-1123).	
	Where thermostatic devices are installed in systems utilizing recirculated air on floors protected by sprinkler or fire alarm systems, fans shall automatically shut-down on alarm (RS 13-1, Sec. 1005).			No requirements.	NFPA 90A Section 201(c) suggests smoke detection in the main supply duct downstream of filters and also upstream of filters if filters can effectively filter smoke.	
	In systems over 15,000 cfm capacity smoke detectors shall be provided for automatic fan shut-down as follows (RS 13-1, Sec. 1003).			No requirements.		
	Smoke detectors shall be located in the main supply duct downstream of the filters (RS 13-1, Sec. 1003.b).			No requirements.		
	Smoke detectors shall be arranged to provide audible and visual annunciation at a local supervisory control board in the building in accordance with RS 13-1, Sec. 1003.c.			No requirements.		
	In systems utilizing recirculated air, smoke detectors shall be provided for automatic fan shut-down when any of the following conditions exists (RS 13-1, Sec. 1003.a):			No requirements.		
	System supplies an exit passageway, or a space leading from elevators to a street or to the exterior.			No requirements.		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	System supplies spaces on more than one story or spaces in different fire areas in the same story.			No requirements.		
	Where the area of a building or space served is over 20,000 ft^2 in mercantile or indoor assembly occupancies.			No requirements.		
	Where there is a duct opening in a required 2 h fire resistance rated interior Fire Division.			No requirements.		
	Where a duct passes through a firewall.			No requirements.		
	Where a corridor is used as a plenum.			No requirements.		
	Systems incorporating automatic exhaust in lieu of automatic fan shutdown are acceptable provided they are equipped with smoke detectors (RS 13-1, Sec. 1004).			No requirements.		
	Each installation shall be equipped with a manual emergency stop for quick shutdown of the fan(s) in case of fire (RS 13-1, Sec. 1001).			No requirements.		
	No requirements.				Elevator lobby smoke detection is not required.	
Manual Fire Alarm Boxes	No requirements.	Manually operated fire alarm signaling devices required (C511-2.2).			A manual fire alarm system is required in Office buildings with over 1,000 occupants or over 200 occupants employed above or below street level. Exception to requirement if building has an automatic sprinkler system or an automatic fire alarm system.	The NYS Building Code required manual alarm boxes. NFPA – required in office buildings with > 200 occupants above or below street or > 1,000 occupants in entire building

