NIST NCSTAR 1-1F (Draft)

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

Comparison of the 1968 and Current (2003) New York City Building Code Provisions (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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September 2005

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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ABSTRACT

This report was prepared to support 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) and the provisions of the 2003 (current) edition of the Building Code of the City of New York.

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
BCNYC	Building Code of the City of New York (Local Law No. 76)
HVAC	heating, ventilating, and air conditioning
LL	Local Law to amend the Administrative Code of the City of New York
MER	Mechanical Equipment Room
NC	noncombustible
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NR	no requirement
NR	not rated
PANYNJ	Port Authority of New York and New Jersey
RS	Reference Standard to the Building Code of the City of New York
UL	Underwriters Laboratories, Inc.
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	foot
ft^2	square foot
gal	gallon
gpm	gallons per minute
h	hour
in.	inch
$in.^2$	square inches
psi	pounds per square inch

rpm	revolutions per minute
V	volt

GLOSSARY

combustible – A material that will ignite and burn when subjected to fire or heat.

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

fireproofing – A method 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 does not ignite or burn when subjected to fire and heat.

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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.

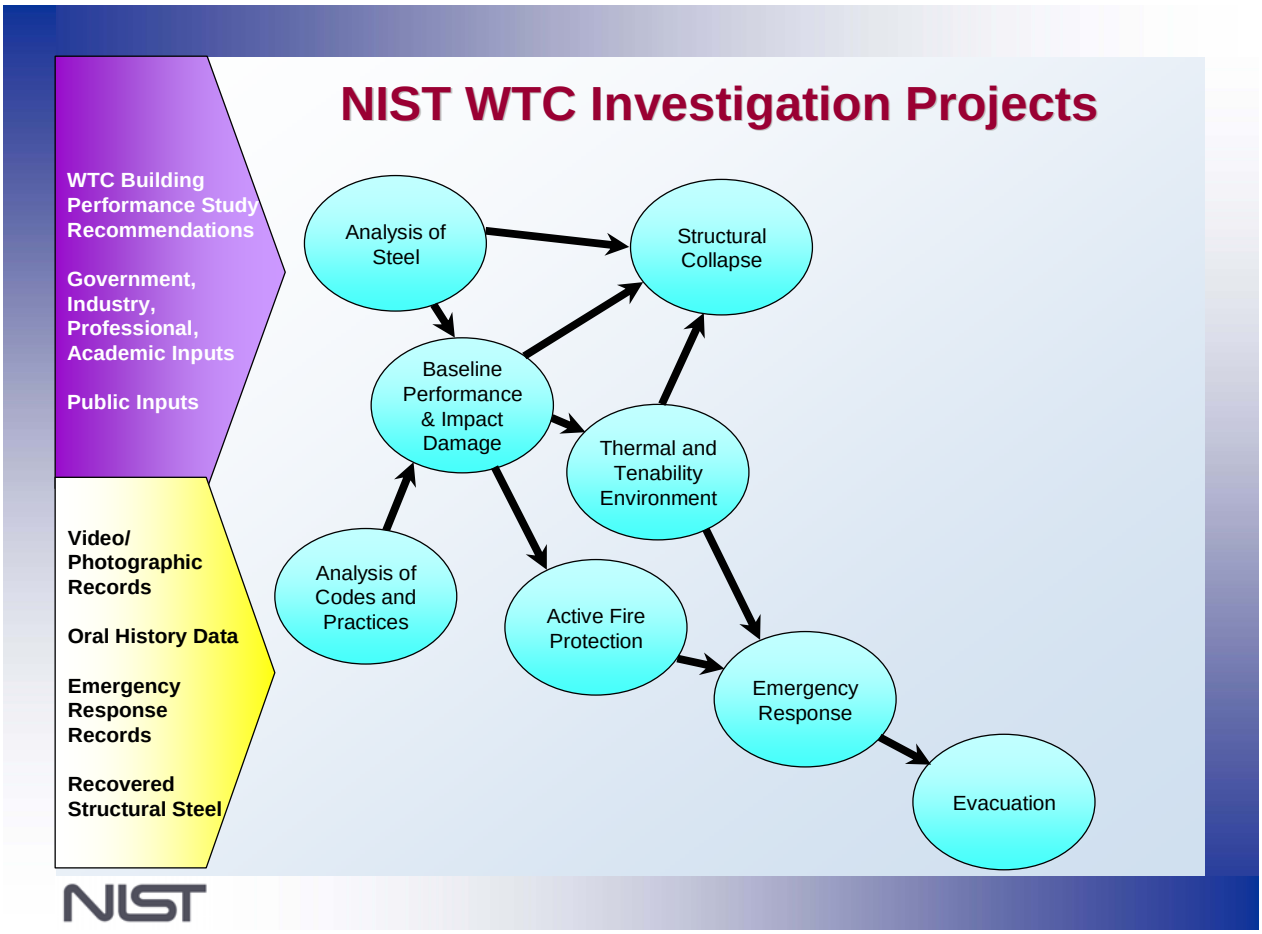

Figure P–1. The eight projects in the federal building and fire safety investigation of the WTC disaster.

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.

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 Collapse of World Trade Center 7.* NIST NCSTAR 1A. Gaithersburg, MD, December.

Lew, H. S., R. W. Bukowski, and N. J. Carino. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Design, Construction, and Maintenance of Structural and Life Safety Systems.* NIST NCSTAR 1-1. National Institute of Standards and Technology. Gaithersburg, MD, September.

Fanella, D. A., A. T. Derecho, and S. K. Ghosh. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Design and Construction of Structural Systems.* NIST NCSTAR 1-1A. National Institute of Standards and Technology. Gaithersburg, MD, September.

Ghosh, S. K., and X. Liang. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Comparison of Building Code Structural Requirements.* NIST NCSTAR 1-1B. National Institute of Standards and Technology. Gaithersburg, MD, September.

Fanella, D. A., A. T. Derecho, and S. K. Ghosh. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Maintenance and Modifications to Structural Systems.* NIST NCSTAR 1-1C. National Institute of Standards and Technology. Gaithersburg, MD, September.

Grill, R. A., and D. A. Johnson. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Fire Protection and Life Safety Provisions Applied to the Design and Construction of World Trade Center 1, 2, and 7 and Post-Construction Provisions Applied after Occupancy.* NIST NCSTAR 1-1D. National Institute of Standards and Technology. Gaithersburg, MD, September.

Razza, J. C., and R. A. Grill. 2005. *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.* NIST NCSTAR 1-1E. National Institute of Standards and Technology. Gaithersburg, MD, September.

Grill, R. A., D. A. Johnson, and D. A. Fanella. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Comparison of the 1968 and Current (2003) New*

York City Building Code Provisions. NIST NCSTAR 1-1F. National Institute of Standards and Technology. Gaithersburg, MD, September.

Grill, R. A., and D. A. Johnson. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Amendments to the Fire Protection and Life Safety Provisions of the New York City Building Code by Local Laws Adopted While World Trade Center 1, 2, and 7 Were in Use*. NIST NCSTAR 1-1G. National Institute of Standards and Technology. Gaithersburg, MD, September.

Grill, R. A., and D. A. Johnson. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Post-Construction Modifications to Fire Protection and Life Safety Systems of World Trade Center 1 and 2*. NIST NCSTAR 1-1H. National Institute of Standards and Technology. Gaithersburg, MD, September.

Grill, R. A., D. A. Johnson, and D. A. Fanella. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Post-Construction Modifications to Fire Protection, Life Safety, and Structural Systems of World Trade Center 7*. NIST NCSTAR 1-1I. National Institute of Standards and Technology. Gaithersburg, MD, September.

Grill, R. A., and D. A. Johnson. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Design, Installation, and Operation of Fuel System for Emergency Power in World Trade Center 7*. NIST NCSTAR 1-1J. National Institute of Standards and Technology. Gaithersburg, MD, September.

Sadek, F. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Baseline Structural Performance and Aircraft Impact Damage Analysis of the World Trade Center Towers.* NIST NCSTAR 1-2. National Institute of Standards and Technology. Gaithersburg, MD, September.

Faschan, W. J., and R. B. Garlock. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Reference Structural Models and Baseline Performance Analysis of the World Trade Center Towers.* NIST NCSTAR 1-2A. National Institute of Standards and Technology. Gaithersburg, MD, September.

Kirkpatrick, S. W., R. T. Bocchieri, F. Sadek, R. A. MacNeill, S. Holmes, B. D. Peterson, R. W. Cilke, C. Navarro. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Analysis of Aircraft Impacts into the World Trade Center Towers*, NIST NCSTAR 1-2B. National Institute of Standards and Technology. Gaithersburg, MD, September.

Gayle, F. W., R. J. Fields, W. E. Luecke, S. W. Banovic, T. Foecke, C. McCowan, T. A. Siewert, and J. D. McColskey. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Mechanical and Metallurgical Analysis of Structural Steel.* NIST NCSTAR 1-3. National Institute of Standards and Technology. Gaithersburg, MD, September.

Luecke, W. E., T. A. Siewert, and F. W. Gayle. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Contemporaneous Structural Steel Specifications.* NIST Special Publication 1-3A. National Institute of Standards and Technology. Gaithersburg, MD, September.

Banovic, S. W. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Steel Inventory and Identification.* NIST NCSTAR 1-3B. National Institute of Standards and Technology. Gaithersburg, MD, September.

Banovic, S. W., and T. Foecke. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Damage and Failure Modes of Structural Steel Components.* NIST NCSTAR 1-3C. National Institute of Standards and Technology. Gaithersburg, MD, September.

Luecke, W. E., J. D. McColskey, C. McCowan, S. W. Banovic, R. J. Fields, T. Foecke, T. A. Siewert, and F. W. Gayle. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Mechanical Properties of Structural Steels.* NIST NCSTAR 1-3D. National Institute of Standards and Technology. Gaithersburg, MD, September.

Banovic, S. W., C. McCowan, and W. E. Luecke. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Physical Properties of Structural Steels.* NIST NCSTAR 1 3E. National Institute of Standards and Technology. Gaithersburg, MD, September.

Evans, D. D., E. D. Kuligowski, W. S. Dols, and W. L. Grosshandler. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Active Fire Protection Systems.* NIST NCSTAR 1-4. National Institute of Standards and Technology. Gaithersburg, MD, September.

