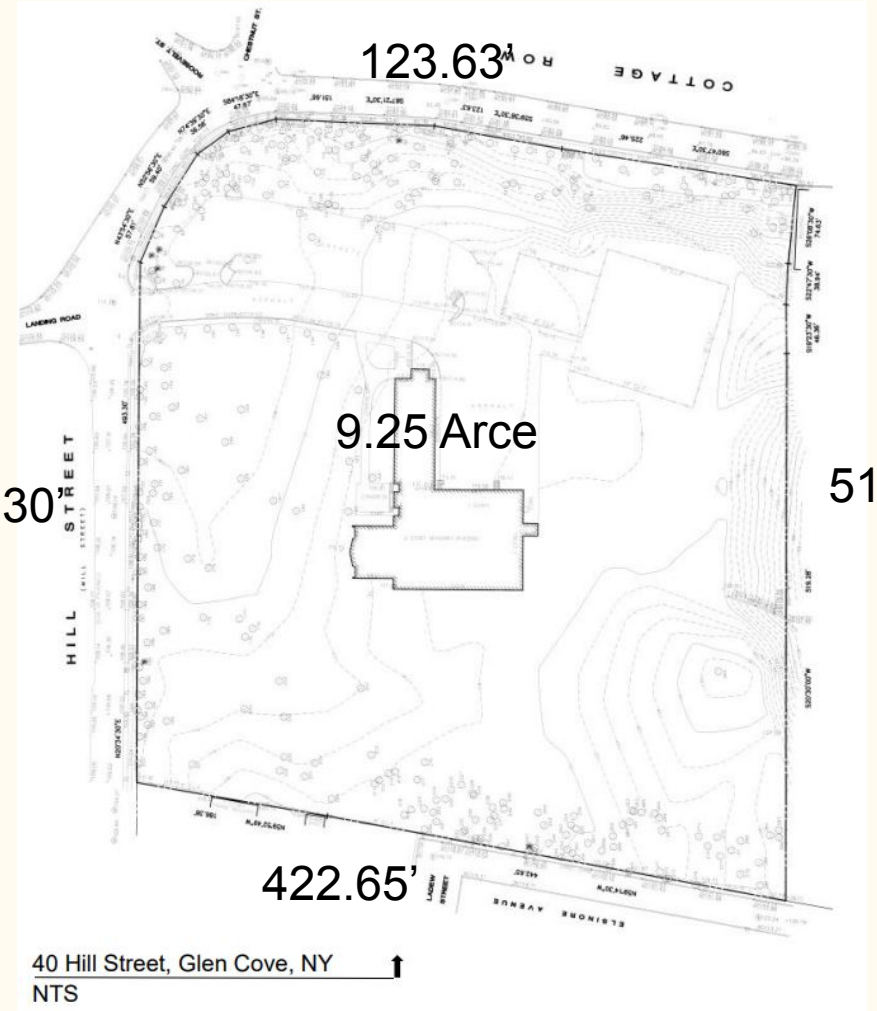
# Basic  Site Analysis

By William Cortez, Shane Ramirez, & Edwin Nunez

# Lot Size


123.63'
9.25 Arce
493.30'
519.28'
422.65'
HILL STREET
LANDING ROAD
COTTAGE
ELSINORE AVENUE
40 Hill Street, Glen Cove, NY
NTS

