
NYC
Buildings
Construction Safety Week
April 26 – 30, 2010

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Learning Objectives

At the conclusion of the training session, participants will:

- Learn more about life safety provisions in the new Codes
- Be able to apply bike parking and parking lot landscaping requirements per zoning resolution
- Learn about the new NYC Energy Conservation Code and its application on different projects
- Learn various sustainability laws and their applications on different types of projects

2009 by the Numbers

413,981 inspections

440,110 plans reviews

135,854 permits

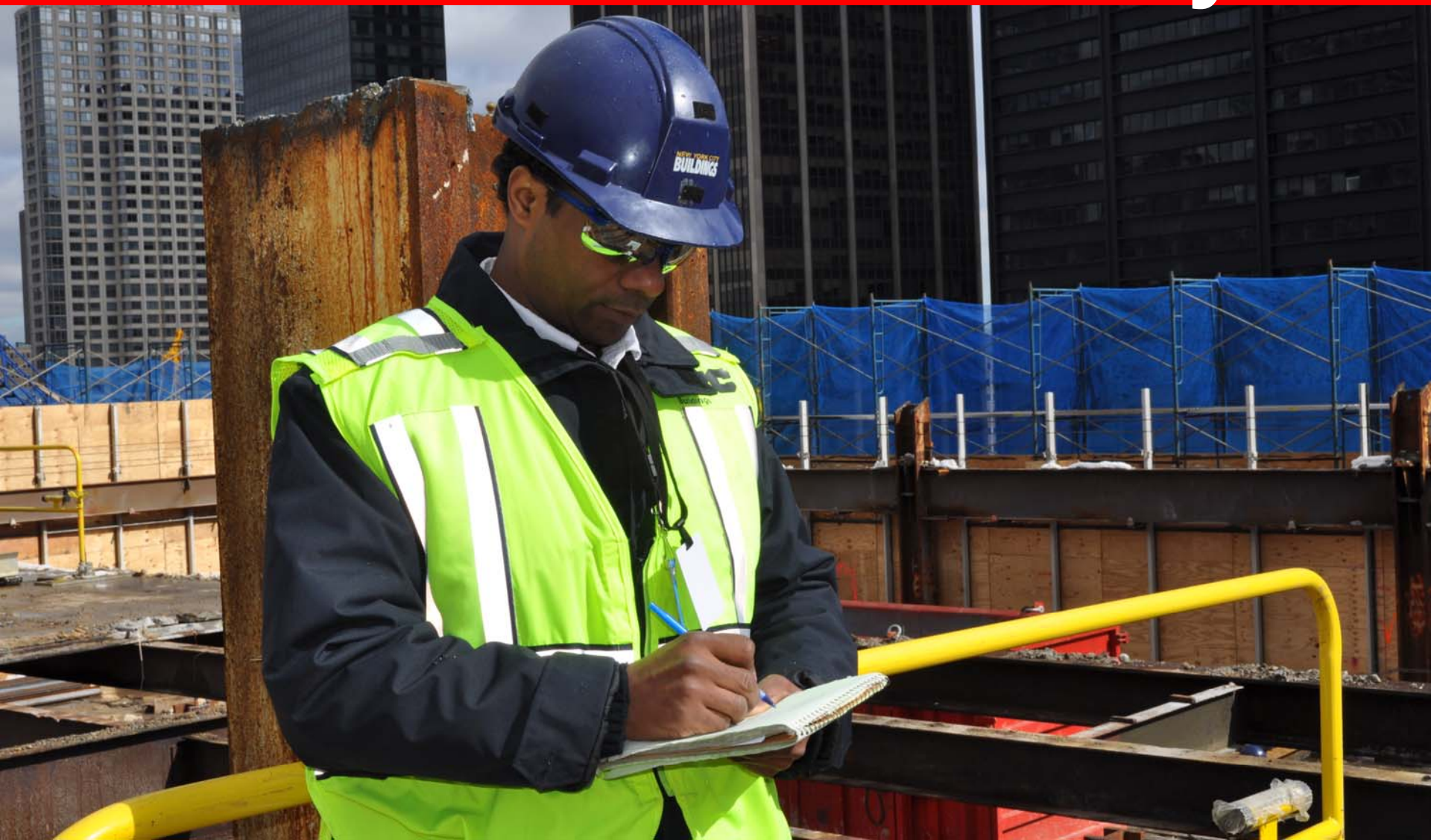
63,624 violations

10,009 Stop Work Orders

16,445 licenses & registrations

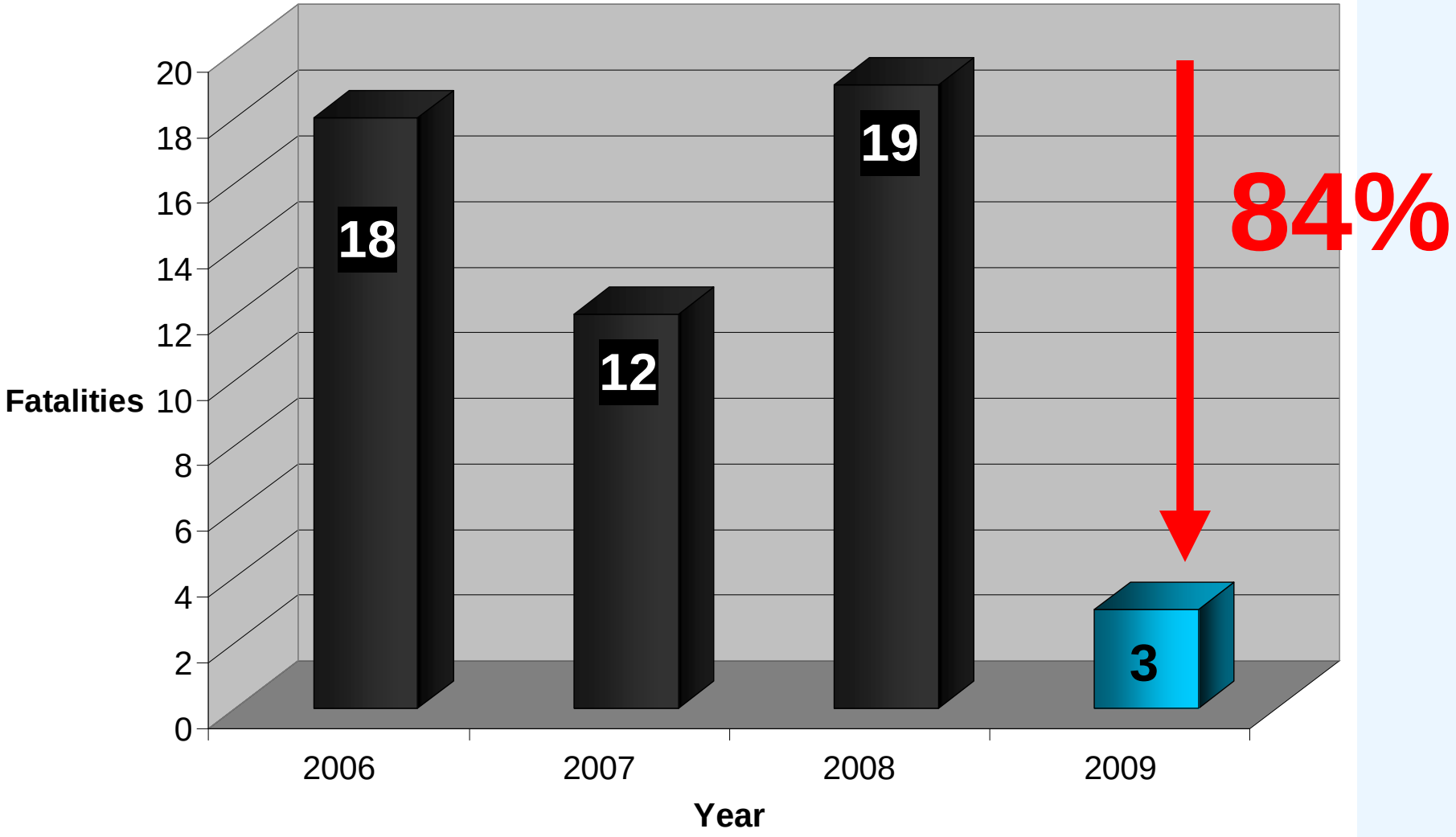
NYC Buildings

Commitment to Safety



Increase in Safety

Fatal construction accidents decreased by 84 % in 2009.



High Risk Construction Study

Experts analyzed:

- Concrete Operations
- Excavation Operations
- Crane Operations
- Hoist Operations

66 Recommendations

Commitment to Safety

New specialized units:

- → **Stalled Sites Unit**
- → **Concrete Unit**
- → **Excavation Unit**

Commitment to Safety

25 New Laws

to improve safety

Increasing Awareness

Illegal Conversion Outreach

3 Weeks

5 Boroughs

11 Languages

25 Distribution sites

64,500 Flyers

NYC Buildings

LIVING SAFELY
Vivir con seguridad

YOUR APARTMENT / ROOM COULD BE ILLEGAL IF YOU ANSWER YES TO ANY OF THESE QUESTIONS:	SU APARTAMENTO O CUARTO PUEDE SER ILEGAL SI SU RESPUESTA ES SÍ A CUALQUIERA DE ESTAS PREGUNTAS:
Is your bedroom in the cellar? (A cellar has at least half its height underground.)	Está su dormitorio en el sótano? (Un sótano tiene la mitad de la altura debajo de la tierra.)
Do you live in the attic?	Viva ud. en el ático?
Do you get electricity with an extension cord?	Obtiene ud. electricidad con una extensión eléctrica?
Do you lock your room with a padlock?	Cierra ud. el cuarto con un candado?

ILLEGAL APARTMENTS CAN PUT YOU AND YOUR FAMILY IN DANGER.	UN APARTAMENTO ILEGAL PUEDE SER PELIGROSO PARA SU FAMILIA.
STAY SAFE	MANTENGASE SEGURO
✓ Have two easy ways to get out.	✓ Tenga dos maneras de salir facilmente.
✓ Have a carbon monoxide/smoke detector with good batteries.	✓ Mantenga un detector de humo y de monoxido de carbon con baterias que funcionen.
✓ Give space heaters a break to cool down.	✓ Permita que el calentador individual se enfrie.

The City can immediately vacate unsafe illegal apartments or rooms. Landlords can be fined up to $25,000 and face other penalties. To learn more about illegal living spaces or to request a Buildings Department inspection, call 3-1-1.

La ciudad puede evacuar apartamentos y cuartos ilegales. Los dueños de casa pueden ser multados hasta $25,000 dólares u otras penalidades. Para enterarse más sobre las habitaciones ilegales o para pedir una inspección al Departamento de Edificios, llame al 3-1-1.

Robert D. LiMandri, Commissioner — Michael R. Bloomberg, Mayor

NYC Buildings

LIVING SAFELY
Vivir con seguridad

SIGNS YOUR APARTMENT OR ROOM MIGHT BE ILLEGAL:
SU APARTAMENTO O CUARTO PUEDE SER ILEGAL:

ILLEGAL APARTMENTS CAN PUT YOU AND YOUR FAMILY IN DANGER.
UN APARTAMENTO ILEGAL PUEDE SER PELIGROSO PARA SU FAMILIA.