Kuligowski, E. D., and D. D. Evans. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Post-Construction Fires Prior to September 11, 2001.* NIST NCSTAR 1-4A. National Institute of Standards and Technology. Gaithersburg, MD, September.

Hopkins, M., J. Schoenrock, and E. Budnick. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Fire Suppression Systems.* NIST NCSTAR 1-4B. National Institute of Standards and Technology. Gaithersburg, MD, September.

Keough, R. J., and R. A. Grill. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Fire Alarm Systems.* NIST NCSTAR 1-4C. National Institute of Standards and Technology. Gaithersburg, MD, September.

Ferreira, M. J., and S. M. Strege. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Smoke Management Systems.* NIST NCSTAR 1-4D. National Institute of Standards and Technology. Gaithersburg, MD, September.

Gann, R. G., A. Hamins, H. E. Nelson, K. B. McGrattan, G. W. Mulholland, T. J. Ohlemiller, W. M. Pitts, and K. R. Prasad. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Reconstruction of the Fires in the World Trade Center Towers.* NIST NCSTAR 1-5. National Institute of Standards and Technology. Gaithersburg, MD, September.

Pitts, W. M., and K. M. Butler. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Visual Evidence, Damage Estimates, and Timeline Analysis.* NIST NCSTAR 1-5A. National Institute of Standards and Technology. Gaithersburg, MD, September.

Hamins, A., A. Maranghides, K. B. McGrattan, E. Johnsson, T. J. Ohlemiller, M. Donnelly, J. Yang, G. Mulholland, K. R. Prasad, S. Kukuck, R. Anleitner and T. McAllister. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Experiments and*

Modeling of Structural Steel Elements Exposed to Fire. NIST NCSTAR 1-5B. National Institute of Standards and Technology. Gaithersburg, MD, September.

Ohlemiller, T. J., G. W. Mulholland, A. Maranghides, J. J. Filliben, and R. G. Gann. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Fire Tests of Single Office Workstations.* NIST NCSTAR 1-5C. National Institute of Standards and Technology. Gaithersburg, MD, September.

Gann, R. G., M. A. Riley, J. M. Repp, A. S. Whittaker, A. M. Reinhorn, and P. A. Hough. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Reaction of Ceiling Tile Systems to Shocks.* NIST NCSTAR 1-5D. National Institute of Standards and Technology. Gaithersburg, MD, September.

Hamins, A., A Maranghides, K. B. McGrattan, T. J. Ohlemiller, and R. Anleitner. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Experiments and Modeling of Multiple Workstations Burning in a Compartment.* NIST NCSTAR 1-5E. National Institute of Standards and Technology. Gaithersburg, MD, September.

McGrattan, K. B., C. Bouldin, and G. Forney. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Computer Simulation of the Fires in the World Trade Center Towers.* NIST NCSTAR 1-5F. National Institute of Standards and Technology. Gaithersburg, MD, September.

Prasad, K. R., and H. R. Baum. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Fire Structure Interface and Thermal Response of the World Trade Center Towers.* NIST NCSTAR 1-5G. National Institute of Standards and Technology. Gaithersburg, MD, September.

Gross, J. L., and T. McAllister. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Structural Fire Response and Probable Collapse Sequence of the World Trade Center Towers.* NIST NCSTAR 1-6. National Institute of Standards and Technology. Gaithersburg, MD, September.

Carino, N. J., D. P. Bentz, R. W. Bukowski, J. L. Gross, S. Kukuck, K. R. Prasad, and M. A. Starnes. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Passive Fire Protection.* NIST NCSTAR 1-6A. National Institute of Standards and Technology. Gaithersburg, MD, September.

Gross, J., F. Hervey, M. Izydorek, J. Mammoser, and J. Treadway. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Fire Resistance Tests of Floor Truss Systems.* NIST NCSTAR 1-6B. National Institute of Standards and Technology. Gaithersburg, MD, September.

Zarghamee, M. S., A. A. Liepins, F. W. Kan, M. Mudlock, O. O. Erbay, Y. Kitane, W. I. Naguib, A. T. Sarawit. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Component, Connection, and Subsystem Structural Analysis.* NIST NCSTAR 1-6C. National Institute of Standards and Technology. Gaithersburg, MD, September.

Zarghamee, M. S., O. O. Erbay, Y. Kitane. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Global Structural Analysis of the Response of the World Trade Center Towers to Impact Damage and Fire.* NIST NCSTAR 1-6D. National Institute of Standards and Technology. Gaithersburg, MD, September.

McAllister, T., R. G. Gann, J. L. Gross, K. B. McGrattan, H. E. Nelson, W. M. Pitts, K. R. Prasad. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Structural Fire Response and Probable Collapse Sequence of World Trade Center 7.* 2005. NIST NCSTAR 1-6E. National Institute of Standards and Technology. Gaithersburg, MD, December.

Gilsanz, R., V. Arbitrio, C. Anders, D. Chlebus, K. Ezzeldin, W. Guo, P. Moloney, A. Montalva, J. Oh, K. Rubenacker. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Structural Analysis of the Response of World Trade Center 7 to Debris Damage and Fire*. NIST NCSTAR 1-6F. National Institute of Standards and Technology. Gaithersburg, MD, December.

Kim, W. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Analysis of September 11, 2001, Seismogram Data*, NIST NCSTAR 1-6G. National Institute of Standards and Technology. Gaithersburg, MD, December.

Nelson, K. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: The ConEd Substation in World Trade Center 7*, NIST NCSTAR 1-6H. National Institute of Standards and Technology. Gaithersburg, MD, December.

Averill, J. D., D. S. Mileti, R. D. Peacock, E. D. Kuligowski, N. Groner, G. Proulx, and P. A. Reneke. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Occupant Behavior, Egress, and Emergency Communication.* NIST NCSTAR 1-7. National Institute of Standards and Technology. Gaithersburg, MD, September.

Fahy, R., and G. Proulx. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Analysis of Published Accounts of the World Trade Center Evacuation.* NIST NCSTAR 1-7A. National Institute of Standards and Technology. Gaithersburg, MD, September.

Zmud, J. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: Technical Documentation for Survey Administration.* NIST NCSTAR 1-7B. National Institute of Standards and Technology. Gaithersburg, MD, September.

Lawson, J. R., and R. L. Vettori. 2005. *Federal Building and Fire Safety Investigation of the World Trade Center Disaster: The Emergency Response Operations.* NIST NCSTAR 1-8. National Institute of Standards and Technology. Gaithersburg, MD, September.

EXECUTIVE SUMMARY

As part of the analysis of building and fire codes and standards 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 buildings. This report also documents the requirements of the 2003 BCNYC. 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 No. 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 on 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 of the NIST WTC Investigation focuses on the macro requirements for fire protection systems in the WTC buildings. Other projects are focused on the specific requirements of the various fire protections 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.

The 2003 BCNYC is the 1968 Code incorporating amendments enacted through 2003. Changes to the 2003 BCNYC have been made over time through passage of Local Laws. The report, NIST NCSTAR 1-1G, *Amendments to the Fire Protection and Life Safety Provisions of the New York City Building Code by Local Laws Adopted While WTC 1, 2, and 7 Were in Use*, discusses the evolution of the changes of the BCNYC. This report documents the differences in the areas of fire protection and life safety between the 1968 and 2003 codes.

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Chapter 1
INTRODUCTION

One of the goals of the World Trade Center (WTC) Investigation led by the National Institute of Standards and Technology (NIST) was 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 was to identify the codes and standards that were used during the design and construction of the WTC, 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 No. 76 for the year 1968, effective December 6, 1968.

One of the tasks of the Investigation was to review and document relevant provisions of the building codes relevant to the WTC and to summarize significant differences. This report provides a comparison of the 1968 (then current) BCNYC and the 2003 (current) edition of the BCNYC.

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 REFERENCED STANDARDS

Referenced standards have been updated to later editions of the national standards.

2.2 COMPARTMENTATION

The 2003 Building Code of the City of New York (BCNYC) includes a requirement for compartmentation (subdivision of floors by fire rated construction) for new and existing unsprinklered Class E (Office) buildings exceeding 100 ft in height.

2.3 CONSTRUCTION

The height and area limits in the 2003 BCNYC are reduced from the 1968 BCNYC. New office buildings exceeding 75 ft in height are required to be provided with automatic sprinklers by the 2003 BCNYC. The 2003 BCNYC would have allowed the WTC buildings to be constructed as Type IC Construction. This would allow reductions in fire resistance for various elements of the structure as identified in the comparison in Appendix A.

2.4 MEANS OF EGRESS

The 1968 BCNYC required doors in scissor stairs to be at least 15 ft apart. The 2003 BCNYC requires exits to be separated by the greater of 30 ft or one-third the maximum exit travel distance of the floor.

The 2003 BCNYC requires exit signs and exit illumination in new buildings and existing Class E buildings to be provided with emergency power. This was not required in the 1968 BCNYC.

2.5 FIRE SUPPRESSION SYSTEMS

Automatic fire sprinklers are required by the 2003 BCNYC in new Class E buildings exceeding 75 ft height or exceeding 100,000 ft^2 in total area and in existing Class E buildings exceeding 100 ft in height if the floors are not provided with compartmentation. The 1968 BCNYC only required sprinklers in underground spaces.

2.6 FIRE ALARM, DETECTION, AND SIGNALING SYSTEMS

The 2003 BCNYC requires a Class E fire alarm system in new Class E buildings more than 75 ft in height and existing Class E buildings more than 100 ft in height. The systems are required to include loud speakers for voice communication, two-way voice communication, and a fire command station. The 1968 BCNYC contained no requirements for fire alarm or voice communication systems.

Requirements for elevator lobby smoke detectors and elevator recall criteria were added to BCNYC by Local Law No. 5 (1973).

2.7 EMERGENCY POWER

The 2003 BCNYC requires emergency power in new Class E high-rise buildings with capacity to simultaneously supply fire pumps, at least three elevators at one time with manual transfer to all elevators, alarm and communication equipment, emergency lighting, ventilation systems used for smoke venting or control and stair pressurization equipment. The 1968 BCNYC had no requirements for emergency power.