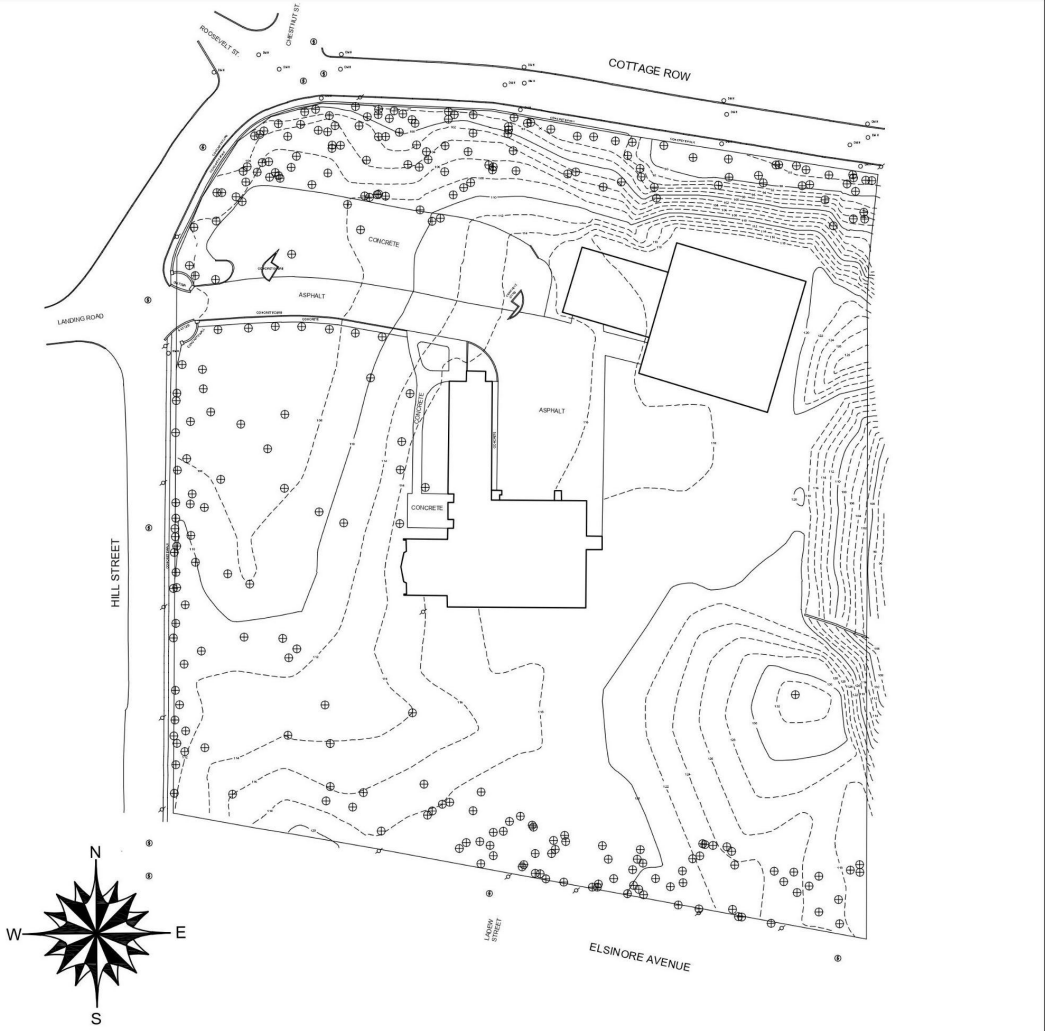
# Site Aerial


40 Hill Street, Glen Cove, NY ↑
NTS

# Zoning information

| ZONING DATA | | |
|---|---|---|
| ZONE: BUSINESS 1 | | |
| **APPLICANT** | | |
| APPLICANT | FARMINGDALE STATE COLLEGE | |
| **BULK REQUIREMENTS** | | |
| REQUIREMENTS | ZONE: BUSINESS 1 | PROPOSED |
| MIN: LOT AREA | 7500 SF | 402930 SF |
| MIN: FRONT YARD | 25' | |
| MIN: SIDE YARD | 10'/20' BOTH | |
| BUFFER RESIDENTIAL SIDE | 25' | |
| MIN: REAR YARD | 10' | |
| MAX: BUILDING HEIGHT | 35' | |
| MAX F.A.R. | 0.4 | |
| MIN: TOTAL LANDSCAPE AREA | 20% | |
| MIN: LANDSCAPE AREA @ FRONT YARD | 10% | |
| **PARKING REQUIREMENTS** | | |
| PARKING CALCULATIONS | | |
| PLACE OF ASSEMBLY | 1 PER 4 PERSONS | 428 PERSON |
| | | |
| PROVIDE | 428/4=**107** (+4 ADA PARKING DUE TO CODE) | |