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
Audible/Visual Alarm Indicating Appliances	No requirements.	Sounding devices designed to sound a clear audible alarm signal that is distinct from all signals of other sounding devices in the vicinity (C511-2.3)			Alarm sounding devices must be of character and distribution so that they can be heard above all other sounds and they must be distinctive in pitch and quality from surrounding devices (6-3131, 6-3133).	The NYS Building Code required sounding devices.
	No requirements.				Visible alarm devices may be used in lieu of audible devices in public assembly areas (6-3132).	
	No requirements.					
Communication Systems	Standpipe Fire Line Telephone and Signaling Systems				Communication systems are not required.	This requirement is unique to the NYC Building Code.
	In every building more than 300 ft high, a telephone and signaling system shall be provided for fire department use in operating the standpipe system (C26-1702.21, C26-1704.7(a)).			No requirements.		
	Standpipe Telephone System			No requirements.		
	System shall permit communication by permanent telephones in the following locations (C26-1704.7(b):					
	Pump rooms					
	Entrance floor					
	Gravity tank rooms					
	Each floor near main standpipe riser					
	The system shall be a selective ringing, common talking system supplied by a 24 V direct current power source (C26-1704.7(b)).			No requirements.		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Permanent wall telephones shall be provided with 6 in. gongs except in the pump room where a loud speaking receiver shall be provided (C26-1704.7(c)).			No requirements.		
	Where portable phones are used, jacks protected by break-glass boxes shall be provided (C26-1704.7(c)).			No requirements.		
	At least three portable phones shall be provided for each standpipe installation, kept in a dedicated, locked cabinet located in the main hall of the entrance floor (C26-1704.7(d)).			No requirements.		
	A pilot light shall be provided over the cabinet to indicate if the system is in use or a receiver is off the hook (C26-1704.7 e)).			No requirements.		
	Standpipe Signaling Devices					
	Manual, individually coded sending stations shall be located in the main corridor of the building arranged to transmit a signal to alarm sounding devices (C26-1704.7(f)(1)).			No requirements.		
	System shall be installed in accordance with RS 17-3 (C26-1704.7(f), C26-1704.8).			No requirements.		
	An 8 in. gong shall be provided in the pump rooms and in elevator shafts at intervals not exceeding 10 floors (C26-1704.7(f)(1)).			No requirements.		
	Adjacent to each telephone station and near the main standpipe riser, a closed circuit strap key connected in series with the box circuit of the signal sending station shall be provided (C26-1704.7(f)(2)).			No requirements.		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
A.9 Elevators and Escalators						
General	Elevators or escalators shall be provided in accordance with Section C26-1800.1 and RS 18-1 in all new buildings exceeding four stories in height (C26-604.1(a), C26-1800.6(d)).	Elevators, dumbwaiters and escalators shall conform to the requirements of C501 (C512-1).		In every structure over 150 ft in height, a competent elevator operator shall be available (1608.2).	Automatic elevators must be provided with manual recall via fireman's key at street level (7-1181(a).	The NYC Building Code was unique in its requirements for elevators and controls of elevators for emergency use.
	When Areas of Refuge are provided above the 11th floor of a building, they shall be served by at least one elevator (C26-604.5(c).	When horizontal exits are provided on stories located 16 or more stories above grade, each required stairway shall be supplemented by at least one passenger elevator (C212-2g).		When horizontal exits are provided in floors located 12 stories above grade, the required stairway shall be supplemented by at least one elevator (616.52).	Elevator cars must be equipped with fireman's key service to allow exclusive fire department operation of elevator car (7-1181(b),(c),(d)).	
	Escalators may be used as exits in lieu of interior stairs (C26-604.11 and C26-1800.6(g)).	Escalators, other than required enclosed exits, shall be protected by enclosures or other means to retard the spread of fire from story to story. (C512-3.1h, C402-4.6c).		Escalators may be used as an approved exit way in all but assembly and institutional buildings (622.1).		
	In every building exceeding 100 ft in height, at least one elevator shall be kept available for immediate use by the fire department during all hours (C26-1702.22, C26-1800.8).			No requirements.		
	In buildings exceeding 150 ft in height, there shall be an operator available at all times (C26-1800.8).			Every power elevator except automatic and continuous-pressure operation types and sidewalk elevators shall be in charge of a competent designated operator (1608.1)		
	Automatic passenger elevators shall be equipped with emergency controls for fire department use (RS 18-1 Rule 210.13).			In buildings exceeding 150 ft in height, there shall be an operator available at all times (1608.2).		

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	A two-position keyed switch shall be provided at a main floor of each elevator or group of elevators for recall to the main floor in accordance with RS 18-1, Rule 210.13.a.			No requirements.		
	A keyed switch shall be provided in or adjacent to an operating panel of each elevator to initiate emergency service in accordance with RS 18-1, Rule 210.13.b.			No requirements.		
A.10 Emergency Electical and Standby Power Systems						
Emergency Power Systems	No requirements.	Emergency lighting and emergency power is required in: Group C2 – Mercantile, three stories or more in height, having more than 5000 ft^2 of floor area on any story, and in below-grade sales spaces exceeding 2500 ft^2 in floor area. Group C5.1, C5.2, C5.3 and C5.5 – Assembly occupancies with spaces intended for occupancy by 200 or more in one room or enclosure. (C507-2.2)			Electrical system has to comply with the 1965 edition of NFPA 70, National Electric Code The following must be on emergency power: Exit lighting (where required for particular occupancies) (5-10211). Exit signs, where emergency exit lighting is required by particular occupancies (5-11121).	
A.11 Special Features						
Public Garages	A public garage used exclusively for parking of vehicles having fuel storage tanks of 26 gal capacity or less is classified in storage Occupancy Group B-2 (C26-709.2(b)).	Space for parking motor vehicles are classified in group C4.1 and are required to be separated from other occupancies by fire separations per Table C402-4. (C402-4.9b)			Garages are considered as such if there are no repair operations (15-2111).	