2.8 SMOKE AND HEAT VENTING

The 2003 BCNYC includes requirements for smoke and heat venting for new and existing Class E office buildings that were not in the 1968 BCNYC. Requirements for smoke shafts and stair pressurization are provided. Smoke shafts were required in the 1968 BCNYC and stair pressurization was added as an alternative to these shafts by Local Law No. 5 (1973).

Chapter 3
REFERENCES

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

2. Building Code of the City of New York. 2003. New York City Department of Buildings.

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Appendix A
TABLE OF CODE COMPARISON AND SUMMARY OF SIGNIFICANT DIFFERENCES

This is a side-by-side comparison of requirements from the 1968 (then current) and 2003 (current) edition of the Building Code of the City of New York.

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	THEN CURRENT BCNYC	CURRENT BCNYC	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 No. 76 for the year 1968, effective December 6, 1968)	Building Code of the City of New York, effective December 6, 1968 edited and amended to 2003	
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 5-2 Standard Methods Fire Test of Building Construction Materials, ASTM E-119 - 1988; RS 5-5 Standard Method For Surface Burning Characteristics of Building Materials, ASTM E84, 1987; RS 5-8 Standard for Fire Doors and Windows, NFPA 80 – 1986; RS 13-1 Standard for the Installation of Air Conditioning and Ventilating Systems, NFPA 90A – 1996, as modified;	All Reference Standards have been updated to later standards.
	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.	RS 17-1 Standpipe System Construction; RS 17-2 Standard for the Installation of Sprinkler Systems, NFPA 13-1989, as modified; RS 17-3 Standards for the Installation of Fire, Sprinkler, Standpipe, Smoke Detection and other Alarm and Extinguishing Systems; RS 17-5 National Fire Alarm Code, NFPA 72 – 1993, as modified; RS 18-1 Safety Code for Elevators and Escalators ANSI/ASME A17.1-1996 and Supplement A17.1a-1997, as Modified.	Standpipe requirements are not based on NFPA 14

	THEN CURRENT BCNYC	CURRENT BCNYC	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):	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 (27-237, 27-238, 27-239, 27-253):	BCNYC was renumbered but the requirement was unchanged
Secondary/Accessory Occupancies	Occupancy Group B-1, Storage (Moderate Hazard), Fire Index: 3	Occupancy Group B-1, Storage (Moderate Hazard), Fire Index: 3	
	Occupancy Group B-2, Storage (Low Hazard, Garage), Fire Index: 2	Occupancy Group B-2, Storage (Low Hazard, Garage), Fire Index: 2	
	Occupancy Group C, Mercantile, Fire Index: 2	Occupancy Group C, Mercantile, Fire Index: 2	
	Occupancy Group F-4, Assembly (Restaurant), Fire Index: 1	Occupancy Group F-4, Assembly (Restaurant), Fire Index: 1	
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)).	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 27-339(a) and treated as separate buildings (27-340(a)).	
	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).	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 27-339(b) .	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Occupancy Separation (continued)	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).	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).	
	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).	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 (27-242).	
	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).	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 (27-242).	
		Compartmentation – All new buildings classifed in occupancy group E and existing office buildings 100 ft or more in height having air-conditioning and/or mechanical ventilation systems that serve more than the floor on which the equipment is located, unsprinklered floor areas, more than 40 ft above curb level, shall be subdivided by fire separations into spaces or compartments as required by paragraphs 1 through 5 (27-339(c)).	This section was added to the code in 1973 under Local Law #5. It provided an option to automatic sprinklers in new and existing office buildings 100 ft or more in height.

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
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 Group I, Class IA or Class IB or IC (**sprinklered** building with unlimited height and area) in accordance with Section 27-269 through 27-276 and Table 3-4 (27-286, 27-296, 27-301, 27-305).		Local Law 5/1973 and Local Law 16/1984 requires sprinklers in all new office buildings over 75 ft in height. Height and area limits reduced for unsprinklered buildings and spaces.
	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.		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).		The building is located inside the Borough of Manhattan Fire District without additional restrictions imposed based on its use and occupancy (27-293, 27-296).		
Minimum Fire Resistance Ratings	Element (Table 3-4) (Construction **Class IB**)	Hours	Element (Table 3-4) (Construct **Class IC**)	Hours	Minimum Class IB required in 1968 without sprinklers. Minimum Class IC required in current code with sprinklers.
	Exterior Walls		Exterior Walls		
	Bearing	3	Bearing	2	Reduced hourly rating with sprinklers in current NYC.
	Nonbearing (based on exterior separation)		Nonbearing (based on exterior separation)		

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Minimum Fire Resistance Ratings (continued)	Element (Table 3-4) (Construction **Class IB**)	Hours	Element (Table 3-4) (Construct **Class IC**)	Hours	Minimum Class IB required in 1968 without sprinklers. Minimum Class IC required in current code with sprinklers.
	3 ft or less with 0 % openings.	2	3 ft or less with 0 % openings.	2	
	Greater than 3 ft up to less than 15 ft with 3½ % protected openings.	2	Greater than 3 ft up to less than 15 ft with 3½ % protected openings.	2	
	15 ft to less than 30 ft with 3½ % openings.	1½	15 ft to less than 30 ft with 3½ % openings.	1	Reduced hourly rating with sprinklers in Current NYC.
	30 ft or greater with unlimited openings.	NC (noncomb-ustible)	30 ft or greater with unlimited openings.	NC	
	Fire Divisions		Fire Divisions		
	Between Group B-1 and B-2, C, E or F-4.	3	Between Group B-1 and B-2, C, E or F-4.	3	
	Fire Separations		Fire Separations		
	Between Groups E and B-2, C or F-4.	NR (not rated)	Between Groups E and B-2, C or F-4.	NR	
	Tenant Separations	1	Tenant Separations	1	
	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.		
	Interior bearing walls and partitions.	3	Interior bearing walls and partitions.	2	Reduced hourly rating with sprinklers in Current NYC.

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Minimum Fire Resistance Ratings (continued)	Element (Table 3-4) (Construction **Class IB**)	Hours	Element (Table 3-4) (Construct **Class IC**)	Hours	Minimum Class IB required in 1968 without sprinklers. Minimum Class IC required in current code with sprinklers.
	Vertical exits and exit passageways (C26-604.8).	2	Vertical exits and exit passageways (27-375).	2	
	Separation of above and below grade portions in common enclosures (C26-602.4)	1	Separation of above and below grade portions in common enclosures (27-364).	1	
	Hoistways and shafts (C26-504.6, C26-1800.6).	2	Hoistways and shafts (27-344, 27-987).	2	
	Columns, girders, trusses (other than roof trusses) and framing.		Columns, girders, trusses (other than roof trusses) and framing.		
	Supporting one floor.	2	Supporting one floor.	1½	Reduced hourly rating with sprinklers in Current NYC.
	Supporting more than one floor.	3	Supporting more than one floor.	2	Reduced hourly rating with sprinklers in Current NYC.
	Structural members supporting walls.	3	Structural members supporting walls.	2	Reduced hourly rating with sprinklers in Current NYC.
	Floor construction, including beams.	2	Floor construction, including beams.	1½	Reduced hourly rating with sprinklers in Current NYC.
	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).		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 (27-327).		

	THEN CURRENT BCNYC		**CURRENT BCNYC**		**SUMMARY OF SIGNIFICANT DIFFERENCES**
Minimum Fire Resistance Ratings (continued)	Element (Table 3-4) (Construction **Class IB**)	Hours	Element (Table 3-4) (Construct **Class IC**)	Hours	Minimum Class IB required in 1968 without sprinklers. Minimum Class IC required in current code with sprinklers.
	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).		
	(height of lowest member above floor of) 15 ft or less	1½	15 ft or less	1	Reduced hourly rating with sprinklers in Current NYC.
	Greater than 15 ft up to 20 ft	1	Greater than 15 ft up to 20 ft	1	
	20 ft or greater	NC	20 ft or greater	NC	
	Exit access corridors (C26-604.2(h)).	1	Exit access corridors (27-369(h)).	1	
	Area of refuge separation (C26-604.5, C26-604.6).	2	Area of refuge separation (27-372, 27-373).	2	
	Escalators not used as exits (C26-604.11).	¾	Escalators not used as exits (27-278(c)).	¾	
	Escalators that connect two stories may be unenclosed.		Escalators that connect two stories may be unenclosed.		

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Minimum Fire Resistance Ratings of Enclosures	Element (Table 3-4) (Construction **Class IB**)	Hours	Element (Table 3-4) (Construct **Class IC**)	Hours	Minimum Class IB required in 1968 without sprinklers. Minimum Class IC required in current code with sprinklers.
	Transformer vaults (greater than 35,000 V) (National Electrical Code).	3	Transformer vaults (greater than 35,000 V) (NEC).	3	
	Emergency generator and fire pump rooms.	2	Emergency generator and fire pump rooms.	2	
	Storage rooms (B-1) greater than 75 ft^2 (Table 5-1 note c).	1	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	Openings in a 3 h rated Fire Division or Fire Separation wall (Class "A") (27-342 and Table 5-3).	3	
	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	Openings in 2 h or 1½ h rated Fire Division or Fire Separation wall or vertical communication enclosure (Class "B") (27-342,Table 5-3, 27-371(a), 27-987).	1½	
	Openings in 1 h rated vertical communication enclosure (Class "B").	1	Openings in 1 h rated vertical communication enclosure (Class "B").	1	

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Protection of Openings (continued)	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	Openings in 1 h rated Fire Division or Fire Separation walls, corridors or partitions (Class "C") (27-342, Table 5-3, 27-371(b)).	¾	
	Non-combustible mail slots not exceeding 40 in.^{2} may be provided in corridor doors (C26-604.4(b)).		Non-combustible mail slots not exceeding 40 in.^{2} may be provided in corridor doors (27-371(b)).		
	Non-combustible louvers may be installed in corridor doors opening into toilets, service sink closets and electrical closets (C26-604.4(b)).		Non-combustible louvers may be installed in corridor doors opening into toilets, service sink closets and electrical closets (27-371(b)).		
	Required protected openings in exterior walls (Class "E" or Class "F") (C26-503.1(b)).	¾	Required protected openings in exterior walls (Class "E" or Class "F") (27-331(b)).	¾	
	Openings in Fire Divisions and Fire Separations shall not exceed the size limits in Section C26-504.4(a).		Openings in Fire Divisions and Fire Separations shall not exceed the size limits in Section 27-342(a).		
	In shafts that contain only one opening below the roof, no opening protective is required (C26-504.6(c)).		In shafts that contain only one opening below the roof, no opening protective is required (27-344(c)).		