# Topography & Infrastructure



# Sun Position


Winter Solstice
Sunrise: 07:15 am ; 120.83°
Sunset: 16:30 pm ; 239.16°


Summer Solstice
Sunrise: 05:22 am ; 57.34°
Sunset: 20:30 pm ; 302.65°

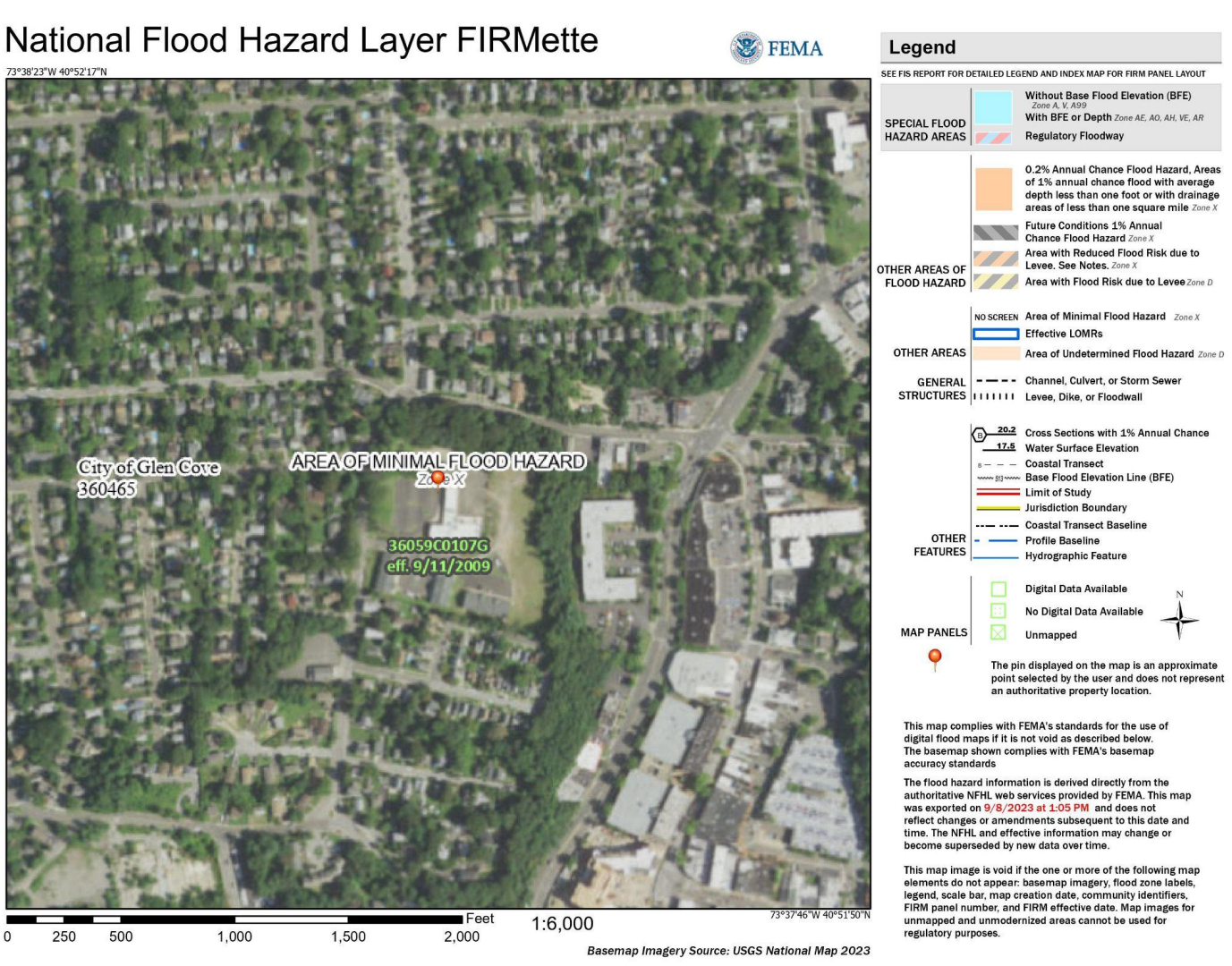
# Prevailing Winds

Winter winds

Storm winds

Prevailing winds

# Floodplain Inf



# Environmental

- Follow base flood elevation and design flood elevation per zoning/codes.
- Fulfill SEQRA review.
- Accommodate for 100-yr or 500-yr flood requirements.
- Heat, high humidity, and wind advisory.
- Place buffers closest to houses on south and west side of property to mitigate sound and light pollution.

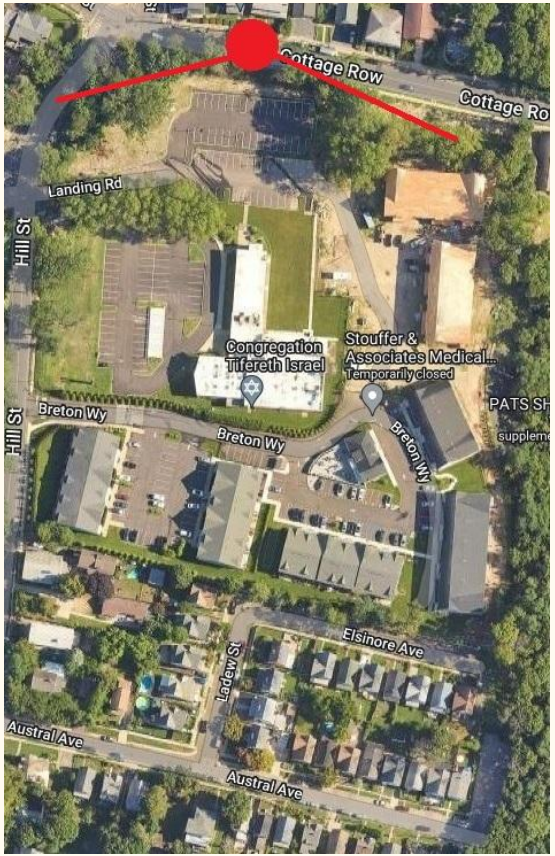
# Context




- The site is mainly surrounded by residential houses, an apartment building next to it, and a condominium complex right below the site.
- Finish materials around the neighborhood is standard wood shingle siding and bricks for the apartment building and shops across it.
- The site is surrounded by trees and greenery so an accessible from ground green roof would match the site.
- No landmarks around the site.