Safety Harness Campaign

- Increasing awareness about the importance of wearing a safety harness
- >**1,500** posters, **350** banners and **20,000** pamphlets in **7** languages were distributed across the City


Life Safety in the New Codes
Keith Wen, RA
Director of Code Development and Interpretation

One- and Two-Family Residential Buildings

Smoke Alarms (BC 907.2.10)

ToastyKen (via Flickr)

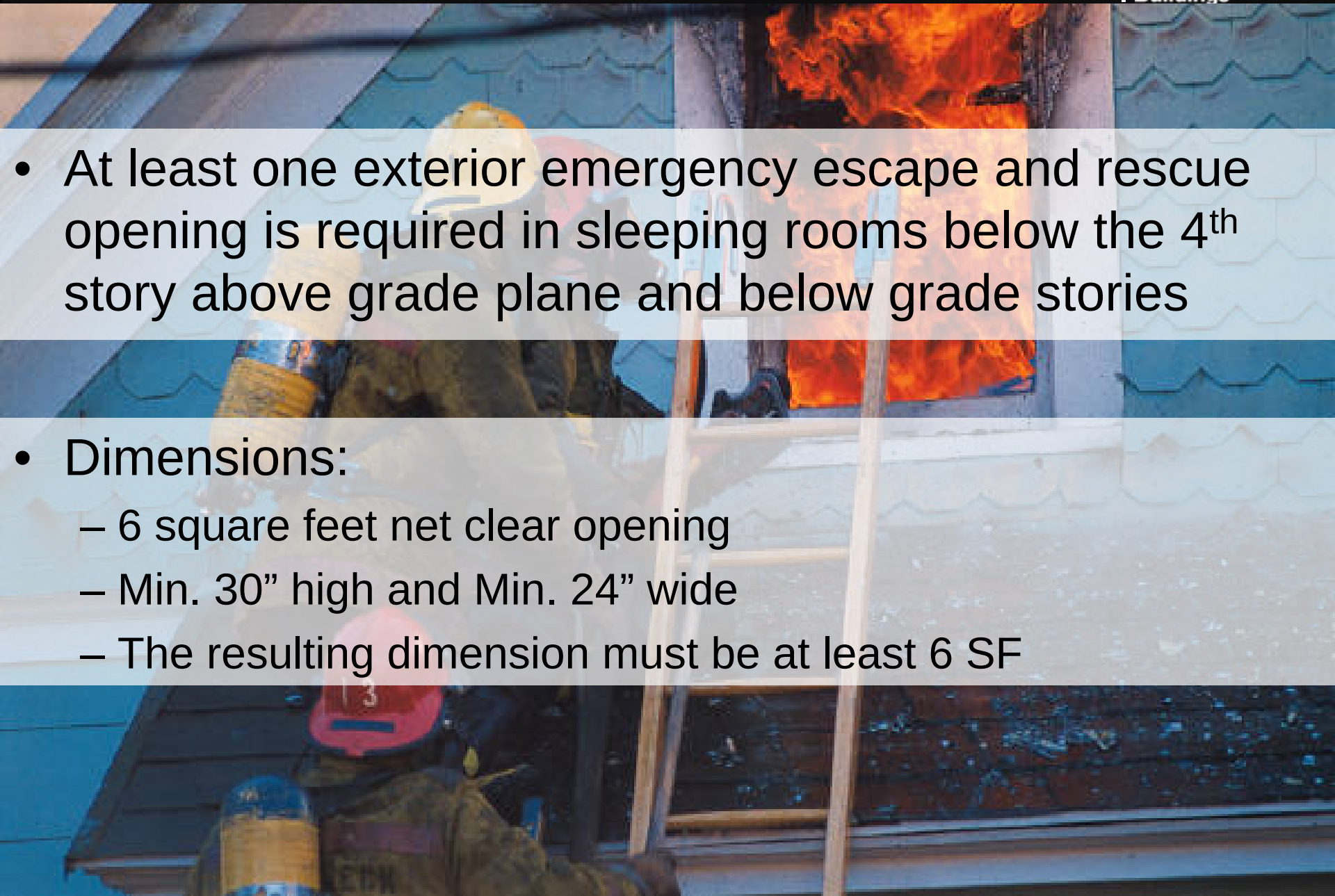
- Must be interconnected
- BC 907.2.10 outlines location and installation requirements

Carbon Monoxide Alarms & Detectors (BC 908.7)

- Must be interconnected
- BC 908.7 outlines location and installation requirements

Mulad (via Flickr)

Emergency Escape & Rescue (BC 1025)



- At least one exterior emergency escape and rescue opening is required in sleeping rooms below the 4th story above grade plane and below grade stories

- Dimensions:
  - 6 square feet net clear opening
  - Min. 30” high and Min. 24” wide
  - The resulting dimension must be at least 6 SF

Sprinklers (BC 903.2.7)

Requirement expanded to most newly constructed one- and two-family buildings (Group R-3)

Sprinklers (BC 903.2.7)

One-family residential	Sprinklers
3-story or less regardless of detached, semi-detached, or attached	✗
4-story or higher regardless of detached, semi-detached, or attached	✓

Sprinklers (BC 903.2.7)

Two-family residential	Sprinklers
Detached 3-story or less	✗
Detached 4-story or higher	✓
Attached regardless of number of stories	✓
Semi-detached regardless of number of stories	✓

Automatic Sprinklers (Fire Code Ch. 5)

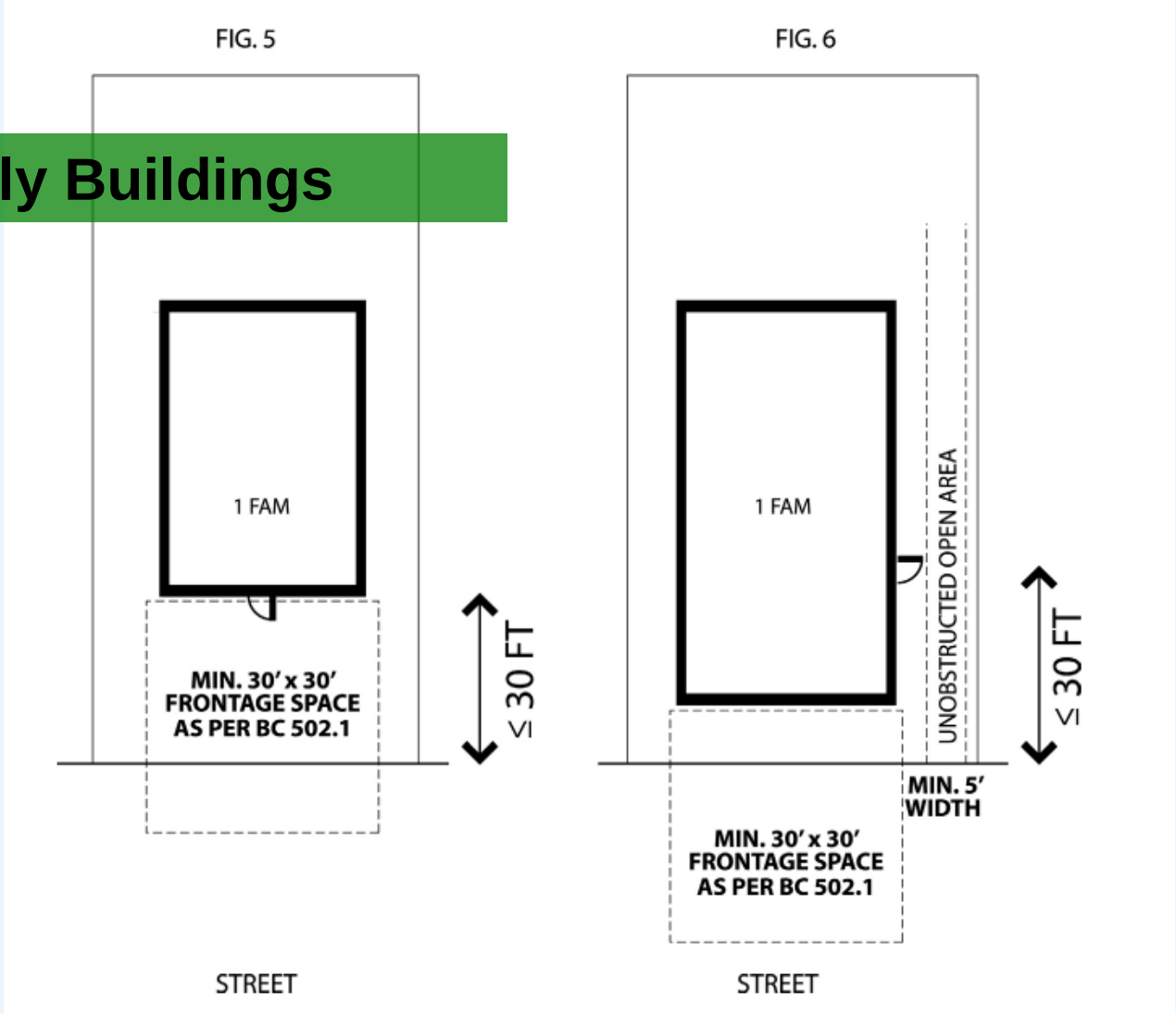
- One- and two-family homes with insufficient frontage or insufficient width for fire apparatus access road require automatic sprinklers

- Based on Fire Code Chapter 5

markyweiss (via Flickr)