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Protection of Openings (continued)	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).	Exterior street floor exit doors with a fire separation distance of more than 15 ft need not have a fire resistance rating (27-371(a)(1).	
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 13-1, NFPA 90A-1996 (27-343(a)).	
	Duct penetrations of walls with a 2 h fire resistance rating or greater (RS 13-1 §902(a)).	Duct penetrations of walls with a 2 h fire resistance rating or greater (RS 13-1 §2-3.8).	
	Each opening in required vertical shaft enclosures (RS 13-1 §902(b)).	Each opening in required vertical shaft enclosures (RS 13-1 §).	
	Each outlet or inlet opening in vertical shaft enclosure of duct systems serving two or more floors (RS 13-1 §902(c).	Each outlet or inlet opening in vertical shaft enclosure of duct systems serving two or more floors (RS 13-1 §).	
	As an alternate, dampers may be provided at each point where the vertical duct pierces a floor it serves (RS 13-1 §902(c).	As an alternate, dampers may be provided at each point where the vertical duct pierces a floor it serves (RS 13-1 §).	
	Branch duct penetrations of vertical duct shaft enclosures (RS 13-1 §902(c).	Branch duct penetrations of vertical duct shaft enclosures (RS 13-1).	
	Fresh air intakes (RS 13-1 §902(e)).	Fresh air intakes (RS 13-1).	
	Aluminum or Class I duct penetrations of fire resistance rated floors (RS 13-1 §902(d)).	Aluminum Class I duct penetrations of fire resistance rated floors (RS 13-1).	
	Fire dampers are not required at the following locations (RS 13-1 §903).	Fire dampers are not required at the following locations (RS 13-1).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Fire and Smoke Dampers (continued)	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)).	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).	
	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)).	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).	
	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)).	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).	
	Branch ducts connected to a return riser where subducts are extended at least 22 in. upward (RS 13-1 §903(e)).	Branch ducts connected to a return riser where subducts are extended at least 22 in. upward (RS 13-1).	
	Fire dampers shall be automatic closing 1½ h fire rated with a fusible link or other heat actuated device rated approximately 50 ºF above the maximum system operating temperature (RS 13-1 §905(a) and §905(g)).	Fire dampers shall be automatic closing 1½ h fire rated with a fusible link or other heat actuated device rated approximately 50 ºF above the maximum system operating temperature (RS 13-1).	
	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 (27-327(b)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Fire and Smoke Dampers (continued)	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).	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).	
	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).	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).	
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)).	All firestopping or fill materials shall consist of approved noncombustible materials that can be shaped, fitted and permanently secured in place (27-345(a)).	
	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 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 (27-345):	
	Hollow partitions and furred spaces	Hollow partitions and furred spaces	
	Concealed spaces within stair construction.	Concealed spaces within stair construction.	
	Ceiling spaces within rated floor or roof assemblies	Ceiling spaces within rated floor or roof assemblies	
	Exterior cornices	Exterior cornices	
	Duct and pipe spaces (C26-504.5 and RS 13-1 §313, §314)	Duct and pipe spaces (27-343(b) and RS 13-1)	
	Hollow vertical Fire Division (C26-504.2(i))	Hollow vertical Fire Division (27-340(i))	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Firestopping (continued)	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:	The concealed space above a fire resistance rated ceiling shall be firestopped into areas not exceeding 3,000 ft^2 (27-327) except where:	
	Structural members within the concealed space are individually protected, or	Structural members within the concealed space are individually protected, or	
	The concealed space is sprinklered.	The concealed space is sprinklered.	
Through Penetration Protection	Noncombustible pipes and conduits may pass through fire resistance rated construction provided the following (C26-504.5):	Noncombustible pipes and conduits may pass through fire resistance rated construction provided the following (27-343):	
	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.	
	Close-fitting metal escutcheons are provided on both sides of the construction.	Close-fitting metal escutcheons are provided on both sides of the construction.	
	Aggregate net area of openings does not exceed 25 in.^{2} in any 100 ft^2 of wall or floor area.	Aggregate net area of openings does not exceed 25 in.^{2} in any 100 ft^2 of wall or floor area.	
	Openings in excess of this limit are not permitted unless tested as part of a rated assembly and so protected.	Openings in excess of this limit are not permitted unless tested as part of a rated assembly and so protected.	
	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 (27-327(b)):	

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Through Penetration Protection (continued)	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 outlet boxes and lighting fixtures does not exceed 16 in.^{2} in each 90 ft^2 of ceiling area.		
	Outlet boxes and lighting fixtures are constructed of steel at least .022 in. thick and sealed tightly at the ceiling.		Outlet boxes and lighting fixtures are constructed of steel at least .022 in. thick and sealed tightly at the ceiling.		
	Additional or larger services are permitted only when tested as part of the assembly and protected as provided in the test.		Additional or larger services are permitted only when tested as part of the assembly and protected as provided in the test.		
	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 return air plenum if listed (tested) for that purpose provided (RS 13-1):		
	All openings are tested as part of the assembly and protected in the test,		All openings are tested as part of the assembly and protected in the test,		
	The integrity of firestopping is not destroyed,		The integrity of firestopping is not destroyed,		
	No combustible materials are incorporated in the floor and ceiling construction, and		No combustible materials are incorporated in the floor and ceiling construction, and		
	Electrical wiring complies with NEC NFPA 70 §300-22).		>Electrical wiring is plenum rated (NEC).		NEC added a classification for plenum cables.
A.5 INTERIOR FINISH					
Interior Finish and Flame Spread Ratings (as defined in ASTM E84)	Exits and shafts (C26-504.10(c), Table 5-4, C26-604.8 (i)(3)):	Class A (0-25)	Exits and shafts (27-348(c), Table 5-4, 27-375(i)(3)):	Class A (0-25)	
	Corridors (C26-504.10(c), Table 5-4, C26-604.2(k)):		Corridors (27-348(c), Table 5-4 27-369(k)):		

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Interior Finish and Flame Spread Ratings (as defined in ASTM E84) (continued)	Group B-1:	Class A (0-25)	Group B-1:	Class A (0-25)	
	Groups B-2, E, F-4	Class A or B (0-75)	Groups E, B-2, F-4	Class A or B (0-75)	
	Group M:	Class A or B (0-75)	Group C:	Class A or B (0-75)	
	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).		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).		
	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.		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.		
	Rooms and enclosed spaces:		Rooms and enclosed spaces:		
	Rooms greater than 1,500 ft^2 (C26-504-10(c), Table 5-4):		Rooms greater than 1,500 ft^2 (27-348(c), Table 5-4):		
	Groups B-1, B-2, F-4	Class A or B (0-75)	Groups B-1, B-2, F-4	Class A or B (0-75)	
	Group E	Class A, B or C (0-225)	Group E	Class A, B or C (0-225)	
	Rooms less than 1,500 ft^2 (C26-504.10(c), Table 5-4):		Rooms less than 1,500 ft^2 (27-348(c), Table 5-4):		
	Group F-4	Class A, B or C (0-225)	Group F-4	Class A, B or C (0-225)	

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Interior Finish and Flame Spread Ratings (as defined in ASTM E84) (continued)	Groups B-1, B-2, E	Class A, B or C (0-225)	Groups B-1, B-2, E	Class A, B or C (0-225)	
	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).		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).		
Smoke Development Ratings	25 or less in exits and corridors.		25 or less in exits and corridors.		
	100 or less in rooms where the net floor area per occupant is 10 ft^2 or less.		100 or less in rooms where the net floor area per occupant is 10 ft^2 or less.		
	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 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 (27-348(e)).		
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)).		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 (27-348(c)(4), 27-348(d)).		
	This allowance shall include the area of doors, folding partitions, windows, glazing, skylights, luminous ceilings, trim, bases, chair rails, panels, moldings, etc.		This allowance shall include the area of doors, folding partitions, windows, glazing, skylights, luminous ceilings, trim, bases, chair rails, panels, moldings, etc.		

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Finish Flooring	Finish flooring in all exits shall be of noncombustible material (C26-504.13, C26-604.8(h)).	Finish flooring in all exits shall be of noncombustible material (27-351, 27-375(h)).	
	In all other areas, combustible finish flooring may be used when installed in accordance with Section C26-504.13 (b).	In all other areas, combustible finish flooring may be used when installed in accordance with Section 27-351(b).	
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)).	Clear width measurement is the net, unobstructed width of a means of egress without projections in such width (27-369(a), 27-370(b))	
	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)).	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 (27-369(a)).	
	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)).	Handrails shall project not more than 3½ in. and stringers 2 in. (each side) into the required stair width (27-375(b), 27-375(f)).	
	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)).	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 (27-369(b), 27-370(c)).	
	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)).	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 (27-369(b), 27-370(c)).	
	Changes in elevation in means of egress:	Changes in elevation in means of egress:	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
General (continued)	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)).	Changes in level requiring less than two risers in a corridor or exit passageway shall be by a ramp (27-369(e), 27-375(d)(2)).	
	Obstructions to means of egress:	Obstructions to means of egress:	
	The required width of a means of egress shall not be obstructed or reduced in any manner (C26-604.2).	The required width of a means of egress shall not be obstructed or reduced in any manner (27-369).	
	Corridors shall be kept free of combustible contents (C26-604.2).	Corridors shall be kept free of combustible contents (27-369).	
	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 accumulation (27-369(f), 27-376).	
	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).	Corridors may be used as supply or return air ducts or plenums only in a fully sprinklered office building (27-369(j); RS 13-1 Sec. 2-3.11.1).	Associated with requirement for sprinklers in office buildings adopted by Local Law 16-1984
	Stairways connecting two or more stories shall not be used as plenums (RS13-1 Sec. 316(e)).	Stairways connecting two or more stories shall not be used as plenums (RS 13-1 Sec. 2-3.11.2).	
Exits	Every floor area shall be provided with at least two approved independent exits (C26-603.2).	Every floor area shall be provided with at least two approved independent exits (27-366).	
	Public garages shall be provided with at least two exits from each tier of parking (C26-709.8).	Public garages shall be provided with at least two exits from each tier of parking (27-457).	