# View 1


40 Hill Street, Glen Cove, NY
74 Cottage Row
Glen Cove, New York
Google Street View
Dec 2021
See more dates
Google


Cottage Row
Cottage Ro
Landing Rd
Hill St
Congregation Tifereth Israel
Stouffer & Associates Medical...
Temporarily closed
Breton Wy
Breton Wy
Breton Wy
Hill St
PATS SH
Elsinore Ave
Ladew St
Austral Ave
Austral Ave

# View 2


40 Hill Street, Glen Cove, NY
39 Hill St
Glen Cove, New York
Google Street View
Dec 2021
See more dates
Landing Rd
AMC Glen Cove 6
Google


Cottage Row
Cottage
Landing Rd
Hill St
Congregation Tifereth Israel
Stouffer & Associates Medical...
Temporarily closed
Breton Wy
Breton Wy
Breton Wy
PATS
Elsinore Ave
Ladew St
Hill St
Austral Ave
Austral Ave

# Building Program Criteria Part 1

F.A.R.- 0.4 of total lot area = 161,172 SF

- Studio space (7) 25 PPL- 700 SF Each
- Technology Advanced classroom (7) 25 PPL- 600 SF Each
- Lab for concrete mixing 25 PPL- 1000 SF
- Model making room 5 3D Printers- 300 SF
- Computer work lab 24 PPL- 500 SF
- General crit space 30 PPL- 500 SF
- Auditorium 130 PPL- 2000 SF
- Cafeteria- 2000 SF