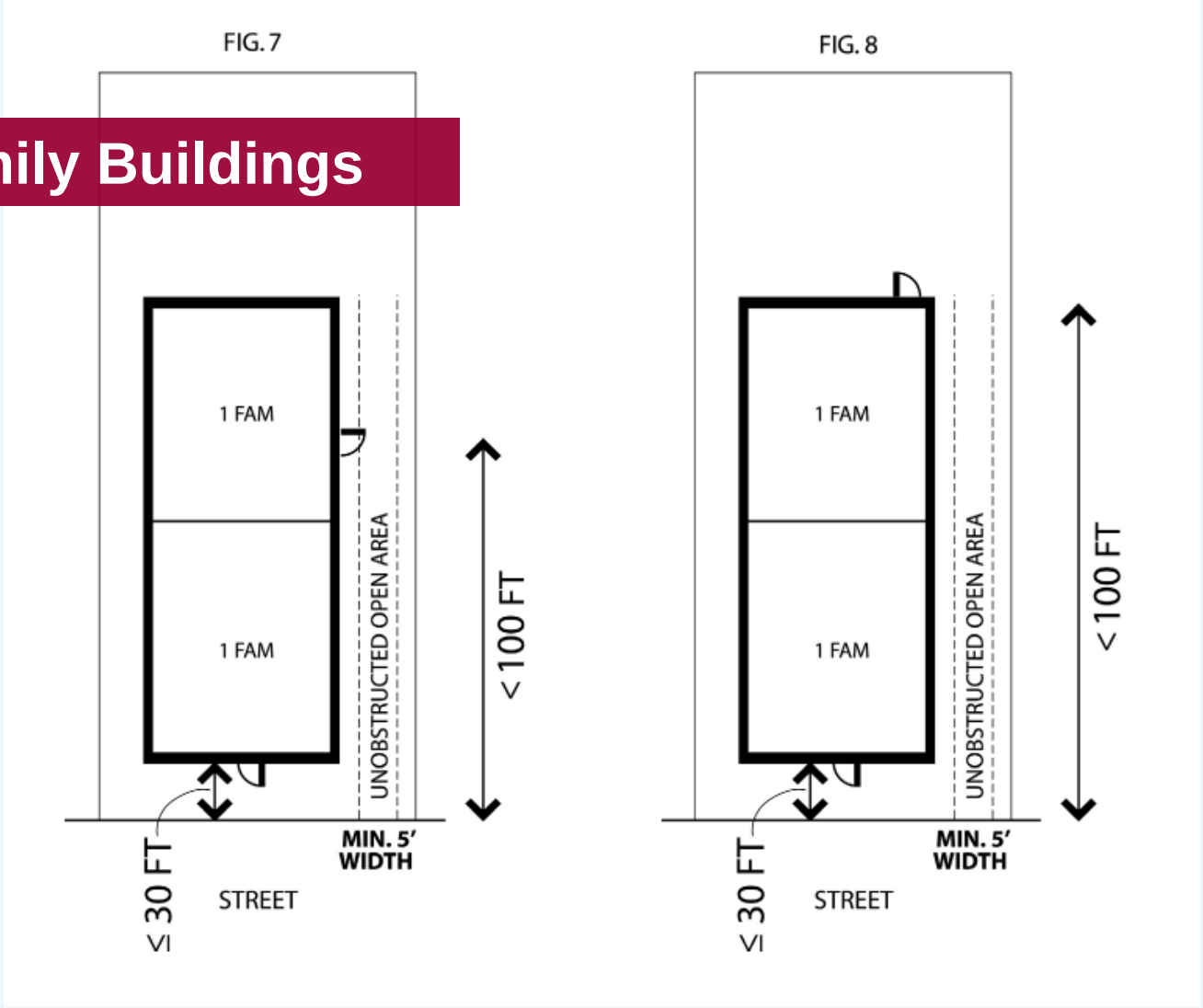
Frontage Space – FC 504

One-Family Buildings



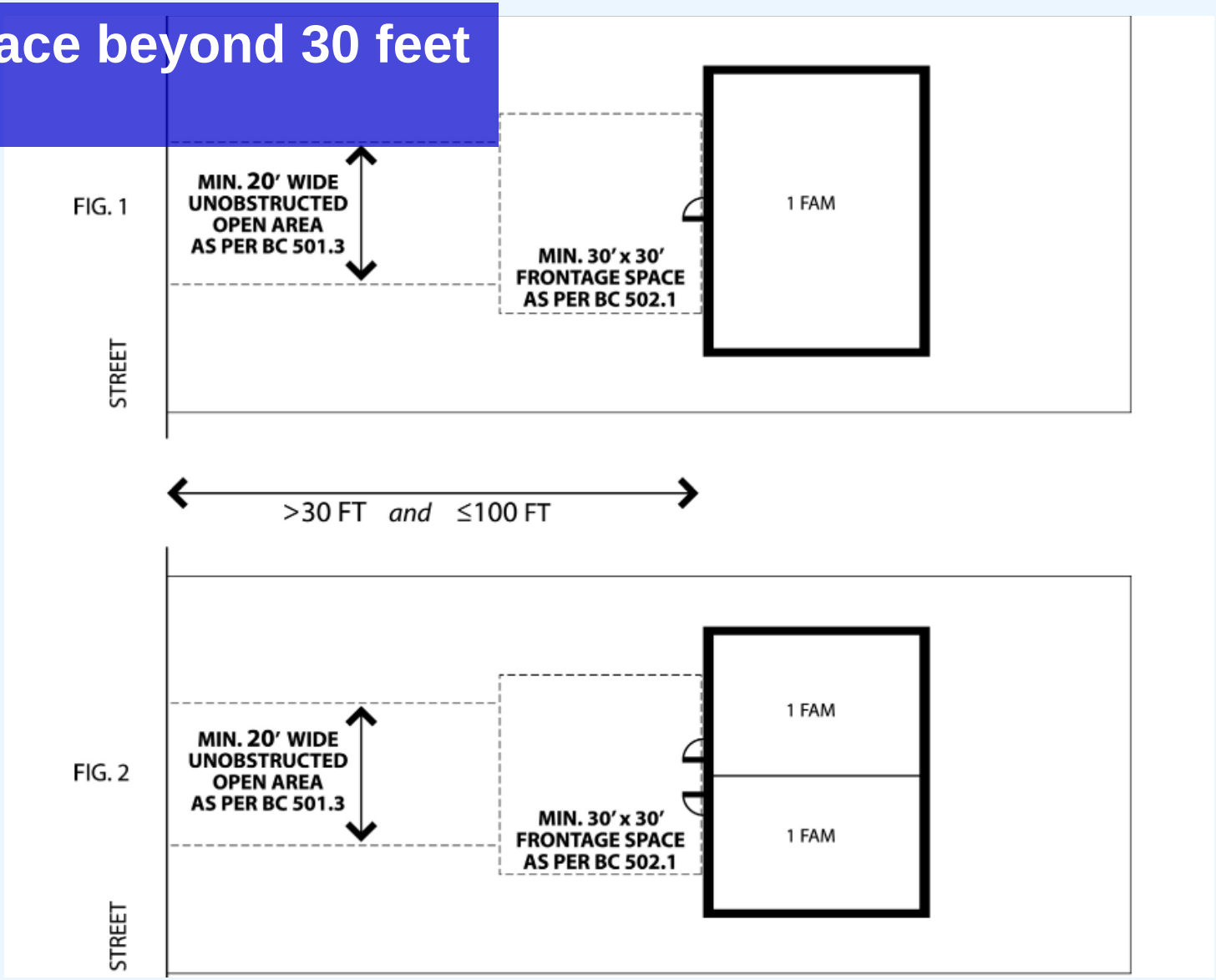
Frontage Space – FC 504

Two-Family Buildings



Fire Apparatus Access Road
FC 503

Frontage space beyond 30 feet from street

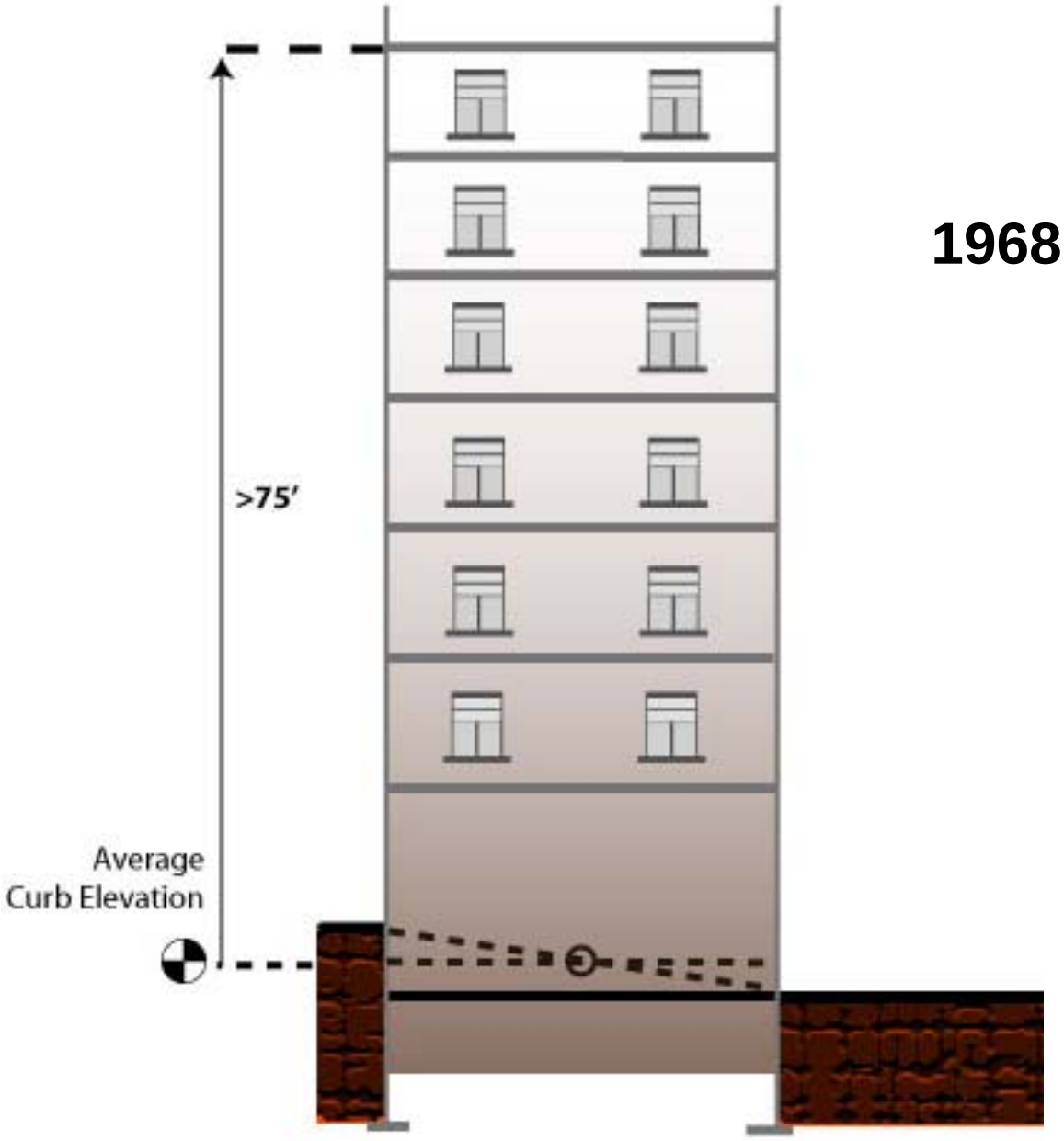


High-Rise Buildings

High-Rise Buildings (BC 403)

- Specifically addressed in section BC 403
- Defined as having occupied floors located more than 75 feet above the lowest level of fire department vehicle access

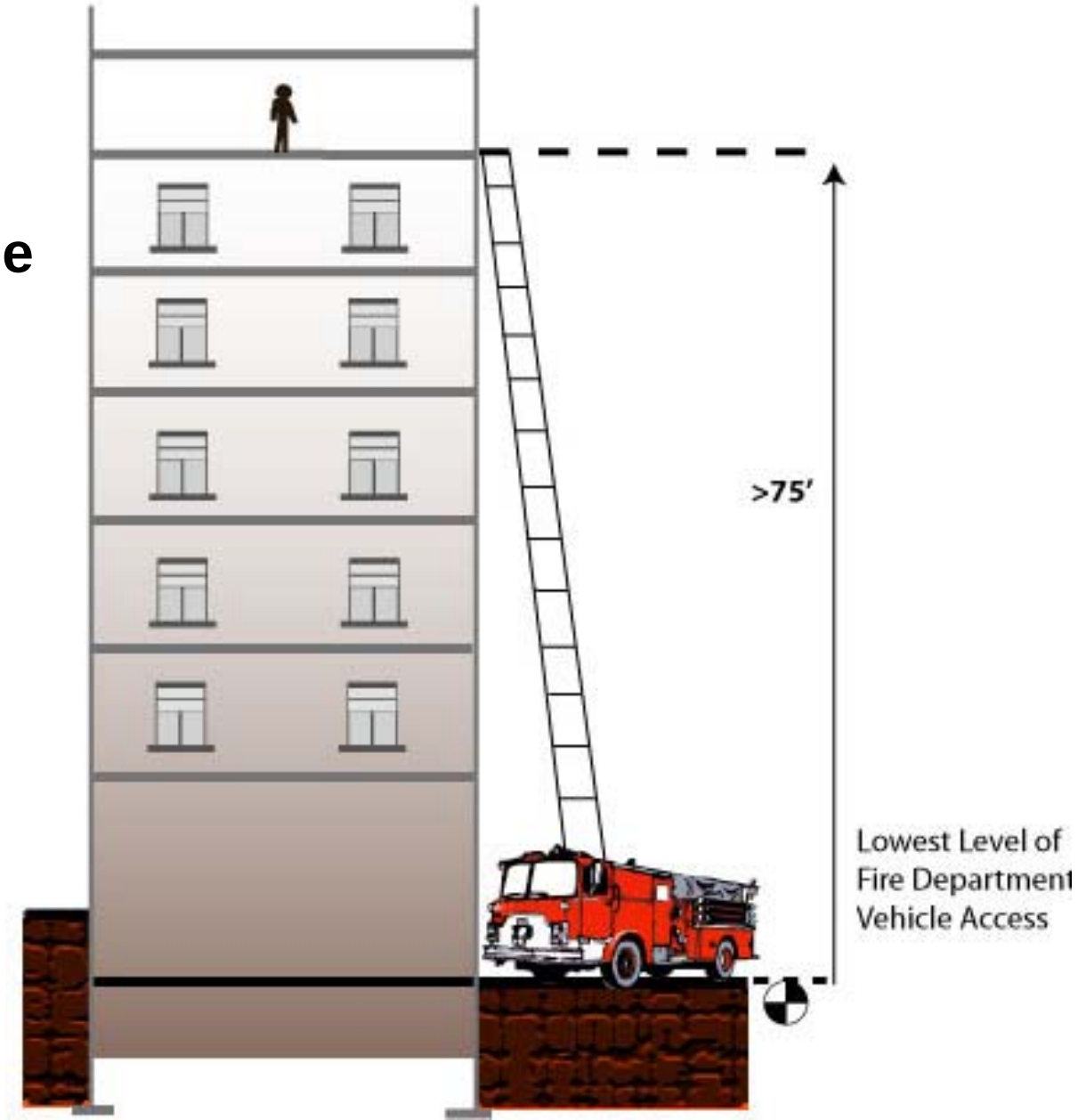
High-Rise Buildings – 1968 Code



1968 Code High-Rise

High-Rise Building – 2008 Code

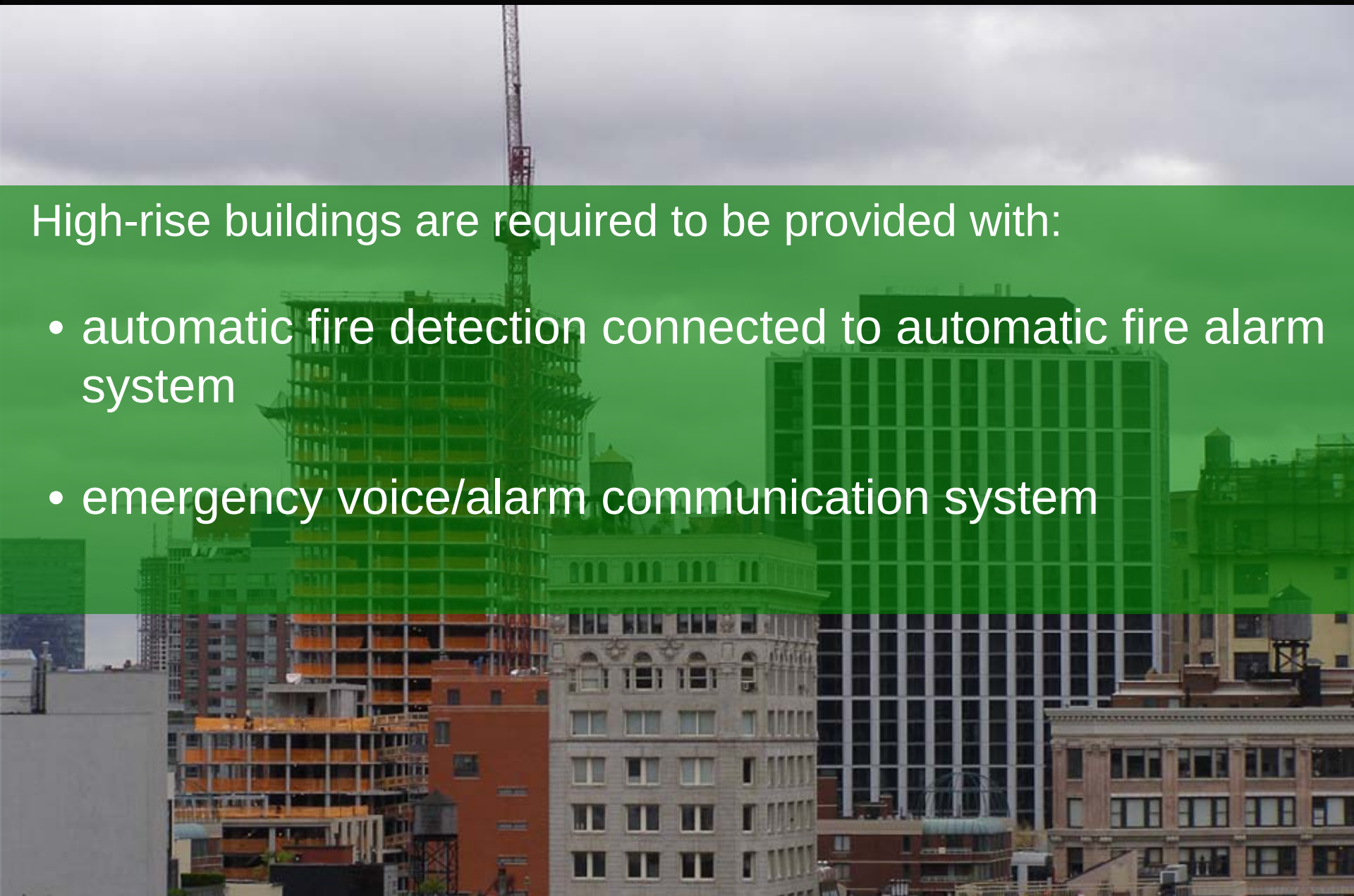
2008 Code High-Rise



Automatic Sprinkler Systems (BC 903.2.10.3)

- Required in *all* buildings with floors ≥ 55 feet in height and with an occupant load ≥ 30
- Required in *all high-rise buildings regardless of occupant load* (as defined in BC 403)

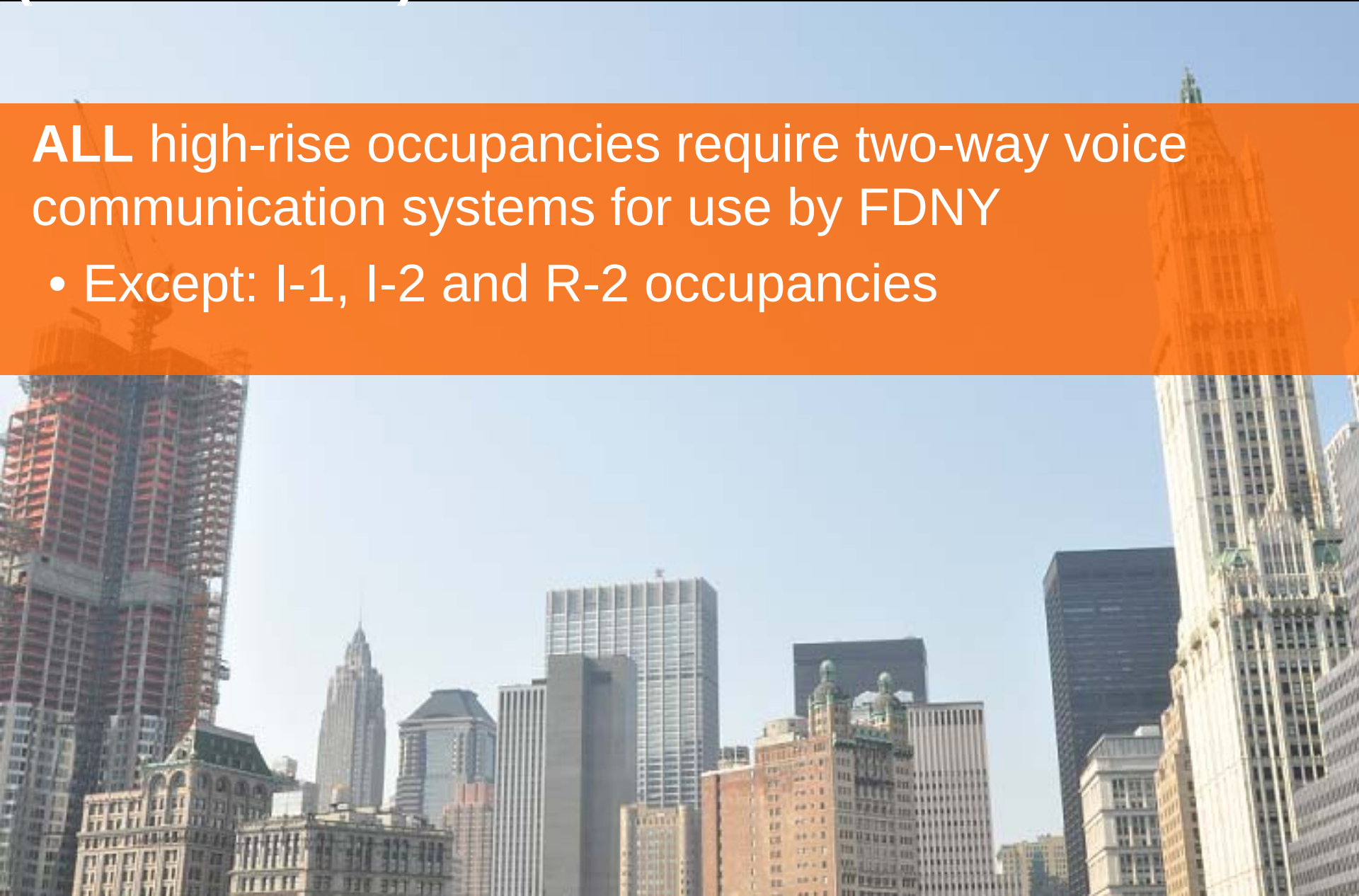
Fire Detection & Fire Alarm (BC 907)



High-rise buildings are required to be provided with:

- automatic fire detection connected to automatic fire alarm system
- emergency voice/alarm communication system

Voice Communication Systems (BC 907.2.12.2)



ALL high-rise occupancies require two-way voice communication systems for use by FDNY

- Except: I-1, I-2 and R-2 occupancies

Voice Communication Systems (BC 907.2.12.2)

High-rise residential buildings > 125 ft must have one-way voice communication systems

- Required from the lobby panel to each dwelling unit and vertical exit

Fire Command Center (BC 911)

Required in **ALL** high-rise occupancies in the lobby on the entrance floor for Fire Department operations

Emergency Power Systems (BC 403.11)

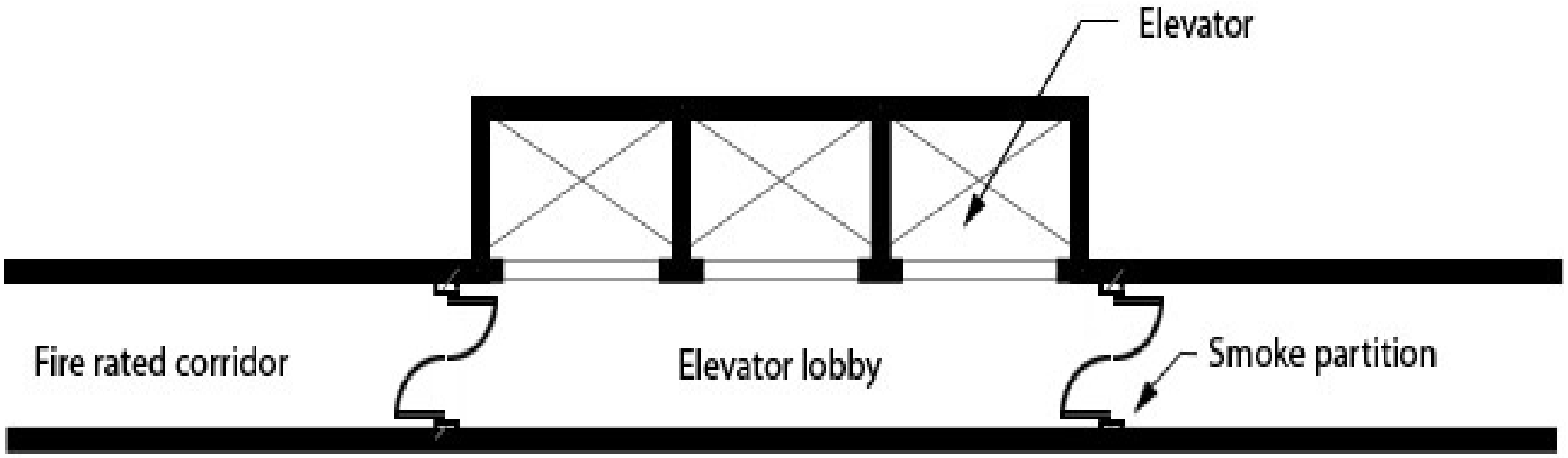
Required in high-rise buildings and residential buildings > 125 feet to provide back-up power for emergency systems

Elevator Lobbies (BC 403.9.1)

- When elevators open onto a fire-resistance-rated corridor

OR

- When elevators serve a Group B occupancy with four or more stories



Stair Design (BC 1009)

Wider Stairway Width

44” min. stairway width required in **ALL** occupancies except :

- Stairways that handle 50 persons cumulative for all stories
- R-2 occupancies not more than 125’ high and each stairway serves < 30 occupants per floor

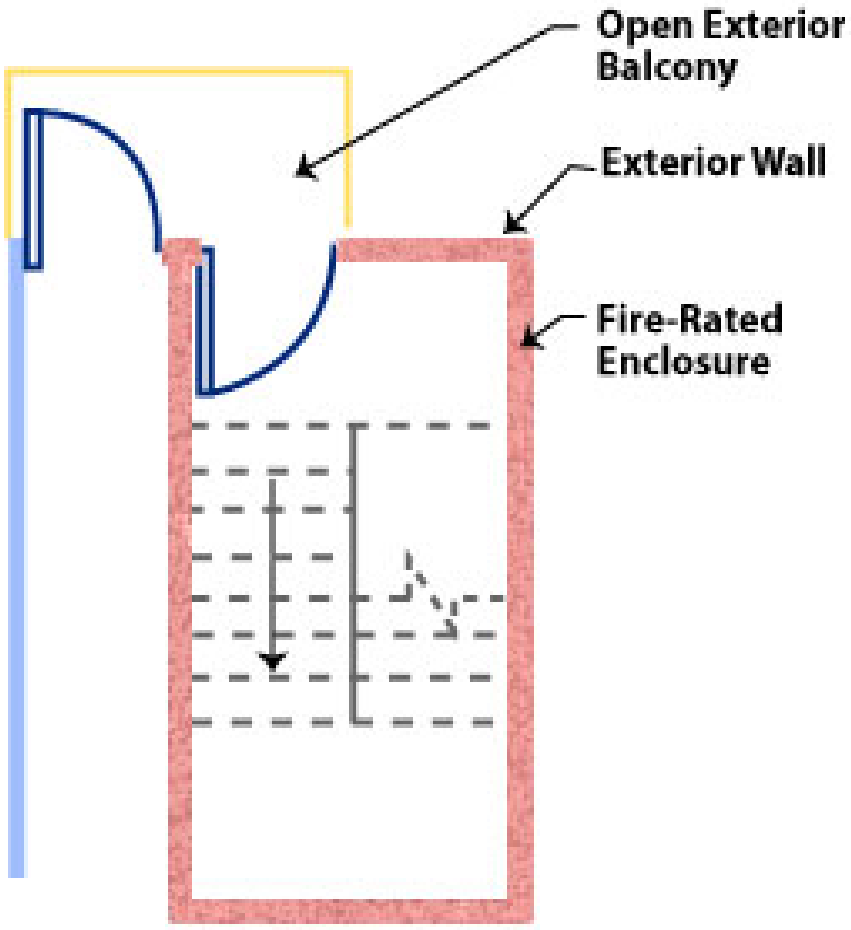
Stair Design (BC 1009.3)

Ease of Step

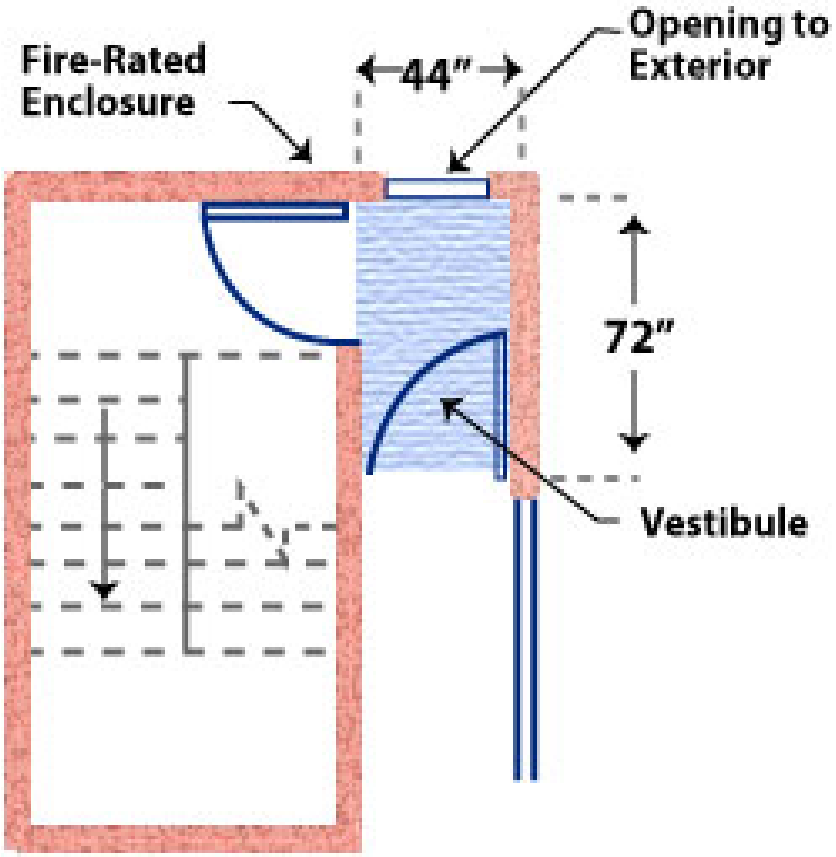
7” max. risers and **11”** min. treads required in **ALL** occupancies except:

1. R-2 occupancies
2. R-2 dwelling units
3. R-3 residential occupancies

Smokeproof Enclosures (BC 1019.1.8)



OPEN EXTERIOR BALCONY



NATURALLY VENTILATED VESTIBULE

Postfire Smoke Purge Systems (BC 912)

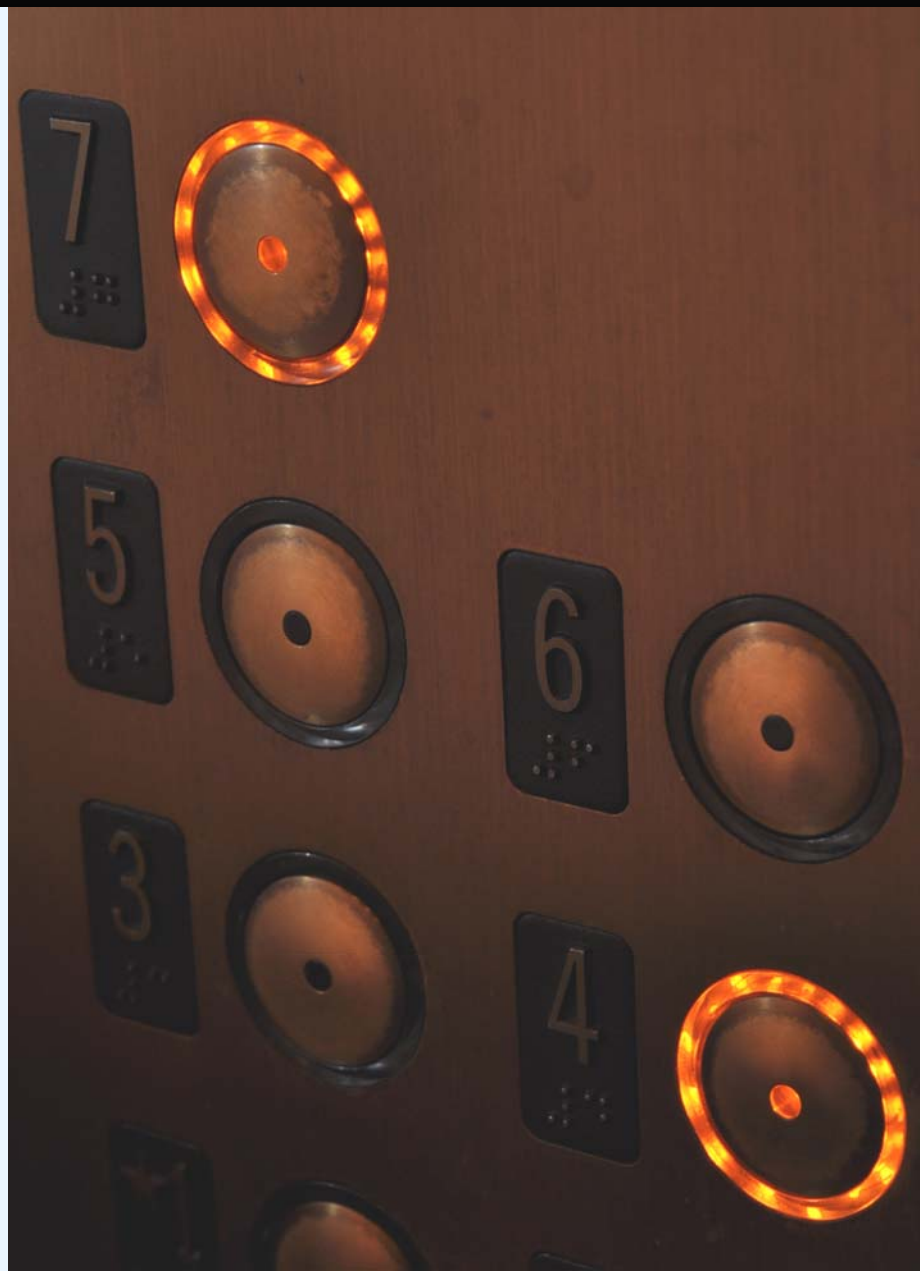
- Required in all high-rise buildings and other buildings listed in section BC 912
- Intended for the timely restoration of operations and overhaul activities once a fire is extinguished

Elevator as Accessible Means of Egress (BC 1007)

May be used as a component of accessible means of egress, except in:

1. Residential buildings > 125 feet in height

2. In other occupancies where the occupied floor is > 75’ above the lowest level of fire department access



Photoluminescent Requirements (BC 1026.11)

Required in all newly-constructed high-rise buildings

- except R-2 occupancies

Buildings Bulletins

- Issu
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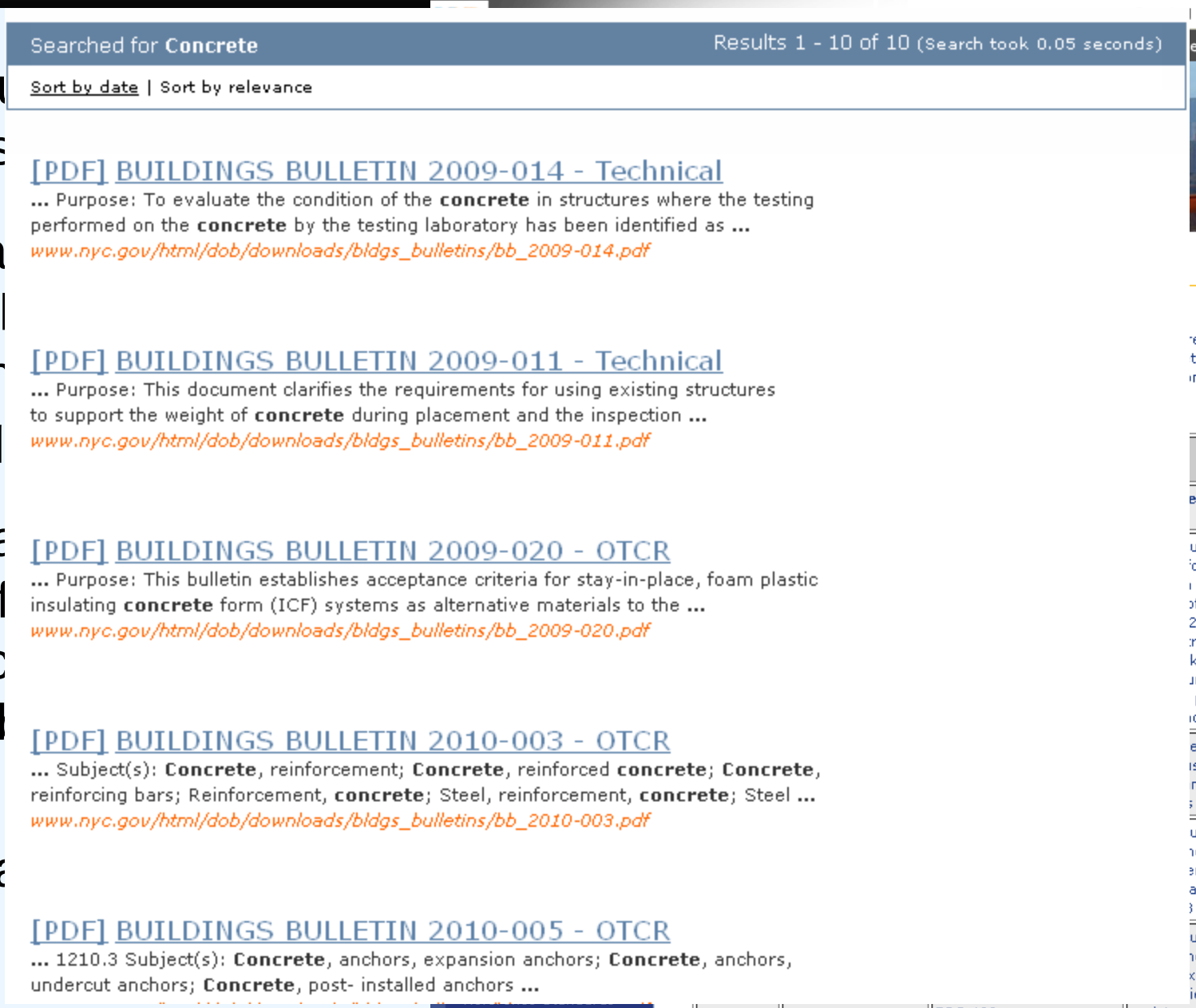
- Cla
  tech
  zon
  req
- Ava
  Ref
  sec
  wel
- Sea