<table>
<tr><th></th><th colspan="2">THEN CURRENT BCNYC</th><th colspan="2">CURRENT BCNYC</th><th>SUMMARY OF SIGNIFICANT DIFFERENCES</th></tr>
<tr><td rowspan="11">Exits (continued)</td><td colspan="2">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):</td><td colspan="2">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 (27-365(a)):</td><td></td></tr>
<tr><td><u>Occupancy Group</u></td><td><u>Occupant Load</u></td><td><u>Occupancy Group</u></td><td><u>Load</u></td><td></td></tr>
<tr><td>B (Storage)</td><td>50</td><td>B (Storage)</td><td>50</td><td></td></tr>
<tr><td>C (Mercantile)</td><td>75</td><td>C (Mercantile)</td><td>75</td><td></td></tr>
<tr><td>E (Business)</td><td>75</td><td>E (Business)</td><td>75</td><td></td></tr>
<tr><td>F (Assembly)</td><td>75</td><td>F (Assembly)</td><td>75</td><td></td></tr>
<tr><td colspan="2">All required exits shall be located such that they are clearly visible, accessible and unobstructed access at all times C26-602.1).</td><td colspan="2">All required exits shall be located such that they are clearly visible, accessible and unobstructed access at all times (27-361).</td><td></td></tr>
<tr><td colspan="2">In multi-tenant configurations, each tenant shall have access to the required numbers of exits without passing through other tenant spaces (C26-602.2).</td><td colspan="2">In multi-tenant configurations, each tenant shall have access to the required numbers of exits without passing through other tenant spaces (27-362).</td><td></td></tr>
<tr><td colspan="2">When more than one exit is required from a floor of a building, they shall be located as remote from each other as practicable (C26-602.3).</td><td colspan="2">When more than one exit is required from a floor of a building, they shall be located as remote from each other as practicable (27-363).</td><td></td></tr>
<tr><td colspan="2">Door openings to scissor stairs shall be at least 15 ft apart (C26-602.3).</td><td colspan="2">Door openings to vertical exits shall be the greater of 30 ft or one-third the maximum travel distance of the floor (27-363).</td><td>Local Law 16/1984 amended section to change remote location of stairs from 15 ft to 30 ft (or one-third the maximum travel distance of the floor).</td></tr>
</table>

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Exits (continued)	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).	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 (27-364).	
	A maximum of 50 % of the required number of vertical exits is permitted to discharge through a single exit passageway (C26-604.3).	A maximum of 50 % of the required number of vertical exits is permitted to discharge through a single exit passageway (27-370).	
	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)).	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 (27-370(h)(1)).	
	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 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 (27-370(b)).	
	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)).	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 (27-370(h)(2)).	
	No openings other than exit doors are permitted in exit passageways (C26-604.3(f)), except:	No openings other than exit doors are permitted in exit passageways (27-370(f)), except:	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Exits (continued)	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-	Openings between street floor lobbies serving as exit passageways and elevators or communicating spaces and show windows protected in accordance with Section 27-370(h)(3) are permitted.	
	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)).	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 (27-370(h)(4)).	
	Horizontal and Supplemental Vertical Exits (C26-604.5 to C26-604.7):	Horizontal and Supplemental Vertical Exits (27-372, 27-373, 27-374):	
	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).	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 (27-367).	
	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)).	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 (27-372(b)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Exits (continued)	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)).	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 (27-372(c)).	
	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, on the same floor, through a horizontal exit, may consist of doors, balconies, bridges and tunnels (27-373).	
	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 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 (27-373(b)).	
	Balconies, bridges and tunnels serving as horizontal exits shall comply with Section C26-604.6(c).	Balconies, bridges and tunnels serving as horizontal exits shall comply with Section 27-373(c).	
	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).	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 (27-374).	
	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).	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 (27-374).	

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Exits (continued)	Every supplemental vertical exit shall have a sign at the entrance stating EXIT TO AREA OF REFUGE ON _____ FLOOR (C26-604.7).		Every supplemental vertical exit shall have a sign at the entrance stating EXIT TO AREA OF REFUGE ON _____ FLOOR (27-374).		
Egress Width and Capacity	Occupant load - calculate based on the net floor areas in square feet divided by the occupant load factor (ft^2/person) or the actual number of occupants from whom each occupied space is designed, whichever is greater (C26-601.2).		Occupant load - calculate based on the net floor areas in square feet divided by the occupant load factor (ft^2/person) or the actual number of occupants from whom each occupied space is designed, whichever is greater (27-358).		
	Occupancy	Factor	Occupancy	Factor	
	Business (offices)	100	Business (offices)	100	
	Conference rooms (Tables)	12	Conference rooms (Tables)	12	
	Conference rooms (movable chairs)	10	Conference rooms (movable chairs)	10	
	Dining spaces	12	Dining spaces	12	
	Mercantile – 1st floor / basement All other floors	 25 50	Mercantile – 1st floor / basement All other floors	 25 50	
	Assembly (fixed seats)	# of seats	Assembly (fixed seats)	# of seats	
	Waiting space (standing)	4	Waiting space (standing)	4	
	Garages / parking	250	Garages / parking	250	
	Storage rooms	200	Storage rooms	200	
	Mechanical rooms	200	Mechanical rooms	200	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Egress Width and Capacity (continued)	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).	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 (27-358).	
	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).	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 (27-358).	
	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).	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 (27-357).	
	Exit capacity (width) shall not decrease in the direction of exit travel (C26-604.8).	Exit capacity (width) shall not decrease in the direction of exit travel (27-375).	
	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).	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 (37-357, 27-359).	
	Where computations give fractional results, the next larger integral number of egress units or integral number plus ½ shall be used (C26-601.3).	Where computations give fractional results, the next larger integral number of egress units or integral number plus ½ shall be used (27-359).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Egress Width and Capacity (continued)	A fraction less than ½ may be neglected when constituting less than 10 % of the total required number of egress units).	A fraction less than ½ may be neglected when constituting less than 10 % of the total required number of egress units).	
	Egress capacity factors - capacity per egress unit (C26-601.1, C26-601.3).	Egress capacity factors - capacity per egress unit (27-357, 27-359).	
	One unit of egress width is equal to 22 in. (C26-601.3).	One unit of egress width is equal to 22 in. (27-359).	
	Doors to outdoors at grade:	Doors to outdoors at grade:	
	Occupancy Group B (Storage) – 75 persons per unit.	Occupancy Group B (Storage) – 75 persons per unit.	
	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) – 100	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) – 100	
	Other exit and corridor doors:	Other exit and corridor doors:	
	Occupancy Group B (Storage) - 60	Occupancy Group B (Storage) - 60	
	Occupancy Group C (Mercantile), E (Business), and F (Assembly) - 80	Occupancy Group C (Mercantile), E (Business), and F (Assembly) - 80	
	Stairs and escalators:	Stairs and escalators:	
	Occupancy Group B (Storage) - 45	Occupancy Group B (Storage) - 45	
	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) - 60	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) - 60	
	Ramps, corridors, exit passageways, horizontal exits:	Ramps, corridors, exit passageways, horizontal exits:	
	Occupancy Group B (Storage) - 75	Occupancy Group B (Storage) - 75	
	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) - 100	Occupancy Groups C (Mercantile), E (Business), and F (Assembly) - 100	
	When ramp slope exceeds 1 in 10, the capacity shall be reduced by 25 % (Table 6-1 note b).	When ramp slope exceeds 1 in 10, the capacity shall be reduced by 25 % (Table 6-1 note b).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Egress Width and Capacity (continued)	The capacity of horizontal exits shall be based on the width of doors swinging in the direction of exit travel (C26-604.6(a)).	The capacity of horizontal exits shall be based on the width of doors swinging in the direction of exit travel (27-373(a)).	
	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 (Table 6-1 note m).	
Doors	Minimum nominal width - 32 in. except for corridor and exit door openings which shall be 36 in. (C26-604.4(e)).	Minimum nominal width - 32 in. except for corridor and exit door openings which shall be 36 in. (27-371(e)).	
	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)).	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 (27-371(e)).	
	In all cases where a door opening is divided by mullions into two or more door openings, the minimum nominal width of each such opening shall be 32 in. (C26-604.4(c)).	In all cases where a door opening is divided by mullions into two or more door openings, the minimum nominal width of each such opening shall be 32 in. (27-371(c)).	
	Maximum width of leaf - 48 in. (C26-604.4(e)).	Maximum width of leaf - 48 in. (27-371(e)).	
	Minimum height - 6 ft, 8 in. (C26-604.4(f)).	Minimum height - 6 ft, 8 in. (27-371(f)).	
	Door jambs, stops, sills and closers shall not reduce the clear opening to less than 6 ft 6 in. (C26-604.4(f)).	Door jambs, stops, sills and closers shall not reduce the clear opening to less than 6 ft 6 in. (27-371(f)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Doors (continued)	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)).	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 (27-371(h)).	
	Where doors lead out of a building, the floor level inside may be 7½ in. higher than the level outside (C26-604.4(h)).	Where doors lead out of a building, the floor level inside may be 7½ in. higher than the level outside (27-371(h)).	
	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)).	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 (27-371(g)).	
	Vertically sliding doors, rolling shutters, and folding doors shall not be used as exit doors or as corridor doors (C26-604.4(d)).	Vertically sliding doors, rolling shutters, and folding doors shall not be used as exit doors or as corridor doors (27-371(d)).	
	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 doors designed and constructed in accordance with Section 27-371(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 (27-371(d)).	
	Turnstiles designed and constructed in accordance with Section C26-604.4(n) may also be permitted.	Turnstiles designed and constructed in accordance with Section 27-371(n) may also be permitted.	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Doors (continued)	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)).	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 (27-371(l)).	
	Exit doors and corridor doors shall normally be kept in the closed position (C26-604.4(i)).	Exit doors and corridor doors shall normally be kept in the closed position (27-371(i)).	
	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)).	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 (27-371(j)(1)(c)).	
	Obstruction of means of egress during door opening.	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 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 (27-375(g), 27-377(c)(4)).	
	No door shall swing over the sloping portion of a ramp (C26-604.8(g)).	No door shall swing over the sloping portion of a ramp (27-377(c)(4)).	
	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)).	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 (27-371(j)(1)(a), 27-372)d)).	

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Doors (continued)	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)).		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 (27-371(j)(1)(a)(2)).		
	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).		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 (27-371(j)(1)(b)).		
Exit Access Corridors	Minimum clear width of corridors (C26-604.2(a), Table 6-1):		Minimum clear width of corridors (27-369(a), Table 6-1):		
	Occupancy Groups B (Storage), C (Mercantile) - 36 in.		Occupancy Groups B (Storage), C (Mercantile) - 36 in.		
	Occupancy Groups E (Business), F (Assembly) - 44 in.		Occupancy Groups E (Business), F (Assembly) - 44 in.		
	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)		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 (27-360, Table 6-1, 27-457(a), 27-533, Table 8-1).		
	Occupancy Group	Distance (Feet)	Occupancy Group	Distance (Feet)	
		Unsprink. /sprinkler		Unsprink. /sprinkler	
	B-1 (Storage)	100/150	B-1 (Storage)	100/150	
	B-2 (Storage)	125/175	B-2 (Storage)	125/175	
	B-2 (Parking Garage)	100/150	B-2 (Parking Garage)	100/150	

	THEN CURRENT BCNYC		CURRENT BCNYC		SUMMARY OF SIGNIFICANT DIFFERENCES
Exit Access Corridors (continued)	C (Mercantile)	150/200	C (Mercantile)	150/200	
	E (Business)	200/300	E (Business)	200/300	
	F (Assembly) <75 persons: >75 persons:	 150/200 varies	F (Assembly) < 75 persons: >75 persons:	 150/200 varies	
	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. 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 (27-360(c)).		
	The maximum dead-end distance shall not exceed the following limits (C26-604.2(d), Table 6-1):		The maximum dead-end distance shall not exceed the following limits (27-369(d), Table 6-1):		
	Occupancy Group	Distance (Feet)	Occupancy Group	Distance (Feet)	
	B-1 (Storage)	50	B-1 (Storage)	50	
	B-2 (Storage)	NR (no requirement)	B-2 (Storage)	NR	
	C (Mercantile)	50	C (Mercantile)	50	
	E (Business)	50	E (Business)	50	
	F (Assembly)	30	F (Assembly)	30	
	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)).		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 % (27-369(d)).		