Total SF for part 1 = 15,400 SF

# Building Program Criteria Part 2

- Main office
1. Reception area - 100 SF
2. Offices (7)- 150 SF
3. Dean's Office- 200 SF
- General office 10 PPL- 400 SF
- Plotter/ Printer room- 100 SF
- Restrooms- 428 PPL
1. Water Closets- Male: 6 Female: 6
2. Lavatories - 3
3. Drinking Fountains- 1
4. Sink Service- 1
- Total restroom SF for both = 300 SF Each
- Green roof- 600 SF
- Outdoor area- 2000 SF

Total SF for part 2 = 5,050 SF

Total SF before Circulation Space = 20,450 SF

- Circulation spaces (15% of total)- 3068

Total SF = 23518

# NYS Building Code

Occupancy Types:

- Group B: Business
- Assembly A-3

Building Height Max: 35 feet

**TABLE 504.3 ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE[a]**

| OCCUPANCY CLASSIFICATION | SEE FOOTNOTES | TYPE OF CONSTRUCTION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TYPE I | | TYPE II | | TYPE III | | TYPE IV | TYPE V | |
| | | A | B | A | B | A | B | HT | A | B |
| A, B, E, F, M, S, U | NS[b] | UL | 160 | 65 | 55 | 65 | 55 | 65 | 50 | 40 |
| | S | UL | 180 | 85 | 75 | 85 | 75 | 85 | 70 | 60 |

# NYS Building Code Cont.

Max Stories:

**TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE[a, b]**

| OCCUPANCY CLASSIFICATION | SEE FOOTNOTES | TYPE OF CONSTRUCTION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TYPE I | | TYPE II | | TYPE III | | TYPE IV | TYPE V | |
| | | A | B | A | B | A | B | HT | A | B |
| A-3 | NS | UL | 11 | 3 | 2 | 3 | 2 | 3 | 2 | 1 |
| | S | UL | 12 | 4 | 3 | 4 | 3 | 4 | 3 | 2 |
| B | NS | UL | 11 | 5 | 3 | 5 | 3 | 5 | 3 | 2 |
| | S | UL | 12 | 6 | 4 | 6 | 4 | 6 | 4 | 3 |

# NYS Building Code Cont.

Floor Area:

**TABLE 506.2 ALLOWABLE AREA FACTOR ($A_t$ = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET[a, b]**

| OCCUPANCY CLASSIFICATION | SEE FOOTNOTES | TYPE OF CONSTRUCTION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TYPE I | | TYPE II | | TYPE III | | TYPE IV | TYPE V | |
| | | A | B | A | B | A | B | HT | A | B |
| A-3 | NS | UL | UL | 15,500 | 9,500 | 14,000 | 9,500 | 15,000 | 11,500 | 6,000 |
| | S1 | UL | UL | 62,000 | 38,000 | 56,000 | 38,000 | 60,000 | 46,000 | 24,000 |
| | SM | UL | UL | 46,500 | 28,500 | 42,000 | 28,500 | 45,000 | 34,500 | 18,000 |
| B | NS | UL | UL | 37,500 | 23,000 | 28,500 | 19,000 | 36,000 | 18,000 | 9,000 |
| | S1 | UL | UL | 150,000 | 92,000 | 114,000 | 76,000 | 144,000 | 72,000 | 36,000 |
| | SM | UL | UL | 112,500 | 69,000 | 85,500 | 57,000 | 108,000 | 54,000 | 27,000 |

# NYS Building Code Cont.

Types of Construction:

- Types I & II: Building elements are made of noncombustible materials. For example, Steel and concrete buildings.
- Type III: Exterior walls are made of noncombustible materials and interior building elements are of any material permitted by code. For example, a building with exterior concrete walls and wood frame partition walls.
- Type IV: Exterior walls are of noncombustible materials and the interior building elements are solid. For example, heavy timber construction.
- Type V: The structural elements, exterior walls, and interior walls are of any materials permitted by the code. For example, traditional stick framed homes.