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	All floors shall be concrete or equivalent noncombustible material and columns shall be protected from vehicle impact or designed to resist lateral forces in accordance with Section C26-902.4 (C26-709.3).					
	Public garages shall be ventilated in accordance with Section C26-709.7.	Ventilating systems for garages are required in accordance with C508-3.1b, Table C508-3.3h, Table 508-3.3i).				
	Ramps serving as required exits shall be enclosed in 2 h fire resistance rated construction with vehicle openings at each parking tier protected by a 3 gpm/ft deluge type sprinkler water curtain (C26-709.9).				Ramps may serve as a second exit on above grade floors and the first below grade floor if the ramps are not subject to closure (15-2212, 15-2213).	
Smoke and Heat Venting	No requirements.			Required for H-1 & H 2, all hotels and apartment houses, which exceed three stories of 40 ft, with more than 25 sleeping rooms, with an occupancy load exceeding 50 or which exceed 10,000 ft area (521.1).	Automatic smoke venting is required for underground structures serving more than 1,000 people (16-4112).	These requirements were unique to the NYC Building Code.
	Elevator and dumbwaiter shafts.				Automatic smoke venting must comply with 7-113.	
	In accordance with RS 18-1.					
	Other closed shafts, including stairway enclosures:					
	All closed shafts having an area exceeding 4 ft^2 shall be provided with a smoke vent having an area of at least 3½ % of the maximum shaft area at any floor but not less than ½ ft^2 (C26-504.6(d)).					

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
	Smoke vents may be windows, louvers, skylights, vent ducts or similar devices.					
	Vent ducts shall be enclosed by construction having the same fire resistance rating as required for the shaft and extend vertically, diagonally, or horizontally in accordance with Sections C26-504.6(d)(1) , C26-504.6(d)(2).					
	Of the total required vent area for shafts, at least 1/3 shall be clear to the outdoors, either in the form of fixed louvers, ridge vents, or hooded or goosenecked openings (C26-504.6(e)).					
	As an alternate, skylights or trap doors may be used arranged to open automatically by fusible link or other mechanical device when subjected to 160 °F fixed temperature or 15-20 °F/min temperature rise (C26-504.6(e)).					
	Of the total required vent area for shafts up to 2/3 may be a window or skylight glazed with plain glass not more than 1/8 in. thick or slow burning plastic (27-344(e)).					
	Vents shall not be located in doors leading to machine rooms which communicate with the shaft (27-344(f)).					

	Then Current NYC Building Code	Then Current NY State Building Code	Then Current Chicago Building Code	Then Current BOCA Building Code	Then Current NFPA 101 Life Safety Code	Summary of Significant Differences
Atria and Floor Openings	No requirements.				Three communicating floor levels are permitted without enclosure or protection between areas in fully sprinklered moderate hazard buildings (e.g., Office) if the following is met (6-1112):	
					The lowest or next to lowest level is at street level.	
					The entire area including communicating levels is open and unobstructed so that a fire or other dangerous condition will be obvious to occupants of all communicating areas.	
					Sufficient exit capacity for simultaneous evacuation of all occupants of all communicating levels. All communicating levels in the same fire area will be considered a single floor for determining required. exit capacity.	
					Each floor level has at least ½ of required exit capacity leading directly out of open area.	
					All other code requirements with respect to interior finish, protection of hazards, construction and other features are observed without waivers.	

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