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Exit Access Corridors (continued)	Exterior corridors designed and constructed in accordance with Section C26-604.2(f) may be used as a means of egress.	Exterior corridors designed and constructed in accordance with Section 27-369(f) may be used as a means of egress.	
Stairways	Minimum clear width - 44 in. (C26-604.8(b)).	Minimum clear width – 44 in. (27-375(b))	
	The width of stairs shall be the clear width between walls, grilles, guard, or newel posts (C26-604.8(b)).	The width of stairs shall be the clear width between walls, grilles, guard, or newel posts (27-375(b)).	
	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)).	Stair stringer projections which do not exceed 2 in. on each side and handrail projections of 3½ in. are permitted (27-375(b), 27-375(f)).	
	Vertical exits in public garages may be 36 in. wide (C26-709.8).	Vertical exits in public garages may be 36 in. wide (27-457).	
	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 (27-375(d)(1)).	
	On a straight run stair, landing and platform widths need not be more than 44 in.	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 - 7 ft (27-375(c)).	
	Maximum vertical rise between landings - 12 ft (C26-604.8(d)(2)).	Maximum vertical rise between landings - 12 ft (27-375(d)(2)).	
	Treads and risers (C26-604.8(e), Table 6-4).	Treads and risers (27-375(e), Table 6-4).	
	Maximum riser height - 7¾ in.	Maximum riser height - 7¾ in.	
	Except - Occupancy Group F (Assembly) - 7½ in.	Except Occupancy Group F (Assembly) - 7½ in.	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Stairways (continued)	Minimum tread depth - 9½ in. plus nosing	Minimum tread depth - 9½ in. plus nosing	
	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)).	The sum of two risers plus one tread exclusive of the nosing shall not be less than 24 nor more than 25½ in. (27-375(e)(1)).	
	Stair riser and tread dimensions shall be constant in any flight of stairs from story to story (C26-604.8(e)(2)).	Stair riser and tread dimensions shall be constant in any flight of stairs from story to story (27-375(e)(2)).	
	Curving or skewed stairs that conform to Section C26-604.8(e)(4) are permitted to be used as exits.	Curving or skewed stairs that conform to Section 27-375(e)(4) are permitted to be used as exits.	
	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).	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 (27-364).	
		Stair identification signs shall be posted on the occupancy side and stair side of the door indicating the letter designation of the stair (27-393).	Section C26-608.4 was added in 1973 by Local Law #5 and renumbered 27-393 in 1985.
	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 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 (27-375(k)).	
	Access to set back roof areas may be through a door or window opening to the roof(C26-604.8(k)).	Access to set back roof areas may be through a door or window opening to the roof (27-375(k)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Stairways (continued)	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 openings of any kind are permitted into stair enclosures other than windows, fire department access panels and exit doors (27-375(j)).	
	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).	Exterior stairs designed and constructed in accordance with Section 27-376 may be used as exits in lieu of interior stairs (27-376).	
	No exterior stair shall exceed 75 ft or six stories in height (C26-604.9).	No exterior stair shall exceed 75 ft or six stories in height (27-376).	
	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 Section 27-378 may be used as exits in lieu of interior stairs.	
Ramps	The minimum clear width of exit ramps is 44 in. (C26-604.10).	The minimum clear width of exit ramps is 44 in. (27-377).	
	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)).	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 (27-377(c)(3)).	
	Level platforms shall be provided on each side of door openings into or from ramps. (C26-604.10.c.3).	Level platforms shall be provided on each side of door openings into or from ramps. (27-377(c)(3))	
	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).	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).	
	Minimum headroom - 6 ft 8 in. (C26-604.10).	Minimum headroom - 6 ft 8 in. (27-377).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Ramps (continued)	Ramps shall be straight. Changes in direction of travel shall be made only at landings or platforms (C26-604.10(c)(1).	Ramps shall be straight. Changes in direction of travel shall be made only at landings or platforms (27-377(c)(1)).	
	Except - Ramps with a slope not greater than 1 in 12 at any place may be curved.	Except - Ramps with a slope not greater than 1 in 12 at any place may be curved.	
	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)).	Ramps shall not have a slope steeper than 1 in 8 (27-377(b)) and sloping portions shall be at least 3 ft but not more than 30 ft long between platforms or landings (27-377(c)(2)).	
	Level and ramped moving walkways designed and constructed in accordance with Section C26-604.12 may be used as exits.	Level and ramped moving walkways designed and constructed in accordance with Section 27-379 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))	Continuous handrails are required on both sides of all stairs and all ramps with a slope exceeding 1 in 12 (27-375(f), 27-377(c)(5)).	
	Stairs less than 44 in. wide may have a handrail on one side only (C26-604.8(f)).	Stairs less than 44 in. wide may have a handrail on one side only (27-375(f)).	
	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)).	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. (27-375(f)(1)).	
	Handrail height shall be 30 to 34 in. measured vertically above the nosing of treads (C26-604.8(f)(2)).	Handrail height shall be 30 to 34 in. measured vertically above the nosing of treads (27-375(f)(2)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Handrails and Guardrails (continued)	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 (27-375(f)(3)).	
	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)).	Handrails shall provide a finger clearance of 1½ in. and shall project not more than 3½ in. into the required stair width (27-375(f)).	
	Stair landings and platforms shall be enclosed on sides by walls, grilles, or guards at least 3 ft height (C26-604.8(d)(3)).	Stair landings and platforms shall be enclosed on sides by walls, grilles, or guards at least 3 ft height (27-375(d)(3)).	
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).	In all buildings, the location of every exit on every floor shall be clearly indicated by approved EXIT signs (27-383).	
	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).	EXIT signs shall be placed at an angle with the exit opening if such placement is required for the signs to serve their purpose (27-383).	
	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).	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 (27-383).	
	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 27-385. Directional signs shall conform to Section 27-386.	
	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 (27-385).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Exit Signs and Lights (continued)	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).	Where a total of more than four signs (exit and/or directional) are required, all EXIT signs shall be connected to an emergency power source or to storage battery equipment. Existing buildings in Occupancy Group E were required to comply by April 1, 1987 (C26-606.2 amended by Local Law 16/1984 and renumbered 27-384 in 1985).	Current NYC Building Code requires emergency power source or storage battery equipment. Retroactive for existing high-rise buildings.
	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).	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 (27-387).	
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).	Corridors and exits shall be equipped with artificial lighting facilities to provide at least 5 foot candle intensity floor lighting continuously during occupancy (27-381).	
	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.	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.	
	Illumination shall be arranged so that failure of any one light does not leave any area in darkness.	Illumination shall be arranged so that failure of any one light does not leave any area in darkness.	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Means of Egress Lighting (continued)	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).	Means of egress lighting in all buildings, where a total of more than four lights is required, shall be connected to an emergency power source or to storage battery equipment. Existing buildings in Occupancy Group E were required to retroactively comply by April 1, 1987 (C26-605.2 amended by Local Law 16/1984 and renumbered 27-382 in 1985).	Current NYC Building Code requires emergency power source or storage battery equipment. Retroactive for existing high-rise buildings.
A.7 FIRE SUPPRESSION			
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.	Automatic sprinkler protection shall be designed and installed in accordance with Section 27-954 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; Buildings classified in Occupancy Group E, 75 ft or more in height and existing office buildings 100 ft or more in height; Buildings in Occupancy Group E with a total gross floor area of 100,000 ft^2 or more.	NYC Local Law 5/1973 requires sprinklers in new and existing buildings in Occupancy Group E, 100 ft or more in height (with HVAC systems that serve more than the floor located). NYC LL 16/1984 requires sprinklers in Occupancy Group E buildings over 75 ft in height or with a total gross floor area of 100,000 ft^2 or more.
	A wet-pipe sprinkler system shall be provided throughout all areas requiring automatic sprinkler protection (C26-1703.13).	A wet-pipe sprinkler system shall be provided throughout all areas requiring automatic sprinkler protection (27-966).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Automatic Sprinkler Protection (continued)	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 the sprinkler system shall be protected (insulation, heat trace, antifreeze) or a dry-pipe system shall be provided (27-966).	
	A sprinkler alarm system shall be provided when more than 36 heads are installed in any fire area or section (C26-1703.4).	A sprinkler alarm system shall be provided when more than 36 heads are installed in any fire area or section (27-957).	
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)).	Wet standpipes designed and installed in accordance with Section 27-932 and RS 17-1 shall be provided (27-932(a)(1)).	
	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 20 ft stream from a nozzle attached to not more than 125 ft of hose connected to a riser outlet valve (27-935).	
	Standpipe risers and 2½ in. hose valves shall be located within stairway enclosures (C26-1702.5(a)).	Standpipe risers and 2½ in. hose valves shall be located within stairway enclosures (27-936(a)).	
	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 within the 125 plus 20 (145) ft distance, risers and valves shall be located as near to the enclosure as practicable (27-936(a)).	
	The highest riser shall be extended above the roof with a 3-way manifold with 2½ in. hose valves (C26-1702.11(a)(2)).	The highest riser shall be extended above the roof with a 3-way manifold with 2½ in. hose valves (27-942(a)(2)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Standpipes (continued)	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 between 5 ft and 6 ft above the landing or floor (27-942(a)(1)).	
	Hose stations shall be located at the standpipe risers, either inside or adjacent to the entrance of stairway enclosures (C26-1702.11(b)).	Hose stations shall be located at the standpipe risers, either inside or adjacent to the entrance of stairway enclosures (27-942(b)).	
	Hose stations shall be located to satisfy the 125 plus 20 (145) ft requirement (C26-1702.11 (b)(1)).	Hose stations shall be located to satisfy the 125 plus 20 (145) ft requirement (27-942(b)(1)).	
	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 1½ in. "flax-line" unlined linen hose in Groups C, E and F; 2½ in. (unlined) in Group B (27-942(c)).	
	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)).	Auxiliary hose stations equipped with 1½ in. (unlined) hose are permitted in Groups C, E and F (27-942(c)(4), 27-942(d)).	
	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)).	Standpipe systems that include more than one riser shall have all risers cross-connected at, or below, the street entrance floor level (27-941(a)).	
	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)).	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 (27-941(b)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Standpipes (continued)	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).	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 (27-938, Table 17-1).	
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).	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 (27-945).	
	Combinations of two or more of the following sources shall serve as the primary water supply, including siamese connections (C26-1702.14 (b)):	Combinations of two or more of the following sources shall serve as the primary water supply, including siamese connections (27-945(b)):	
	Direct connection to city water system	Direct connection to city water system	
	Direct connection to a private yard main	Direct connection to a private yard main	
		Gravity tank(s)	Gravity tanks added
	Pressure tank(s)	Pressure tank(s)	
	Automatic fire pump (C26-1702.14(b)(5)).	Automatic fire pump (27-945(b)(5)).	
	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.	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.	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Water Supply (continued)	An additional standpipe system water supply shall be provided for standpipes in buildings over 300 ft high (C26-1702.15(a)).	An additional standpipe system water supply shall be provided for standpipes in buildings over 300 ft high (27-946(a)).	
	The primary water supply to the standpipe system shall be supplemented by one or more manually operated fire pumps (C26-1702.15(a)).	The primary water supply to the standpipe system shall be supplemented by one or more manually operated fire pumps (27-946(a)).	
	At least one of the following automatic source of water supply shall be provided for sprinklers (C26-1703.8(a)):	At least one of the following automatic source of water supply shall be provided for sprinklers (27-961(a)):	
	Gravity tank(s)	Gravity tank(s)	
	Pressure tank(s)	Pressure tank(s)	
	Automatic fire pump	Automatic fire pump	
	Direct connection to public water system	Direct connection to public water system	
	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)).	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 27-962(e) (27-962(c) and (d)).	
	Auxiliary sources of water supply for sprinkler systems may include a manually actuated fire pump or siamese connection (C26-1703.8(b)	Auxiliary sources of water supply for sprinkler systems may include a manually actuated fire pump or siamese connection (27-961(b)).	
	Combined Water Supplies	Combined Water Supplies	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Water Supply (continued)	Fire pumps may simultaneously serve as the required auxiliary water supply for standpipe and sprinkler systems in accordance with Section C26-1702.15(d).	Fire pumps may simultaneously serve as the required auxiliary water supply for standpipe and sprinkler systems in accordance with Section 27-946(d).	
	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)).	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 (27-961(c)).	
	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)).	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 (27-940(a), 27-959(a)(1)).	
	Modifications based on street frontage as permitted by Sections C26-1702.9(b)-(f).	Modifications based on street frontage as permitted by Sections 27-940(b)-(f).	
	Each siamese connection shall be connected to a riser or to a cross connection connecting other siamese connections or risers (C26-1702.10(f)).	Each siamese connection shall be connected to a riser or to a cross connection connecting other siamese connections or risers (27-941(f)).	
	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)).	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 (27-959(a)(2)).	
	Siamese connections for partial sprinkler systems shall be in accordance with Section C26-1703.6(a)(3).	Siamese connections for partial sprinkler systems shall be in accordance with Section 27-959(a)(3).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Water Supply (continued)	No Requirement (NR)	Standpipe risers may be used to supply water to sprinklers in high rise buildings classified in Occupancy Group E, and existing office buildings, 100 ft or more in height. (Section added by Local Law 5/1973 as C26-1703.9(g) and subsequently relettered by Local Law 16/1984 as C26-1703.9(f) and renumbered 27-962(h)).	Section added by Local Law 5/1973.
A.8 INTERIOR FIRE ALARM, DETECTION, AND SIGNALING SYSTEMS			
Fire Alarm Systems	NR	New Buildings classified in Occupancy Group E, 75 ft or more in height and existing buildings in Occupancy Group E one hundred (100) or more feet in height are required to be provided with a Class E (or modified Class E) fire alarm and communication system including loud speakers, two-way voice, and a fire command station. (27-968(a)(9), 27-971(g)(h); 27-972(f)(g), 27-975):	NYC retroactive requirement added by Local Law 5/1973 Section subsequently amended by Local Law 16/1984. Class 'E' fire alarm and voice communication system in new buildings. Modified Class 'E' systems in existing office buildings, Mini-Class 'E' systems in buildings <100 ft, with more than 100 persons above the street floor.
	A sprinkler alarm system shall be provided when more than 36 heads are installed in any fire area or section (C26-1703.4).	A sprinkler alarm system shall be provided when more than 36 heads are installed in any fire area or section (27-957).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Fire Alarm Systems (continued)	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).	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).	
	Central station water flow alarm service is desirable but does not waive the local alarm requirement (RS 17-2, Sec. 3721).	Central station water flow alarm service is desirable but does not waive the local alarm requirement (RS 17-2,).	
Smoke and Heat Detector Locations	HVAC Systems (C26-1300.7(a), RS 13-1).	HVAC Systems (27-777(a), RS 13-1).	
	In systems over 5,000 cfm capacity, thermostatic devices shall be provided for automatic fan shut-down as follows (RS 13-1, Sec. 1002):	In systems over 5,000 cfm capacity, thermostatic devices shall be provided for automatic fan shut-down as follows (RS 13-1):	
	125 ºF (max) devices located in the return air stream prior to exhaust or dilution by outside air (RS 13-1, Sec. 1002(a)).	125 ºF (max) devices located in the return air stream prior to exhaust or dilution by outside air (RS 13-1).	
	50 ºF (max) above maximum operating temperature devices located in the main supply duct down stream of the filters (RS 13-1, Sec. 1002(b)).	50 ºF (max) above maximum operating temperature devices located in the main supply duct down stream of the filters (RS 13-1).	
	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).	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).	
	In systems over 15,000 cfm capacity smoke detectors shall be provided for automatic fan shut-down as follows (RS 13-1, Sec. 1003):	In systems over 15,000 cfm capacity smoke detectors shall be provided for automatic fan shut-down as follows (RS 13-1):	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Smoke and Heat Detector Locations (continued)	Smoke detectors shall be located in the main supply duct downstream of the filters (RS 13-1, Sec. 1003.b).	Smoke detectors shall be located in the main supply duct downstream of the filters (RS 13-1).	
	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.	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)	
	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):	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):	
	System supplies an exit passageway, or a space leading from elevators to a street or to the exterior.	System supplies an exit passageway, or a space leading from elevators to a street or to the exterior.	
	System supplies spaces on more than one story or spaces in different fire areas in the same story.	System supplies spaces on more than one story or spaces in different fire areas in the same story.	
	Where the area of a building or space served is over 20,000 ft^2 in mercantile or indoor assembly occupancies.	Where the area of a building or space served is over 20,000 ft^2 in mercantile or indoor assembly occupancies.	
	Where there is a duct opening in a required 2 h fire resistance rated interior Fire Division.	Duct openings are required 2 h fire resistance rated interior Fire Divisions.	
	Where a duct passes through a firewall.	Duct openings through a firewall.	
	Where a corridor is used as a plenum.	Where a corridor is used as a plenum.	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Smoke and Heat Detector Locations (continued)	Systems incorporating automatic exhaust in lieu of automatic fan shutdown are acceptable provided they are equipped with smoke detectors (RS 13-1, Sec. 1004).	Systems incorporating automatic exhaust in lieu of automatic fan shutdown are acceptable provided they are equipped with smoke detectors (RS 13-1).	
	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).	Each installation shall be equipped with a manual emergency stop for quick shutdown of the fan(s) in case of fire (RS 13-1).	
	NR	In a Class E and Modified Class E fire alarm system, ceiling mounted ionization smoke detectors or combination smoke/heat detectors shall be installed at each elevator landing immediately above a call button (27-972(f and g)).	Section added by Local Law 5/1973.
	NR	The activation of a smoke detector in any elevator lobby shall only annunciate at the fire command station. The activation of both smoke detectors in any elevator lobby shall cause selected elevators to return non-stop to the designated level (RS 18-1, Rule 211.3b(6)(a and b)).	Section added by Local Law 5/1973.
	NR	Activation of an elevator landing detector shall (27-972(f and g)):	
	NR	Sound continuously throughout the floor of alarm and floor above.	
	NR	Sound fire alarm signal at the fire command station, mechanical control center and regularly assigned location of the fire safety director.	
	NR	Operate the information display system.	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Smoke and Heat Detector Locations (continued)	NR	Stop the air supply into and air return from the floor where activated by approved remote control reversible fire shutters or by automatically shutting down supply and return air fans.	
	NR	Activate air exhaust fans and dampers in smoke shafts and/or pressurizing fans in stair enclosures.	
	NR	In addition to the smoke detector requirement, in a building equipped throughout with an automatic sprinkler system, a waterflow alarm when activated shall initiate Phase I (Rule 211.3a) emergency recall operation (RS18-1, Rule 211.3b(2)).	
Manual Fire Alarm Boxes	NR	Installed in accordance with NFPA 72 (current edition adopted by RS17-3)	Section added by Local Law 5/1973.
	NR	At least one fire alarm sending station shall be provided in each story located in each path of escape with additional stations installed so that no point on any floor is more than 200 ft from the nearest station (RS 17-3A, Sec. 7(a)).	
	NR	Operation of a manual station shall automatically transmit a fire alarm signal to the fire department via a central station and sound an alarm continuously on the floor where activated and the floor above (27-972(f)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Manual Fire Alarm Boxes (continued)	NR	Fire alarm (Class E) sending stations shall be painted red with a diagonal white stripe painted or applied to sending stations which transmit a fire alarm signal to the fire department via a central station (27-973(e)).	
Audible/Visual Alarm Indicating Appliances	NR	In a Class E fire alarm system, loudspeakers capable of being operated from the fire command station shall be provided on each floor, and in each elevator and stair enclosure (27-975(a)).	Section added by Local Law 5/1973.
	NR	Loudspeakers shall be located so that their operation will be heard clearly above ambient noise (27-972(f)).	
	NR	Recessed speakers shall be located not more than 10 ft from the entrance to each required exit (RS 17-3A, Sec. 8(b)).	
Communication Systems	Standpipe Fire Line Telephone and Signaling Systems	Standpipe Fire Line Telephone and Signaling Systems	
	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)).	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 (27-952, 27-974(a)).	
	Standpipe Telephone System	Standpipe Telephone System	
	System shall permit communication by permanent telephones in the following locations (C26-1704.7(b):	System shall permit communication by permanent telephones in the following locations (27-974(b)):	
	Pump rooms	Pump rooms	
	Entrance floor	Entrance floor	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Communication Systems (continued)	Gravity tank rooms	Gravity tank rooms	
	Each floor near main standpipe riser	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)).	The system shall be a selective ringing, common talking system supplied by a 24 V direct current power source (27-974(b)).	
	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)).	Permanent wall telephones shall be provided with 6 in. gongs except in the pump room where a loud speaking receiver shall be provided (27-974(c)).	
	Where portable phones are used, jacks protected by break-glass boxes shall be provided (C26-1704.7(c)).	Where portable phones are used, jacks protected by break-glass boxes shall be provided (27-974(c)).	
	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)).	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 (27-974(d)).	
	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)).	A pilot light shall be provided over the cabinet to indicate if the system is in use or a receiver is off the hook (27-974(e)).	
	Standpipe Signaling Devices	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)).	Manual, individually coded sending stations shall be located in the main corridor of the building arranged to transmit a signal to alarm sounding devices (27-974(f)(1)).	
	System shall be installed in accordance with RS 17-3 (C26-1704.7(f), C26-1704.8).	System shall be installed in accordance with RS 17-3 (27-974(f), 27-975).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Communication Systems (continued)	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)).	An 8 in. gong shall be provided in the pump rooms and in elevator shafts at intervals not exceeding 10 floors (27-974(f)(1)).	
	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)).	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 (27-974(f)(2)).	
	NR	In a Modified Class E fire alarm signal system, the standpipe fire line telephone and signaling system may be combined with the fire alarm system provided (27-974(g)).	Subdivision (g) added by Local Law 5/1973.
	NR	The alarms and two way voice communication with the fire command station include the pump and gravity tank rooms.	
	NR	A designated floor station of the Class E system is located at or near the main standpipe riser on every floor.	
	NR	A floor warden station shall be located between required stairways, vertical exits or other exits (RS 17-3B 7.b).	
	NR	System shall include a telephone type handset at the floor warden station with integral signaling to the fire command station.	
	NR	Warden station may be part the speaker system.	

	THEN CURRENT BCNYC	CURRENT BCNYC	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 or escalators shall be provided in accordance with Section 27-982 and RS 18-1 in all new buildings exceeding four stories in height (27-368(a), 27-987(d)).	
	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 Areas of Refuge are provided above the 11th floor of a building, they shall be served by at least one elevator (27-372(c))	
	Escalators may be used as exits in lieu of interior stairs (C26-604.11 and C26-1800.6(g)).	Escalators may be used as exits in lieu of interior stairs (27-378 and 27-987(g)).	
	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).	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 (27-953, 27-989).	
	In buildings exceeding 150 ft in height, there shall be an operator available at all times (C26-1800.8).	In buildings exceeding 150 ft in height, there shall be an operator available at all times (27-989).	
	Automatic passenger elevators shall be equipped with emergency controls for fire department use (RS 18-1 Rule 210.13).	Automatic passenger elevators shall be equipped with emergency controls for fire department use (RS 18-1, Rule 211.3a).	
	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.	A two-position keyed switch shall be provided at the designated level and at the sky lobby of each elevator or group of elevators for recall to the main floor in accordance with RS 18-1, Rule 211.3a).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
General (continued)	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.	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 211.3.c.	
A.10 EMERGENCY ELECTRICAL AND STANDBY POWER SYSTEMS			
Emergency Power Systems	NR	An emergency power system shall be provided in high rise buildings in Occupancy Group E and have capacity to operate equipment such as (27-396.4): Fire pumps; at least three elevators at one tie, with manual transfer to other elevators; alarm and communications systems, emergency lighting, ventilating systems used for smoke venting or control, and stair pressurization.	Section added by Local Law 16/1984.
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)).	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 (27-451(b)).	
	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).	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 27-559 (27-452).	
	Public garages shall be ventilated in accordance with Section C26-709.7.	Public garages shall be ventilated in accordance with Section 27-456.	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Public Garages (continued)	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 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 (27-458).	
Smoke and Heat Venting	NR	Unsprinklered buildings classified in Occupancy Group E, one hundred feet or more in height, having air-conditioning and/or mechanical ventilation systems that serve more than the floor on which the equipment is located, shall be provided with at least one smoke shaft by means of which smoke and heat shall be mechanically vented to the outdoors as provided in Reference Standard 5-17. Existing unsprinklered office buildings 100 ft or more in height, having air-conditioning and/or mechanical ventilation systems that serve more than the floor on which the equipment is located, shall be provided with at least one smoke shaft per RS 5-17 or in lieu of smoke shafts, all interior enclosed stairs other than a fire tower stair, may be provided with a system of pressurization for fire emergency use as provided in Reference Standard RS 5-18 (27-353(b) and (c)).	Local Law 5/1973 added new requirements for smoke and heat venting for new and existing office buildings (Occupancy Group E) 100 ft or more in height. Stair Pressurization option for existing buildings.
	Elevator and dumbwaiter shafts in accordance with RS 18-1.	Elevator and dumbwaiter shafts in accordance with ANSI A17.1.	
	Other closed shafts, including stairway enclosures:	Other closed shafts:	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Smoke and Heat Venting (continued)	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)).	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 (27-344(d)).	
	Smoke vents may be windows, louvers, skylights, vent ducts or similar devices.	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).	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 27-344(d)(1), 27-344(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)).	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 (37-344(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 ºF fixed temperature or 15 to 20 ºF per minute temperature rise (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 ºF fixed temperature or 15 to 20 ºF per minute temperature rise (27-344(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)).	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)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Smoke and Heat Venting (continued)	Vents shall not be located in doors leading to machine rooms which communicate with the shaft (27-344(f)).	Vents shall not be located in doors leading to machine rooms which communicate with the shaft (27-344(f)).	
Atria and Floor Openings	NR	An atrium is classified in Occupancy Group F-3 Assembly (27-251.2).	Section added by Local Law 16/1984.
		Atria may be constructed only in buildings in noncombustible construction groups 1-A, 1-B, and 1-C (27-254.3(a)).	
		The atrium shall be fully enclosed except openings of any size are permitted in the lowest two levels when protected by 1½ h opening protectives or sprinklers spaced no more than 6 ft apart (27-251.3(b)).	
		Atrium enclosure walls shall be of at least two hour fire resistance rated construction or of wired, laminated, or tempered glass and is provided on the occupied side with sprinklers spaced no more than 6 ft apart (27-251.3(d)).	
		Smoke detectors are required in all spaces opening onto the atrium and a smoke detecting systems shall be installed in accordance with NFPA 72E - 1990 (27-251.4(a)).	
		A mechanical ventilation system capable of exhausting the volume of the atrium and all spaces open to the atrium at six air changes per hour (27-251.8(a)).	

	THEN CURRENT BCNYC	CURRENT BCNYC	SUMMARY OF SIGNIFICANT DIFFERENCES
Atria and Floor Openings (continued)		No vertical exits shall discharge into an atrium at any level (27-251.5(a)).	
		At least one standpipe outlet in addition to risers within required stairways shall be provided in the atrium (27-251.4(b)).	
		Every story or mezzanine within an atrium that overhangs another story or mezzanine within 50 ft shall be sprinklered (27-251.4(c)).	
		Atrium ceilings less than 50 ft but greater than 30 ft alternatively may be provided with central supervisory smoke detectors connected to a central station in lieu of sprinklering (27-251.4(c)).	
		Every room or space that opens on to the atrium shall be sprinklered (27-251(c)).	
		An interior fire alarm and communication system shall be installed in accordance with NFPA 72.	
		All atria shall be provided with an emergency power system (27-251.9).	