# NYS Building Code Cont.

## Sprinkler System:

**[F] 903.2.1.3 Group A-3.**

An *automatic sprinkler system* shall be provided throughout stories containing Group A-3 occupancies and throughout all stories from the Group A-3 occupancy to and including the levels of exit discharge serving that occupancy where one of the following conditions exists:

1. The *fire area* exceeds 12,000 square feet (1115 $m^2$).
2. The *fire area* has an *occupant load* of 300 or more.
3. The *fire area* is located on a floor other than a *level of exit discharge* serving such occupancies.

**[F] 903.2.11.3 Buildings 55 feet or more in height.**

An *automatic sprinkler system* shall be installed throughout buildings that have one or more stories with an *occupant load* of 30 or more located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access, measured to the finished floor.

**Exceptions:**

1. Open parking structures.
2. Occupancies in Group F-2.

# NYS Building Code Cont.

**TABLE 601 FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)**

| BUILDING ELEMENT | TYPE I | | TYPE II | | TYPE III | | TYPE IV | TYPE V | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | HT | A | B |
| Primary structural frame[f] (see Section 202) | 3[a, b] | 2[a, b] | 1[b] | 0 | 1[b] | 0 | HT | 1[b] | 0 |
| Bearing walls<br>Exterior [e, f]<br>Interior | 3<br>3[a] | 2<br>2[a] | 1<br>1 | 0<br>0 | 2<br>1 | 2<br>0 | 2<br>1/HT | 1<br>1 | 0<br>0 |
| Nonbearing walls and partitions<br>Exterior | See Table 602 | | | | | | | | |
| Nonbearing walls and partitions<br>Interior [d] | 0 | 0 | 0 | 0 | 0 | 0 | See Section 2304.11.2 | 0 | 0 |
| Floor construction and associated secondary members (see Section 202) | 2 | 2 | 1 | 0 | 1 | 0 | HT | 1 | 0 |
| Roof construction and associated secondary members (see Section 202) | $1\frac{1}{2}$[b] | 1[b,c] | 1[b,c] | 0[c] | 1[b,c] | 0 | HT | 1[b,c] | 0 |

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

# NYS Building Code Cont.

Fire Separation Requirements:

Higher Education Labs:

**[F] 428.3.3 Floor assembly fire resistance.**

The floor assembly supporting laboratory suites and the construction supporting the floor of laboratory suites shall have a fire-resistance rating of not less than 2 hours.

**Exception:** The floor assembly of the laboratory suites and the construction supporting the floor of the laboratory suites are allowed to be 1-hour fire-resistance rated in buildings of Types IIA, IIIA and VA construction, provided that the building is three or fewer stories.

# NYS Building Code Cont.

## Fire Extinguishers:

**[F] 906.1 Where required.**

Portable fire extinguishers shall be installed in all of the following locations:

1. In Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.

   **Exceptions:**

   1. In Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each *dwelling unit* is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.
   2. In Group E occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each classroom is provided with a portable fire extinguisher having a minimum rating of 2-A:20-B:C.

2. Within 30 feet (9144 mm) distance of travel from commercial cooking equipment and from domestic cooking equipment in Group I-1; I-2, Condition 1; and R-2 college dormitory occupancies.
3. In areas where flammable or *combustible liquids* are stored, used or dispensed.
4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 3315.1 of the *Fire Code of New York State*.
5. Where required by the *Fire Code of New York State* sections indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

# NYS Building Code Cont.

## Fire Alarms:

**[F] 907.2.1 Group A.**

A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies where the occupant load due to the assembly occupancy is 300 or more, or where the Group A occupant load is more than 100 persons above or below the *lowest level of exit discharge*. Group A occupancies not separated from one another in accordance with Section 707.3.10 shall be considered as a single occupancy for the purposes of applying this section. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

**[F] 907.2.1.1 System initiation in Group A occupancies with an occupant load of 1,000 or more.**

Activation of the fire alarm in Group A occupancies with an *occupant load* of 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with Section 907.5.2.2.