Greener, Greater Buildings Laws

Helen Gitelson
Executive Director
Code & Sustainability Affairs

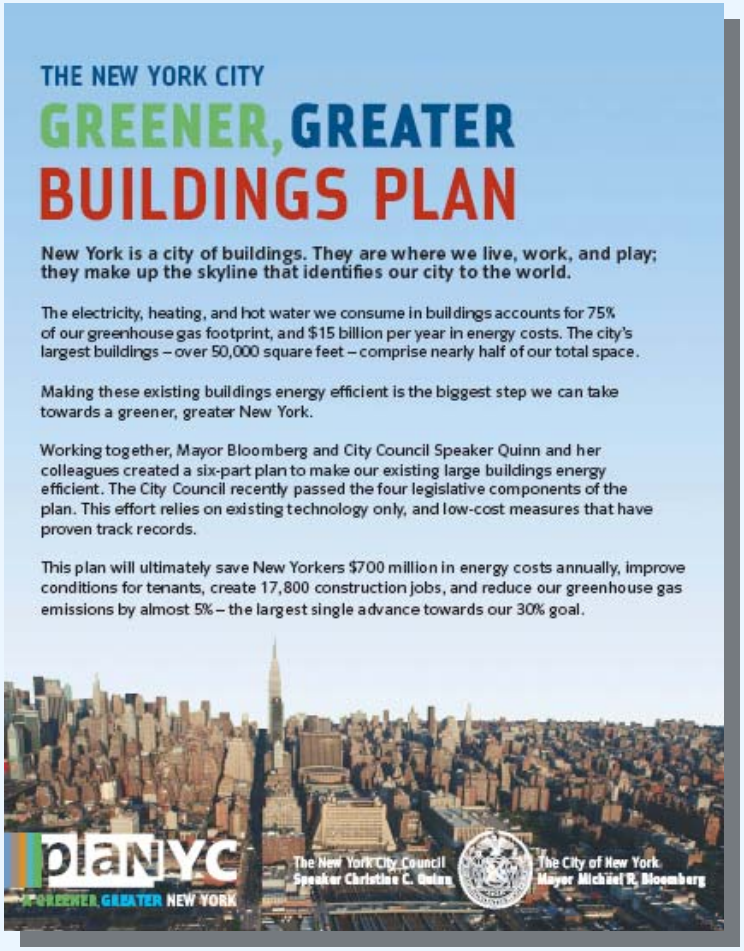
Greener, Greater Buildings Plan

1) NYC Energy Conservation Code

2) Benchmarking

3) Audits & Retro-Commissioning

4) Lighting Upgrades & Sub-Metering



Four Laws

12 / 2009 — **4 bills signed into law**

Benchmarking

- **05 / 2010** — City-owned buildings due
- **05 / 2011** — Private buildings due

NYC Energy Code

- **07 / 2010** — Effective Date for all construction

Audits & Retro-commissioning

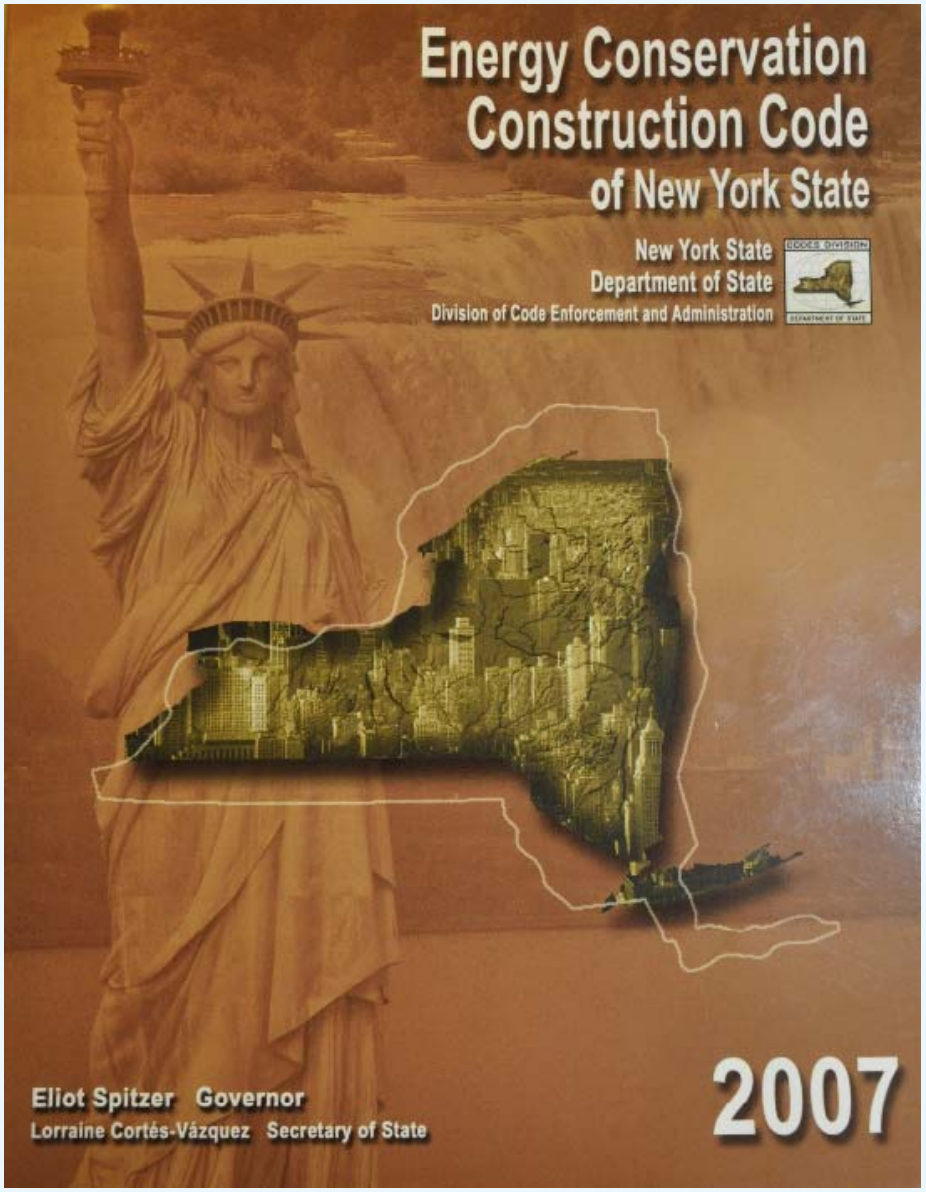
- **01 / 2013** — Early compliance reports due
- Staggered report deadlines begin

Lighting & Sub-metering

- **01 / 2025** — Compliance reports due

NYC Energy Code

- Local Law 85 of 2009
- Effective July 2010
- Applies to *all* alterations



Benchmarking

- Local Law 84 of 2009
- Annual assessment of energy
- Applies to:
  - all city-owned buildings >10,000 sq ft
  - all buildings > 50,000 sq ft

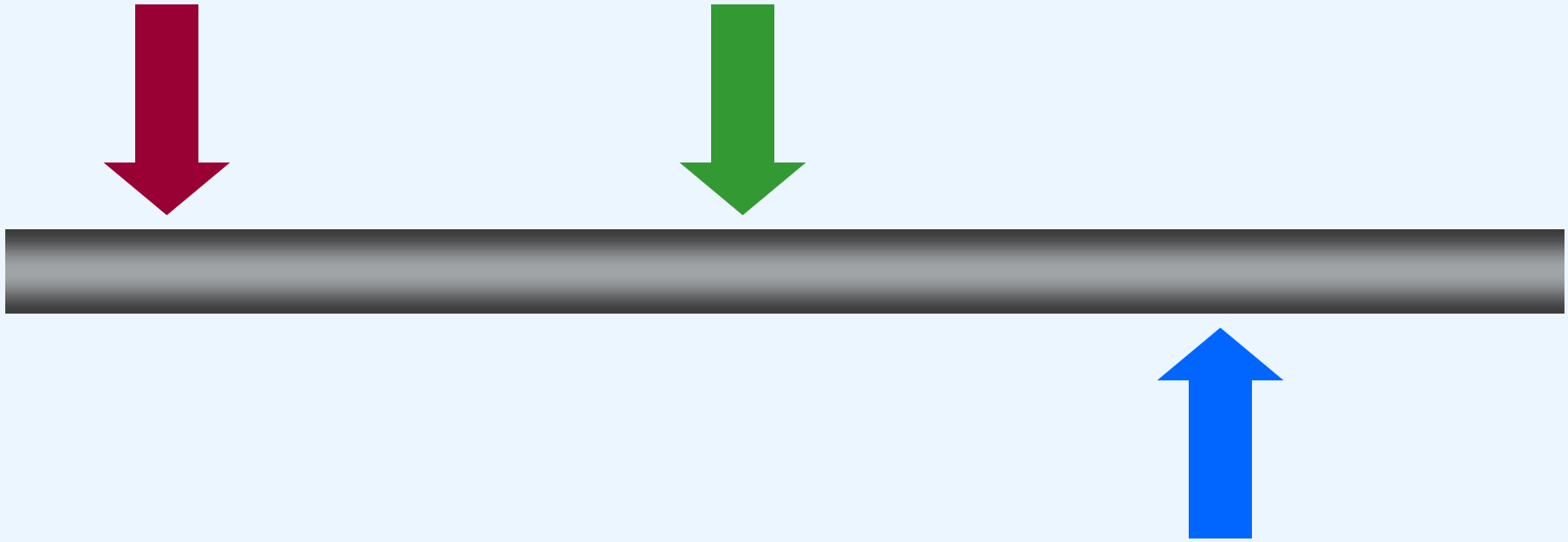
Benchmarking

Annual upload of building data using **EPA Portfolio Manager** on www.energystar.gov

Benchmarking
DOF Posting of Results

September 1, 2011
City buildings

September 1, 2012
Non-residential buildings



September 1, 2013
Residential buildings

Audits & Retro-Commissioning

- Local Law 87 of 2009
- Applies to buildings > 50,000 sq ft
- Affects base-building systems:
  - Envelope
  - HVAC
  - Service hot water
  - Lighting and electrical
  - Elevators & escalators

Audits & Retro-Commissioning

Energy Audit

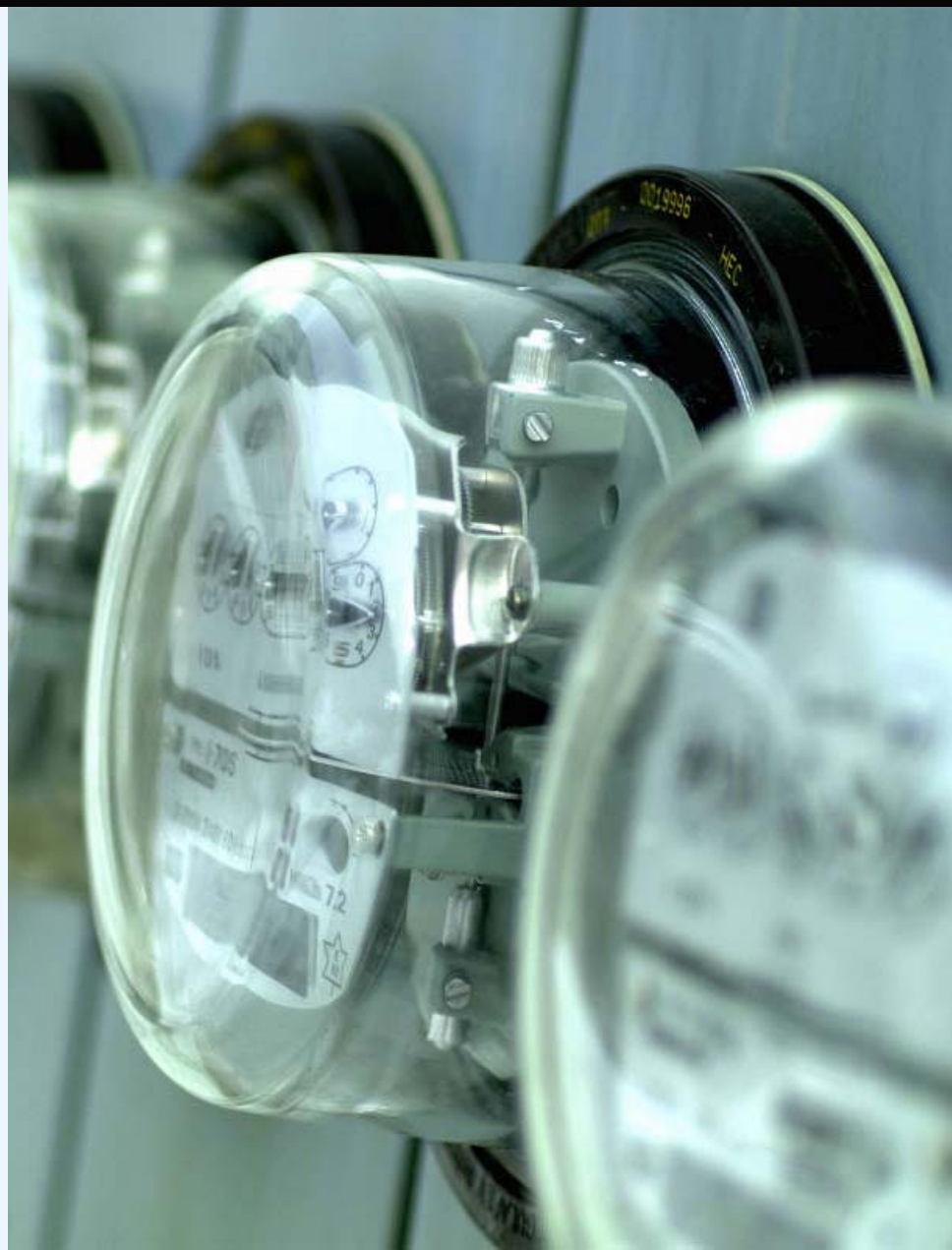
- Evaluation of potential energy upgrades (aka *retrofits*), including initial cost and annual energy savings

Retro-commissioning

- Repairs, cleaning, and adjustments to equipment controls and sensors to improve performance

Energy Efficiency Report

- Every 10 years



Audits & Retro-Commissioning

Staggered deadlines

- 2013 – 2022
- DOF will notify owner 3 years prior to deadline
- Early compliance is encouraged
- First-cycle audit requirements simplified for defined class of “simple buildings”

Lighting Upgrades & Sub-metering

- Local Law 88 of 2009
- Existing lighting system must be upgraded by January 1, 2025 for buildings > 50,000 sq feet, except:
  - Individual dwelling units
  - Houses of worship
- Separate meters or sub-meters must be installed by January 1, 2025

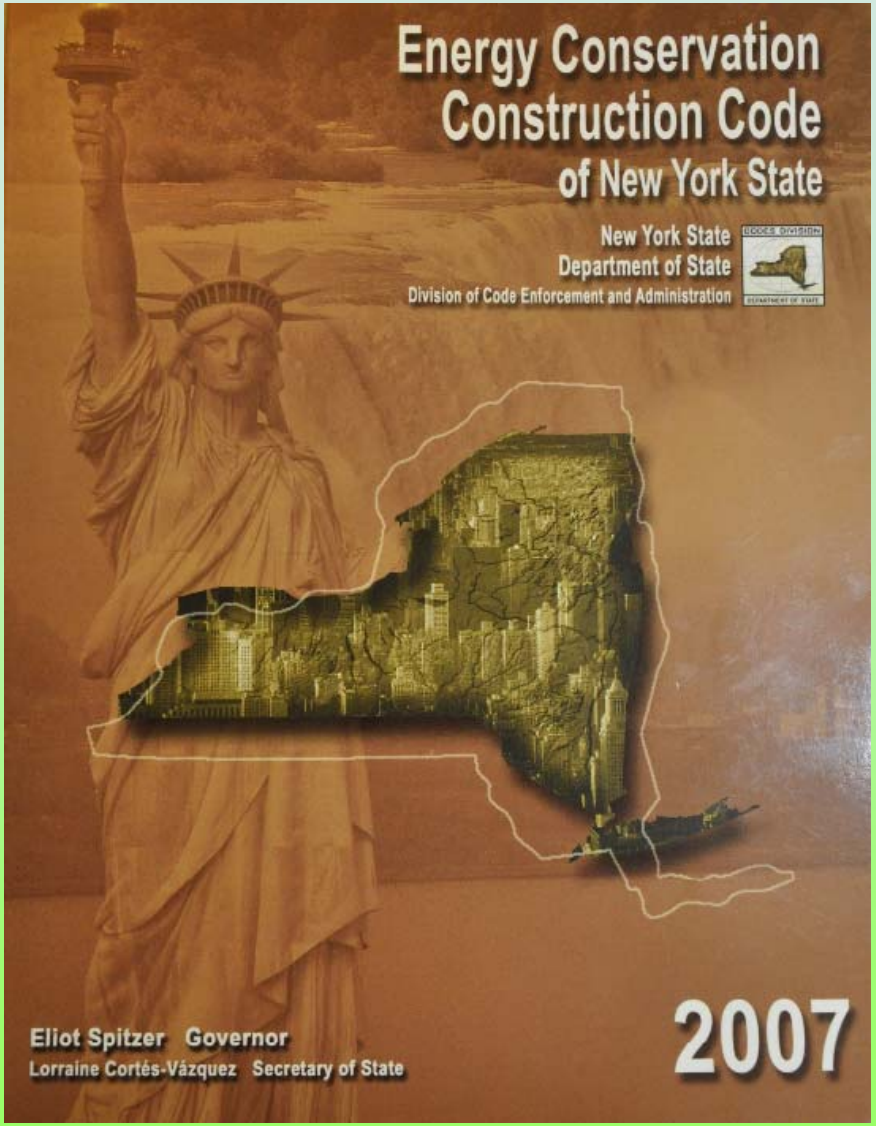
Energy Code Compliance

Deborah Taylor, AIA, LEED AP
Chief Sustainability Officer

Buildings generate nearly 75% of New York City's carbon emissions

NYS Energy Code

- **1979**: ECCCNYS mandated statewide, including NYC
- **April 2010**: 2010 ECCCNYS adopted
- **December 2010**: Anticipated effective date of 2010 ECCCNYS



Energy Code Audits

- Applications randomly selected for audit
- Audit can result in:
  - Objections
  - Revocation of approval

NYC Energy Conservation Code

- July 1, 2010: New York City Energy Conservation Code effective

- No exemption for alterations

- No exemption for interiors of NYC-landmarked buildings or districts that are not also designated by the State or Federal government. **Exempt:** NYC-landmarked interiors

Energy Code Compliance Rule

- July 1, 2010: Energy Code Compliance rule anticipated effective date
- Lays out current submission requirements
- Energy Code Progress Inspections must be listed and described in drawings and performed at certain checkpoints
- Establishes qualifications of Energy Code Progress Inspector

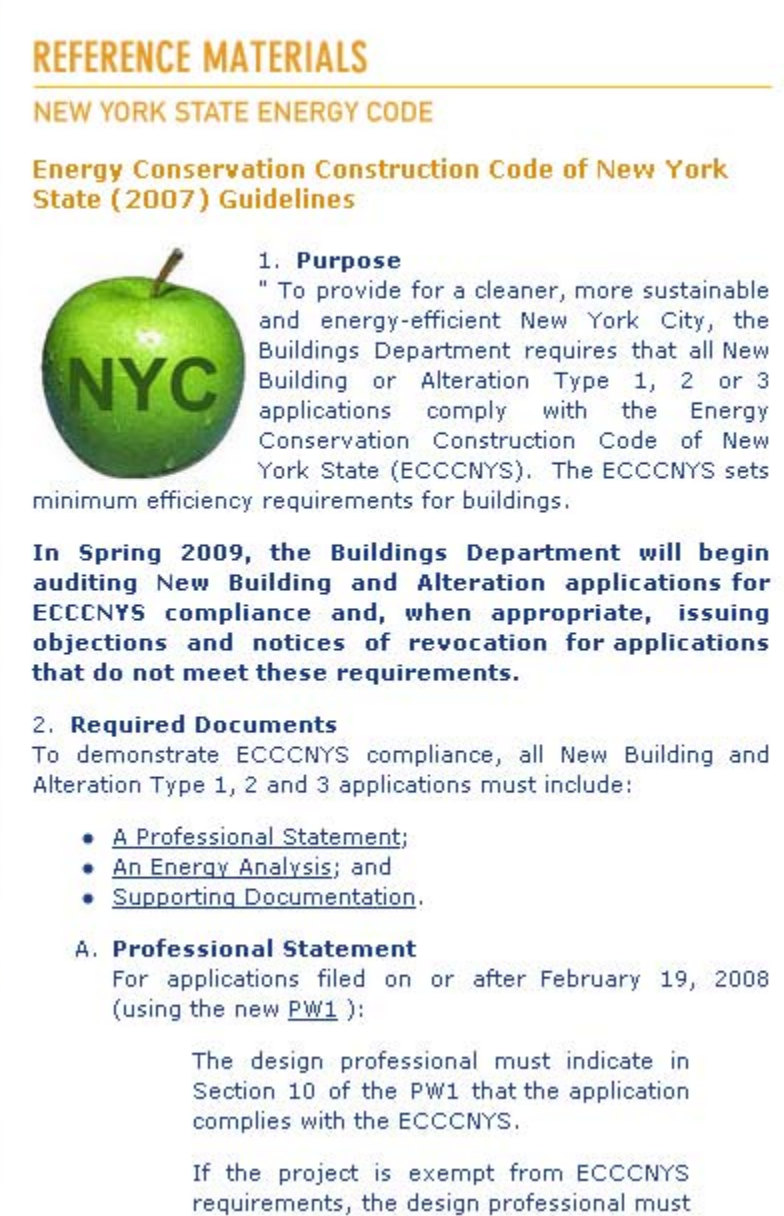
Timeline


2010 ECCCNYS Adopted
April 2010
2010 ECCCNYS Effective
December 2010
NYC Energy Code &
Rule Effective
July 2010
Amended NYCECC
Effective
December 2010

Submission Requirements

- Professional Statement
- Energy Analysis
- Supporting Documentation

Filing guidelines in Reference Materials at: nyc.gov/buildings



REFERENCE MATERIALS

NEW YORK STATE ENERGY CODE

Energy Conservation Construction Code of New York State (2007) Guidelines

1. **Purpose**

" To provide for a cleaner, more sustainable and energy-efficient New York City, the Buildings Department requires that all New Building or Alteration Type 1, 2 or 3 applications comply with the Energy Conservation Construction Code of New York State (ECCCNYS). The ECCCNYS sets minimum efficiency requirements for buildings.

In Spring 2009, the Buildings Department will begin auditing New Building and Alteration applications for ECCCNYS compliance and, when appropriate, issuing objections and notices of revocation for applications that do not meet these requirements.

2. **Required Documents**

To demonstrate ECCCNYS compliance, all New Building and Alteration Type 1, 2 and 3 applications must include:

- A Professional Statement;
- An Energy Analysis; and
- Supporting Documentation.

A. **Professional Statement**

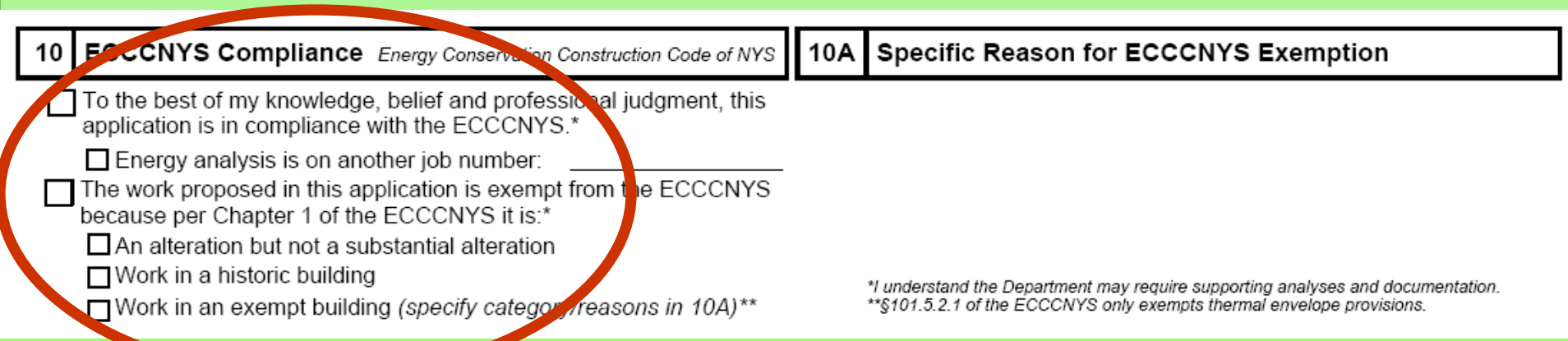
For applications filed on or after February 19, 2008 (using the new PW1):

The design professional must indicate in Section 10 of the PW1 that the application complies with the ECCCNYS.

If the project is exempt from ECCCNYS requirements, the design professional must

Professional Statement

- Statement of compliance or statement of exemption
  - If stating exemption, must cite Code section allowing exemption
- Must indicate job number where Energy Analysis is included (if not filed with same job as professional statement)



10	ECCCNYS Compliance *Energy Conservation Construction Code of NYS*	10A	Specific Reason for ECCCNYS Exemption

☐ To the best of my knowledge, belief and professional judgment, this application is in compliance with the ECCCNYS.*

☐ Energy analysis is on another job number: _____

☐ The work proposed in this application is exempt from the ECCCNYS because per Chapter 1 of the ECCCNYS it is:*

☐ An alteration but not a substantial alteration

☐ Work in a historic building

☐ Work in an exempt building *(specify category/reasons in 10A)***

*I understand the Department may require supporting analyses and documentation.
**§101.5.2.1 of the ECCCNYS only exempts thermal envelope provisions.

Energy Analysis

- Applicants must indicate how they will comply with the Energy Code

- Four Formats:
  1. REScheck
  2. COMcheck
  3. EC1 form
  4. Tabular analysis

Supporting Documentation

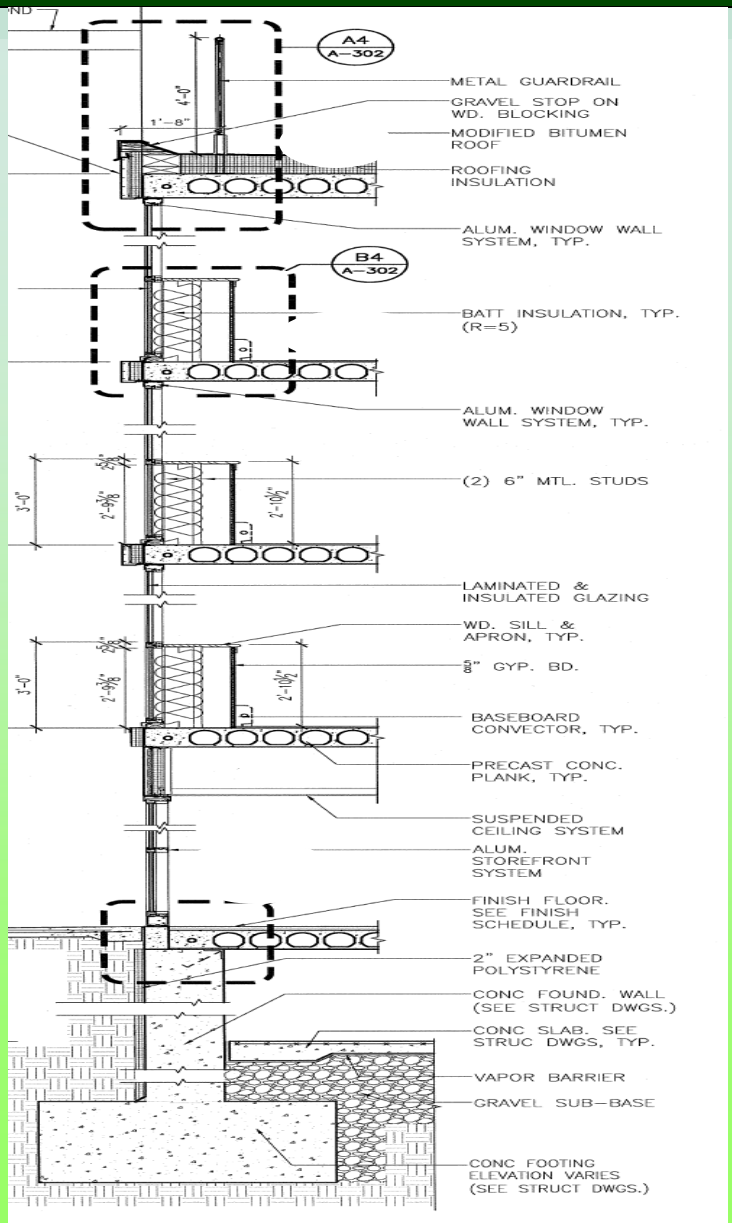
- Approved construction drawings **must** match values in Energy Analysis
  - Envelope
  - Mechanical / service hot water
  - Lighting / power
- Approved construction drawings **must** show mandatory requirements
- Approved construction drawings **must** show and support progress inspections

Supporting Documentation Envelope

- **Energy Analysis Conformance**
  - R values
  - U factors
  - SHGC
- **Mandatory Requirements**
  - Sealing against air leakage
- **Progress Inspections**

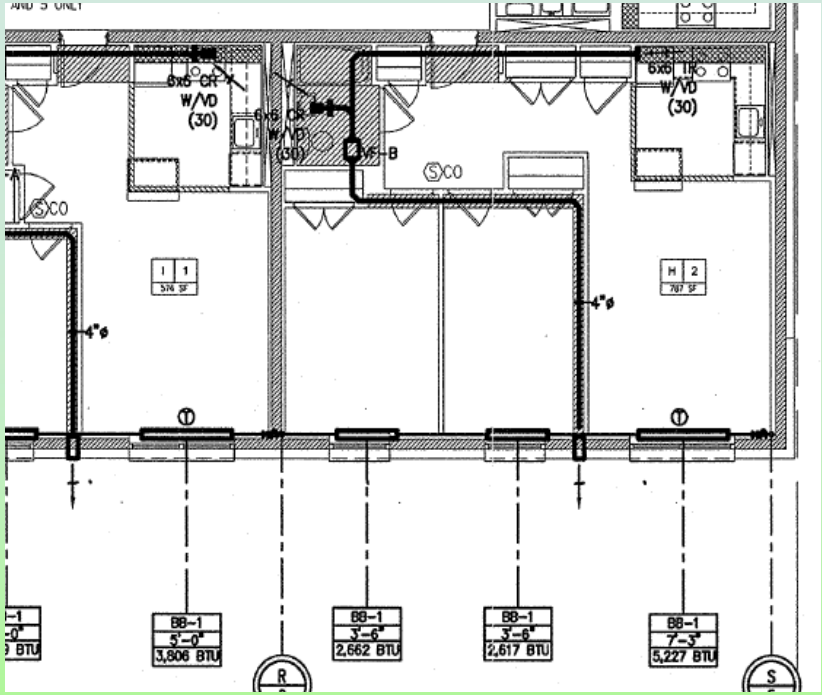
Window Schedule

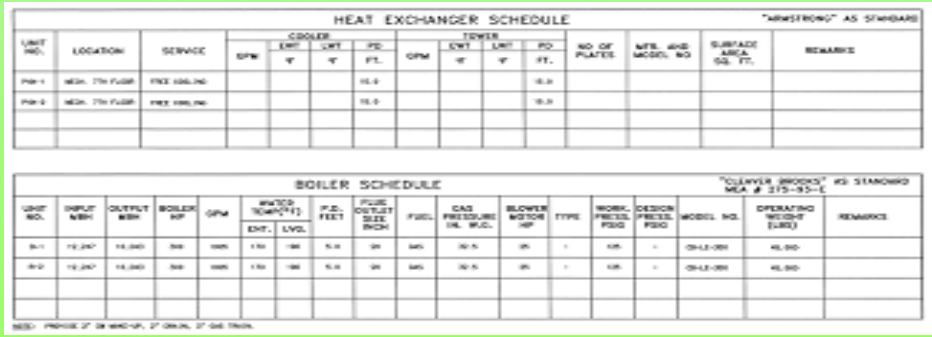
WINDOW TYPE	MASONRY OPENING Height	MASONRY OPENING Width	REMARKS	U-factor	SHGC
A	5'-1 5/8"	7'-0 3/8"	Provide cast stone lintel	0.46	0.29
A1	5'-1 5/8"	7'-0 3/8"		0.46	0.29
B	5'-1 5/8"	4'-0 3/8"	Provide cast stone lintel	0.46	0.29
B1	5'-1 5/8"	4'-0 3/8"		0.46	0.29
C	5'-1"	7'-0 3/8"	Provide cast stone lintel	0.46	0.29
C1	5'-1"	7'-0 3/8"		0.46	0.29
D	5'-1"	4'-0 3/8"	Provide cast stone lintel	0.46	0.29



Supporting Documentation
Mechanical / Service Hot Water

- **Energy Analysis Conformance**
  - Equipment sizing (Ch. 4)
  - Equipment efficiencies (Ch. 8)
- **Mandatory Requirements**
  - Duct insulation
  - Duct sealing
  - Pipe insulation
  - Controls
  - Controls Narrative
- **Progress Inspections**





Supporting Documentation
Lighting and Power

- **Energy Analysis Conformance**
  - Lighting layout: Fixtures types keyed to fixture schedule
  - Fixture Schedule: Fixture types, lamps, lamp & fixture wattage, ballast type
  - Area of spaces
- **Mandatory Requirements**
  - Controls
  - Controls narrative
- **Progress Inspections**

energycode@buildings.nyc.gov

This concludes
The American Institute of Architects
Continuing Education Systems Program

NYC Department of Buildings
Buildings University

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