**Exception:** Where *approved*, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an *approved, constantly attended location*.

# NYS Building Code Cont.

## Fire Alarms:

**[F] 907.2.2 Group B.**

A manual fire alarm system shall be installed in Group B occupancies where one of the following conditions exists:

1. The combined Group B *occupant load* of all floors is 500 or more.
2. The Group B *occupant load* is more than 100 persons above or below the lowest *level of exit discharge*.
3. The *fire area* contains an ambulatory care facility.

**Exception:** Manual fire alarm boxes are not required where the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler water flow.

# NYS Building Code Cont.

## Means of Egress:

**1003.2 Ceiling height.**

The *means of egress* shall have a ceiling height of not less than 7 feet 6 inches (2286 mm) above the finished floor.

**1003.5 Elevation change.**

Where changes in elevation of less than 12 inches (305 mm) exist in the *means of egress*, sloped surfaces shall be used. Where the slope is greater than one unit vertical in 20 units horizontal (5-percent slope), *ramps* complying with Section 1012 shall be used. Where the difference in elevation is 6 inches (152 mm) or less, the *ramp* shall be equipped with either *handrails* or floor finish materials that contrast with adjacent floor finish materials.

**1003.6 Means of egress continuity.**

The path of egress travel along a *means of egress* shall not be interrupted by a building element other than a *means of egress* component as specified in this chapter. Obstructions shall not be placed in the minimum width or required capacity of a *means of egress* component except projections permitted by this chapter. The minimum width or required capacity of a *means of egress* system shall not be diminished along the path of egress travel.

# NYS Building Code Cont.

Means of Egress Cont.:

**TABLE 1006.3.2 MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY**

| OCCUPANT LOAD PER STORY | MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY |
|---|---|
| 1-500 | 2 |
| 501-1,000 | 3 |
| More than 1,000 | 4 |

Doors:

**1010.1.1 Size of doors.**

The required capacity of each door opening shall be sufficient for the *occupant load* thereof and shall provide a minimum clear opening width of 32 inches (813 mm). The clear opening width of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear opening width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a minimum clear opening width of 32 inches (813 mm). In Group I-2, doors serving as *means of egress* doors where used for the movement of beds shall provide a minimum clear opening width of $41^1/_2$ inches (1054 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. The minimum clear opening height of doors shall be not less than 80 inches (2032 mm).

# NYS Building Code Cont.

## Stairways:

**1011.2 Width and capacity.**

The required capacity of *stairways* shall be determined as specified in Section 1005.1, but the minimum width shall be not less than 44 inches (1118 mm). See Section 1009.3 for accessible *means of egress stairways*.

**1011.3 Headroom.**

*Stairways* shall have a headroom clearance of not less than 80 inches (2032 mm) measured vertically from a line connecting the edge of the *nosings*. Such headroom shall be continuous above the *stairway* to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the *stairway* and landing.

**1011.5.2 Riser height and tread depth.**

*Stair* riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the *nosings* of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's *nosing*. *Winder* treads shall have a minimum tread depth of 11 inches (279 mm) between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the *stair*.

# NYS Building Code Cont.

## Stairways Cont.:

**1011.6 Stairway landings.**

There shall be a floor or landing at the top and bottom of each *stairway*. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of *stairways* served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the *stairway* or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where *wheelchair spaces* are required on the *stairway* landing in accordance with Section 1009.6.3, the *wheelchair space* shall not be located in the required width of the landing and doors shall not swing over the *wheelchair spaces*.

## Ramps:

**1012.2 Slope.**

*Ramps* used as part of a *means of egress* shall have a running slope not steeper than one unit vertical in 12 units horizontal (8-percent slope). The slope of other pedestrian *ramps* shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

**1012.4 Vertical rise.**

The rise for any *ramp* run shall be 30 inches (762 mm) maximum.

**1012.5.1 Width and capacity.**

The minimum width and required capacity of a *means of egress ramp* shall be not less than that required for *corridors* by Section 1020.2. The clear width of a *ramp* between *handrails*, if provided, or other permissible projections shall be 36 inches (914 mm) minimum.

# NYS Building Code Cont.

## Ramps Cont.:

**1012.5.2 Headroom.**

The minimum headroom in all parts of the *means of egress ramp* shall be not less than 80 inches (2032 mm) above the finished floor of the ramp run and any intermediate landings. The minimum clearance shall be maintained for the full width of the *ramp* and landing.

**1012.5.3 Restrictions.**

*Means of egress ramps* shall not reduce in width in the direction of egress travel. Projections into the required *ramp* and landing width are prohibited. Doors opening onto a landing shall not reduce the clear width to less than 42 inches (1067 mm).

## Ramp Landing:

**1012.6.1 Slope.**

Landings shall have a slope not steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. Changes in level are not permitted.

**1012.6.2 Width.**

The landing width shall be not less than the width of the widest *ramp* run adjoining the landing.

**1012.6.3 Length.**

The landing length shall be 60 inches (1525 mm) minimum.

# NYS Building Code Cont.

## Ramps Cont.:

**1012.8 Handrails.**

*Ramps* with a rise greater than 6 inches (152 mm) shall have *handrails* on both sides. *Handrails* shall comply with Section 1014.

**1012.9 Guards.**

*Guards* shall be provided where required by Section 1015 and shall be constructed in accordance with Section 1015.

## Exit Access:

**TABLE 1017.2 EXIT ACCESS TRAVEL DISTANCE[a]**

| OCCUPANCY | WITHOUT SPRINKLER SYSTEM (feet) | WITH SPRINKLER SYSTEM (feet) |
|---|---|---|
| A, E, F-1, M, R, S-1 | 200[e] | 250[b] |
| I-1 | Not Permitted | 250[b] |
| B | 200 | 300[c] |
| F-2, S-2, U | 300 | 400[c] |
| H-1 | Not Permitted | 75[d] |
| H-2 | Not Permitted | 100[d] |
| H-3 | Not Permitted | 150[d] |
| H-4 | Not Permitted | 175[d] |
| H-5 | Not Permitted | 200[c] |
| I-2, I-3 | Not Permitted | 200[c] |
| I-4 | 150 | 200[c] |

# NYS Building Code Cont.

Corridors:

**TABLE 1020.2 MINIMUM CORRIDOR WIDTH**

| OCCUPANCY | MINIMUM WIDTH (inches) |
|---|---|
| Any facility not listed in this table | 44 |
| Access to and utilization of mechanical, plumbing or electrical systems or equipment | 24 |
| With an occupant load of less than 50 | 36 |
| Within a *dwelling unit* | 36 |
| In Group E with a *corridor* having an occupant load of 100 or more | 72 |
| In *corridors* and areas serving stretcher traffic in *ambulatory care facilities* | 72 |
| Group I-2 in areas where required for bed movement | 96 |

For SI: 1 inch = 25.4 mm.

# NYS Building Code Cont.

## Dead Ends:

**1020.4 Dead ends.**

Where more than one *exit* or *exit access doorway* is required, the *exit access* shall be arranged such that dead-end *corridors* do not exceed 20 feet (6096 mm) in length.

**Exceptions:**

1. In in Group I-3, Condition 2, 3 or 4, occupancies, the dead end in a *corridor* shall not exceed 50 feet (15 240 mm).
2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, S and U, where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the length of the dead-end *corridors* shall not exceed 50 feet (15 240 mm).
3. A dead-end *corridor* shall not be limited in length where the length of the dead-end *corridor* is less than 2.5 times the least width of the dead-end *corridor*.

# NYS Building Code Cont.

ADA Restroom Layout: