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Y-102B.1 SPECIAL SYSTEMS SECOND FL - AREA B - ALT
Y-103B.1 SPECIAL SYSTEMS PENTHOUSE - AREA B - ALT
Y-601.1 FIRE ALARM SYSTEM ONE-LINE DIAGRAM - ALT
Y-701.1 ACCESS CONTROL SYSTEM DOOR SCHEDULE - ALT



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BROOKHAVEN NATIONAL LABORATORY
UNDER CONTRACT WITH UNITED STATES DEPARTMENT OF ENERGY PLANT ENGINEERING DIVISION
UPTON, NEW YORK 11973
JOB TITLE: INTERDISCIPLINARY SCIENCE BUILDING
DWG TITLE: DRAWING INDEX
SCALE: 1/2" = 1'-0"
DATE: 04/09/10
JOB NO.: 079872
DWG NO.: G-011





LIFE SAFETY LEGEND

- 1 HOUR FIRE RATED BARRIER
- 2 HOUR FIRE RATED BARRIER
- TRAVEL DISTANCE TO EXIT IN FEET

NOTES:

- THE CODE ANALYSIS IS BASED ON THE ULTIMATE BUILD OUT CONDITION

EXIT REQUIRED EXIT

CA-1 CONTROL AREA DESIGNATION

185 OCCUPANT LOAD @ EXIT

B OCCUPANCY CLASSIFICATION

FE FIRE EXTINGUISHER

FEC FIRE EXTINGUISHER CABINET

4.1. Codes and Standards

4.1.1. Building Description
 The design of the Interdisciplinary Science Building (ISB) will be subject to the requirements of the New York State Building Code (NYSBC) 2007 edition, as well as related State codes and regulations and other standards incorporated into the NYSCB by reference. The major requirements of the NYSCB that relate to the ISB are outlined below.

The Building Code Analysis is based on the following:

- The total building floor area will be approximately 84,897 gross square feet. (NYSBC 1002.1 - FLOOR AREA, GROSS)
- The floor area is distributed over 2 levels plus a mechanical penthouse and a partial basement.
- The building should provide for connection to future buildings. Except where it may be connected to another building, it is anticipated that the exterior walls of the ISB will be more than 30 feet away from other buildings.
- The building will be fully outfitted with sprinklers, or protected by a non-water fire protection system in areas where the fire hazard is incompatible with water as an extinguishing agent.

4.1.2. Applicable Codes

DOE Orders

- DOE OS480.4 - Environmental Protection, Safety and Health Protection Standards
- DOE 0414.1C - Quality Assurance
- DOE 0420.1B - Facility Safety
- DOE-STD-1066-99 - Fire Protection Design Criteria

Federal Laws, Codes, Standards, and Guides

- Building Code of New York State (NYSBC) - 2007 Edition
- BNI Environment, Safety and Health Standards
- New York State and Suffolk County Department of Health Codes
- ICAA Insulated Cable Engineering Association
- Industrial Control Standards (NEMA)
- New York State Energy Conservation Code - 2007
- New York State Fire Code - 2007
- New York State Fuel Gas Code - 2007
- New York State Mechanical Code - 2007
- New York State Plumbing Code - 2007
- IEEE Institute for Electrical and Electronic Engineers National Institute of Standards and Technology
- NFPA 13 - Standard for the Installation of Sprinkler Systems
- NFPA 30 - Flammable and Combustible Liquids Code
- NFPA 45 - Standard on Fire Protection for Laboratories Using Chemicals
- NFPA 70E - Standard for Electrical Safety in the Workplace
- NFPA 80 - Fire Doors and Fire Windows
- NFPA 101 - Life Safety Code
- NFPA 310 - Standards for the Protection of Cleanrooms
- NFPA 780 - Standards for the Installation of Lightning Protection Systems
- National Electrical Code (NFPA 70:2008)
- National Fire Protection Association (NFPA 101)
- Occupational Safety and Health Administration (OSHA)
- Americans with Disabilities Act (ADA)
- American National Standards Institute (ANSI) Standards
- American Society of Mechanical Engineers (ASME)
- Underwriters Laboratory (UL)
- Suffolk County Department of Health Services Sanitary Code

Applicable requirements of the New York State Building Code (NYSBC) will be identified in this code analysis by section and/or paragraph number.

4.1.3. Occupancy
 The general occupancy classification for the ISB is Group B - Business Occupancies. NYSCB 304.1 identifies research laboratories as B occupancy. The ISB contains conference rooms / areas that accommodate less than 50 people. If conference rooms accommodate more than 50 persons, it will be considered as A-3 assembly occupancy per NYSCB 303.1. Per NYSCB table 302.2.2 a one hour fire separation is required between the B and A-3 occupancies because the building is fully sprinklered.

4.1.4. Special Uses
 The ISB does contain certain areas which are subject to other occupancy classifications based on the presence and use of hazardous materials. These areas will be treated as separate use groups in accordance with NYSCB 302.3.

The areas above will be separated from other areas of the ISB by fire rated construction as required by Table 302.3.3. For each of these areas, fire occupancy classifications and other specific requirements are as follows:

The Cleanroom is an HPM (Hazardous Production Materials) Fabrication Area and must comply with NYSCB 307.7. It must be separated from the rest of the building by 1-hour fire-rated construction and is subject to specific requirements on limits of HPM's in use, exit travel distance, liquid-light floors, ventilation, smoke detection and gas detection. Corridors shall not contain HPM and shall not be used for transporting such materials, except through closed piping systems as provided in Section 415.8.3.

The ISB may be separated into control areas NYSCB 414.2 in which hazardous materials will not exceed the percentages of allowable exempt quantities set forth in Tables 414.2.2/414.2.4/414.5.1. Four control areas are permitted on the first floor with 100% of the allowable hazardous materials per control area; three control areas are permitted on the second floor with 75% of the allowable hazardous materials per control area. The control areas separated from other areas by 1-hour fire barrier wall construction.

4.1.5. Heights and Area
 Height above finished grade of the ISB is as follows:

Basement	-21'
First floor	0'
Second floor	16'
Penthouse	32'
Roof of penthouse	Various, 37' - 52'

Calculated Gross square footage based on ISB final plans is as follows:

Basement	5,178 sq ft
First floor	35,252 sq ft
Second floor	30,163 sq ft
Penthouse	14,304 sq ft
Total	84,897 gross square feet

4.1.6. Type of Construction
 Based on height and area limitations and Use Group B occupancy, Construction Type IIB, Non-Combustible, is suitable. This construction type, with modifications allowed for fully sprinklered buildings, permits 2,000 sq ft floor area per level and a building height of 4 stories (NYSBC Table 503). Per NYSCB 506.3 this area can be increased by 200% in multistory buildings if the building is fully sprinklered with an automatic sprinkler system, allowing each floor to be 69,000 sq ft per floor. Other area increases can be used depending on the placement of the building on the site allowing for public ways and open yards.

Construction Type IIB requires the following fire-resistance ratings (NYSBC Table 601):

Load bearing Exterior Walls	0 hour
Fire Walls	2 hours (minimum)
Exit Enclosures/Fire Barrier per NYSCB 706	1 hour (except where a stair serves on one other floor)
Shafts and Hoistways/Fire Barrier per NYSCB 708	1 hour for 3-story; 2 hours for 4-story
Smoke Barriers	0 hour
Interior Structural Members and Floor Construction	0 hour (per NYSCB 414.2.3)
Roof Construction, 15' or less to lowest member	0 hour
Roof Construction, >15' to lowest member	0 hour

Should the ISB be connected to another campus building, it is assumed the other building will be Use Group B or A-3. In either case, the 2-hour fire-resistance rating for firewalls for Construction Type IIB will be required depending on the new fire area.

4.1.7. Means of Egress
 For the purposes of this analysis the building will be assumed to be all 7' occupancy. The load for business occupancies is one person per 100 gross square feet (NYSBC Table 1004.1.2). Once the building is under design Conference Rooms (A-3 Occupancies) will be assumed at 15 sq ft person and storage/mechanical at 300 sq ft person.

The maximum number of occupants will be 700. The maximum occupants per floor will be 350.

A minimum of two exits are required per floor (NYSBC 1016.3). The maximum travel distance 300 feet for B occupancy and 200 feet for H5 occupancy (NYSBC Table 1015.1). The maximum travel distance in a dead end corridor is 50 ft for B occupancy and 20 feet for H5 occupancy (NYSBC 1016.3). The distance for a Common Path of Travel is 100 feet for B occupancy and 75 feet for H5 occupancy (NYSBC 1013.3).

The full 700 occupants can be accommodated in four exit doors at a minimum width of 26" (NYSBC 1003.3.1.1 and NYSCB 1005.3.1). The minimum door size will be 36" for handicapped access.

Two 48" stairs, the minimum width will accommodate 283 occupants from the second floor (NYSBC 1003.2.2.3).

4.1.8. Handicapped Accessibility
 The regulations of the American National Standards Institute apply to all public buildings and facilities, including educational facilities at all levels. Parts of buildings open only to employees are exempt from these regulations, but are still subject to the requirements of the Americans with Disabilities Act.

4.1.9. Fire Protection Systems
 All areas of the ISB must have an automatic fire suppression system (NYSBC603). The ISB will be fully sprinklered in accordance with NFPA 13 except that a non-water fire protection system in areas where the fire hazard is incompatible with water as an extinguishing agent. A standpipe system and fire department connection are required (NYSBC 905).

A fire alarm system is required throughout the building (NYSBC 907).

4.1.10. Plumbing Fixtures
 NYSCB Table 2901.1 sets forth required numbers of plumbing fixtures for various building types. These requirements are indicated, as follows:

Water Closets	Total of 8 for females, 8 for males
Urinals	may be substituted for 50% of male water closets
Lavatories	Total of 10 required for either sex
Drinking Fountains	Total 8 required
Service Sinks	Minimum 1 required, recommend 1 per floor

Laboratory sinks, safety showers and emergency eyewashes are indicated in the Laboratory Planning requirement.

4.1.11. Building Code Analysis Table

CODE ANALYSIS DOCUMENTATION NYSCB 2007

1 Applicable Governing Standards (Include Edition Dates)

Client:	Brookhaven National Laboratory
Fire Marshall:	Brookhaven National Laboratory
Health Department:	Brookhaven National Laboratory
Special State Regulations:	
Special Federal Regulations:	
Mechanical Code:	NYSBC 2007
Energy Code:	NYSBC 2007
Plumbing Code:	NYSBC 2007
Electrical Code:	NYSBC 2007
Elevator Code:	ANSI A17.1
Handicapped Code:	Americans w/ Disabilities Act July 23, 2004

2 Zoning Requirements No city zoning requirements

3 New Construction Classification and Limitations - (Separated)

Occupancy Classification by Code (Chapter 3) (508)	Mixed occupancy, B, and H-5
Street (Public Way) Frontage (506.2)	See Area Increase for Separation
Automatic Sprinkler System	YES
Permissible Construction (903 & table 903)	Type IIB
A. Maximum Height	55 ft or 4 stories (Occupancy Group-B) 55 ft or 3 stories (Occupancy Group-H5)
B. Area Increase for Fire Zone	NA
C. Area Increase for Separation (506)	17,250
D. Area Increase for Sprinklers (903.3)	49,000
E. Total Maximum Allowable Area	69,250 (per floor)
F. High Rise Classification? (403)	YES

Note other occupancy classifications for portions of building sub-classified under code and req'd fire separation and areas

4 Construction Outline for Main Structure

Walls (NYSBC Table 601 and 602)	0 Hours
A. Exterior Bearing Walls	2x greater than or equal to 30 - 0 Hours
B. Exterior Non-Bearing Walls (NYSBC Table 602)	NA
C. Interior Court Walls	NA
D. Interior Bearing Walls	0 Hours
E. Permanent Partitions	0 Hours
F. Vertical Openings (Shafts)	3 stories - 1 hour, 4 stories - 2 hours (NYSBC 707.4)
G. Particles Required	Not required (NYSBC 704.1.1, sec. 41)

5 Structural Frame (Table NYSCB 601)

A. Columns	0 hour	U.L. Design
B. Trusses, Girders & Beams (with connections to Coils)	0 hour	U.L. Design
Floor Construction	0 hour	U.L. Design
A. Beams, Slabs, Joists (without connection to Coils)	0 hour	U.L. Design
Roof Construction	0 hour (Except in H5)	U.L. Design
A. Beams, Slabs, Joists (without connection to Coils)	0 hour	U.L. Design
Exterior Doors and Windows	0 hour	U.L. Design
Roof Covering Classification (Table 1105.1)	Class A Provided	
Structural Restrictions (Cpt. 16)		
A. Design Wind Load	120 mph	
B. Seismic Design Category	Variou, 100 pcf - 150 pcf	
C. Floor Live Load	Various, 100 pcf - 150 pcf	
D. Roof Live Load	20 psf	
E. Roof Snow Load	40 psf	
F. Flood Load	Yes	
G. Special Loads	Yes	

6 Atriums (404)

Sprinkler system through out entire Building	Yes (404.3)
A. Exception for 2 hour barrier	NA
B. Exception for 55' Ft ceiling	Yes
Smoke Control	No (404.4) section 909
Fire Separation	Yes (707.4)
A. 1 hour walls	Yes (707.4)
B. Glass walls?	NA
C. Stair by Power	Yes (404.6)
D. Interior Finish Rating (Class B)	Not less than class B (404.7)

6A Control Area (414)

Control area allowed	12
Control area provided	12
Separators (NYSBC 414.2.3)	Control area floor, and supporting structures 2hr
Walls	1 hr

Table 414.2.2 NYSCB

Floor Level	Above Grade:	% of max allowable per person	Allowable # of CA per floor	Fire Barrier Rating
		3	50	2 Hr
		2	75	3 Hr
		1	100	4 Hr
	Below Grade:	1	75	3 Hr

7 Egress Requirements (Cpt. 10)

Floor Area Allowance per Occupant	100 sq ft gross @ B, 200 sq ft gross @ H5 and 300 sq ft gross @ mechanical
Design Occupant Load (1004)	
B - Basement -	4,605 sq ft = 46
B - 1st floor -	29,716 sq ft = 297
B - 2nd floor -	27,269 sq ft = 273
B Total -	61,585 sq ft = 616
H5 - 1st floor -	2,916 sq ft = 15
H5 Total -	2,916 sq ft = 15
M - Basement -	569 sq ft = 2
M - 1st floor -	2,620 sq ft = 9
M - 2nd floor -	2,983 sq ft = 10
M - Penthouse -	14,304 sq ft = 48
M Total -	20,396 sq ft = 69

Basement total people (all occupancies) WT = 48
 1st floor total people (all occupancies) = 321
 2nd floor total people (all occupancies) = 293
 3rd Flr Penthouse total people (all occupancies) = 48
Total people all floors = 700

Width Required (Table 1005.1) B and H5: Stairways= 0.2 per Occ.
 Other components (i.e. doors = 0.15' per Occ.)
 Number of Exits required (1015.1) 2
 Maximum Travel Distance to Exits (Table 1015.1) 2
 A. Between Remote point to Exit Door B = 300' and H5 = 200'
 B. Common path of egress travel (1013.3) B and H5 = 75'
 C. Increase for Sprinklers B only = 100'

Corridors (1016.1)
 A. Wall rating required B = 1 and H5 = 1
 B. Width required 48.37 min
 C. Dead End Corridor Limit B = 60' and H5 = 20'
 D. Fully Sprinklered Yes
 (The Exit) (1018)
 B = 48.3' total / (2 x 24" min. ea. (32" min. 1008.1.1)
 H = 32' min (1008.1.1)
 1 hour
 Exit Discharge directly to exterior and on grade (1024)

8 Stairs (1009)

Width Required (Table 1005.1)	32.2' min. (provide 48" per 1007.3)
Minimum Headroom	80"
Treads & Risers	Riser 7" max, 4" min, Tread 11" min
Stairway Landings	Length = 44" max, Width = 44" min (1009.4)
Vertical Rise	12"
Handrail Height & extension	34" min, 36" max, Extensions - 12" top, 1 lead bottom
Guardrail Height (1013)	42" min
Access to Roof	1 Exit required
Gate Detection under stair	27" steel 60" or lower

(ADA 307.4)
9 Ramps (1010 and ADA - ADA has precedence)

Number for Occupant Load	1
Maximum Slope	1:12
Width required	36" min. between railings, not less than corridor
Headroom	80"
Landing	
A. Length	60"
B. Width	36" min. not less than ramp or corridor
C. Change of direction width	60" x 60"
A. Handrail Extension all top	Real Design (1012)
B. Edge Protection	12" top & bottom
C. Lower rail	NA
D. Guardrail required (1013)	Above 30"

10 Doors (1008)

Opening Protection	NA
A. In 3 hour wall	1 1/2 hour
B. In 2 hour wall	1 hour
C. In 1 hour wall	1 hour
D. Corridor wall	NA
E. Exterior wall	NA
F. Occupancy separation	1 hour

Minimum Width & Height

A. Handicapped Access	32"
B. Bed or Stretcher	NA
C. Exit Stair	48" min (per 1007.3) Width 80" min. Ht
D. Exam Room	NA
E. Height	80"

Maximum glazed opening in door (115.4.4.1)

A. 3 hour door	NA
B. 90 min door	100 sq. in.
C. 60 min door	100 sq. in.
D. 45 min door	1,296 sq. in.
E. 20 min door	Not Limited
F. Smoke partition	Not Limited

Special Hardware locations (1008.1.9)

H - occupancy if latch or lock is used

Other Door Types locations

A. Power Operated (1008.1.2)	Allowable all occupancies
B. Sliding (1008.1.3.3)	B occupancy allowable, H occupancy not allowed
C. Overhead Coiling	Loading dock only

11 Elevators (Chapter 30)

Fire Department Access Required Freight elevator (3002.4)

Minimum Cab Size

A. Special Controls for Emergency Phase Land II operation Use (3002.2)	1 1/2 hrs for 3 stories (2 Hrs Provided)
B. Accessibility (ANSI A117.1)	61" x 68"
C. Ambulance stretcher size car	24' x 84" min
D. Door Requirements	36" Min
(ANSI 117.1 Fig. B4.1.0.1.9)	Lobby Requirements (707.14.1) Not Required

Exception #

A. Fire-Retardant Rating	1 1/2 hrs for 3 stories (2 Hrs Provided)
B. Number of Cars	1 in each shaft
C. Opening Protection	Not required by 3004.1 exception #1
D. Vending	Not required by 3004.1 exception #1

Machine Rooms

A. Access	Required approval access
B. Separation from other Areas or systems	NA
C. Fire rating for walls & doors	1 hour wall & 1 hour floor

12 Toilet Rooms (Plumbing Chapter 29) or use IPC Plumbing Fixtures

A. # of people MP	Total 358 for each gender
B. # of WC Required	6 per gender total = 18 total
C. # of Urinals Required	6 per gender total = 18 total
D. # of Lavatories Required	6 per gender total = 18 total
E. # of Drinking Fountains Required	6 total
F. # of service sinks req'd	1 min. per restroom per gender per floor
G. # of HC facilities required	500 ft. not more than 1 floor in distance
H. Travel distance	30' back 42' side

Grab Bars, length required

Mounting heights: Req. HC	17" - 18"
A. Toilets	17" max.
B. Urinals	17" max.
C. Drinking Fountain	36"
D. Counter tops	34" max.
E. Knee space (over restroom)	27"

13 Interior Finishes

Wall and Ceiling Flame Spread Classifications (Table 803.5)

A. Corridors	H occupancy - B B occupancy - C
B. Public Areas	H occupancy - B (passageway) B occupancy - B (passageway)
C. Rooms/Labs	H occupancy - B B occupancy - C
D. Maximum Smoke Development/ Density	B occupancy - C (450 (903.1))

Floor Finish Classification Class II - exit areas (804.1)

Table 804.1

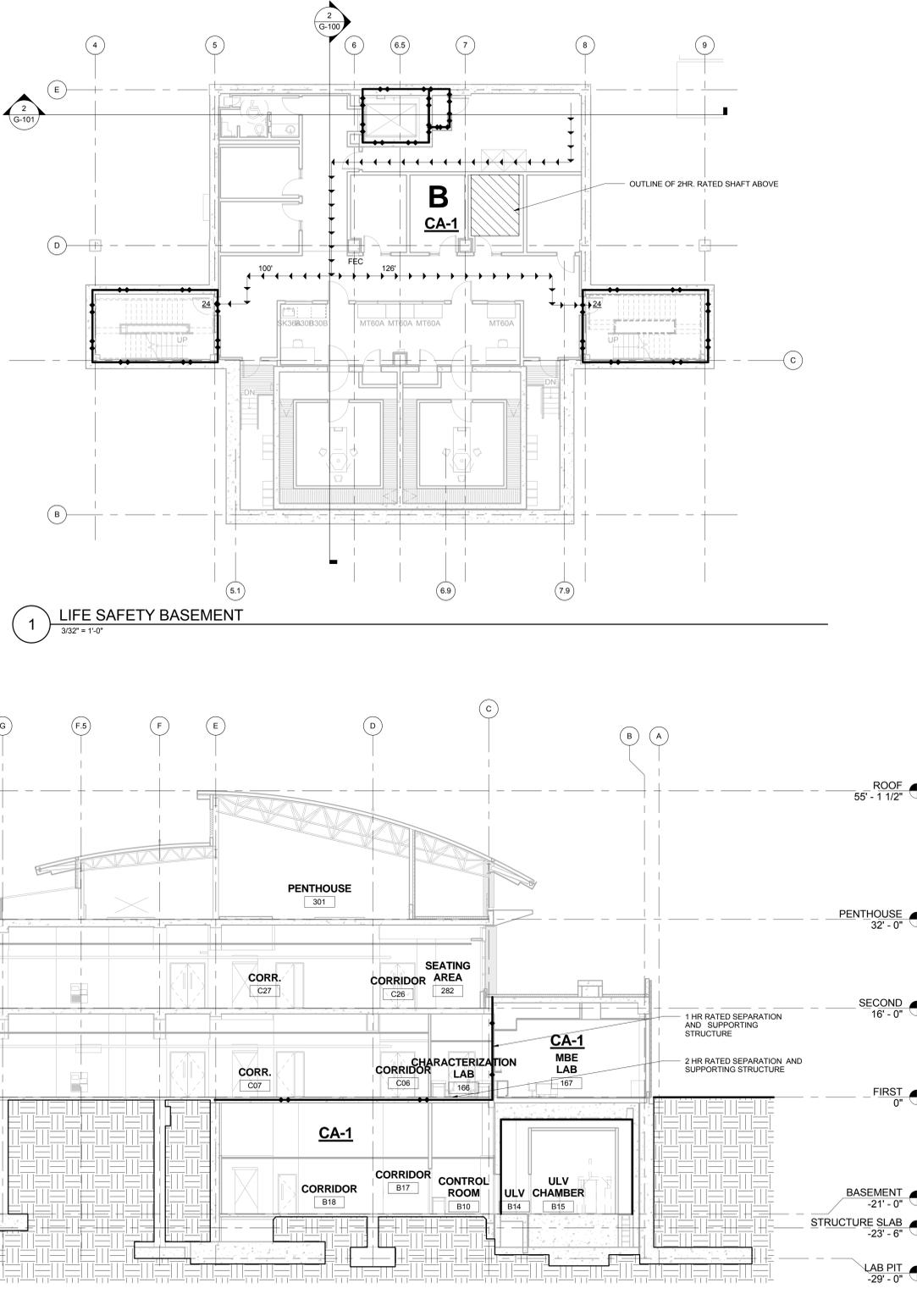
Tabletop Materials Locations	NA (1109.9)
Floor finishes at toilets (1210.1)	hard, smooth, non-absorbent surface w/6" base
Wall finishes at toilets (1210.2)	Walls within 2' - hard, smooth, non-absorbent surface

14 Manual Fire Extinguishing Devices

Stairways (805)	Fire Extinguishers
Fire Alarm Cabinets	Fire Extinguishers
Fire Warden Cabinets	Fire Extinguishers
Portable Fire Extinguishers (NFPA 10)	Fire Extinguishers

15 Automatic Fire Extinguishing Systems (903)

A. Locations	Required for all occupancy 18.2
B. Maximum Travel Distances	75' @ B occupancy
C. Special Hazards	None
D. Other Automatic Systems	907.2.13 Atriums



BROOKHAVEN NATIONAL LABORATORY

UNDER CONTRACT WITH
 UNITED STATES DEPARTMENT OF ENERGY
 PLANT ENGINEERING DIVISION
 UPTON, NEW YORK 11973

JOB TITLE: INTERDISCIPLINARY LIFE SAFETY PLAN - BASEMENT

DATE: 04/09/10

SCALE: 3/32" = 1'-0"

FILENAME: 079872-G-100



LIFE SAFETY LEGEND

- 1 HOUR FIRE RATED BARRIER
- 2 HOUR FIRE RATED BARRIER
- TRAVEL DISTANCE TO EXIT IN FEET

NOTES:
 1) THE CODE ANALYSIS IS BASED ON THE ULTIMATE BUILD OUT CONDITION



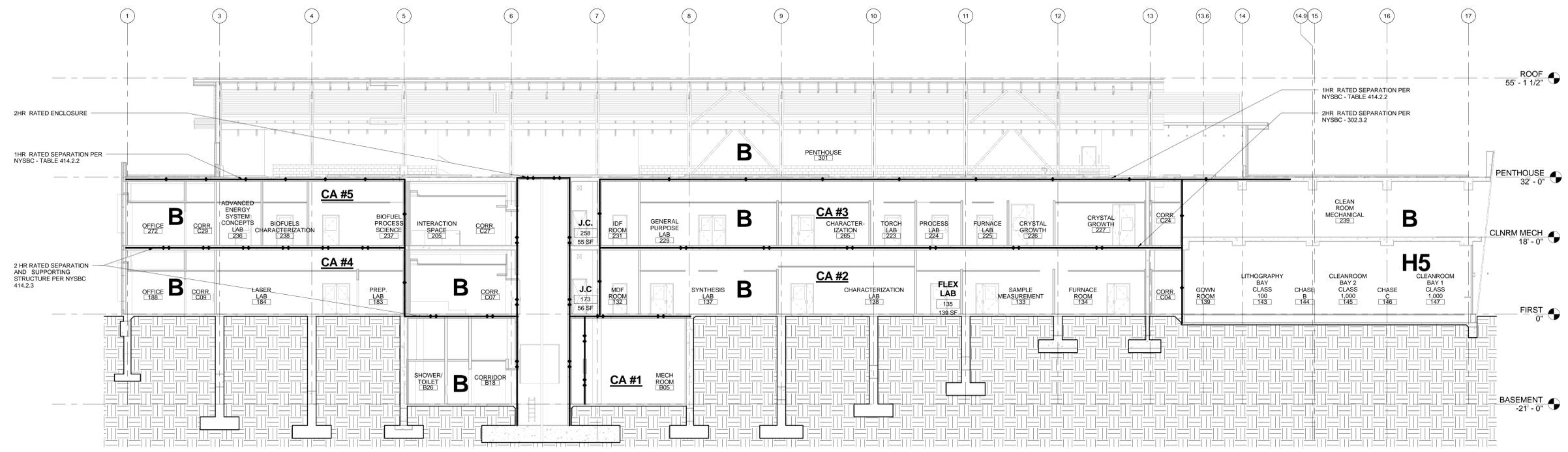
CA-1 CONTROL AREA DESIGNATION

185 OCCUPANT LOAD @ EXIT

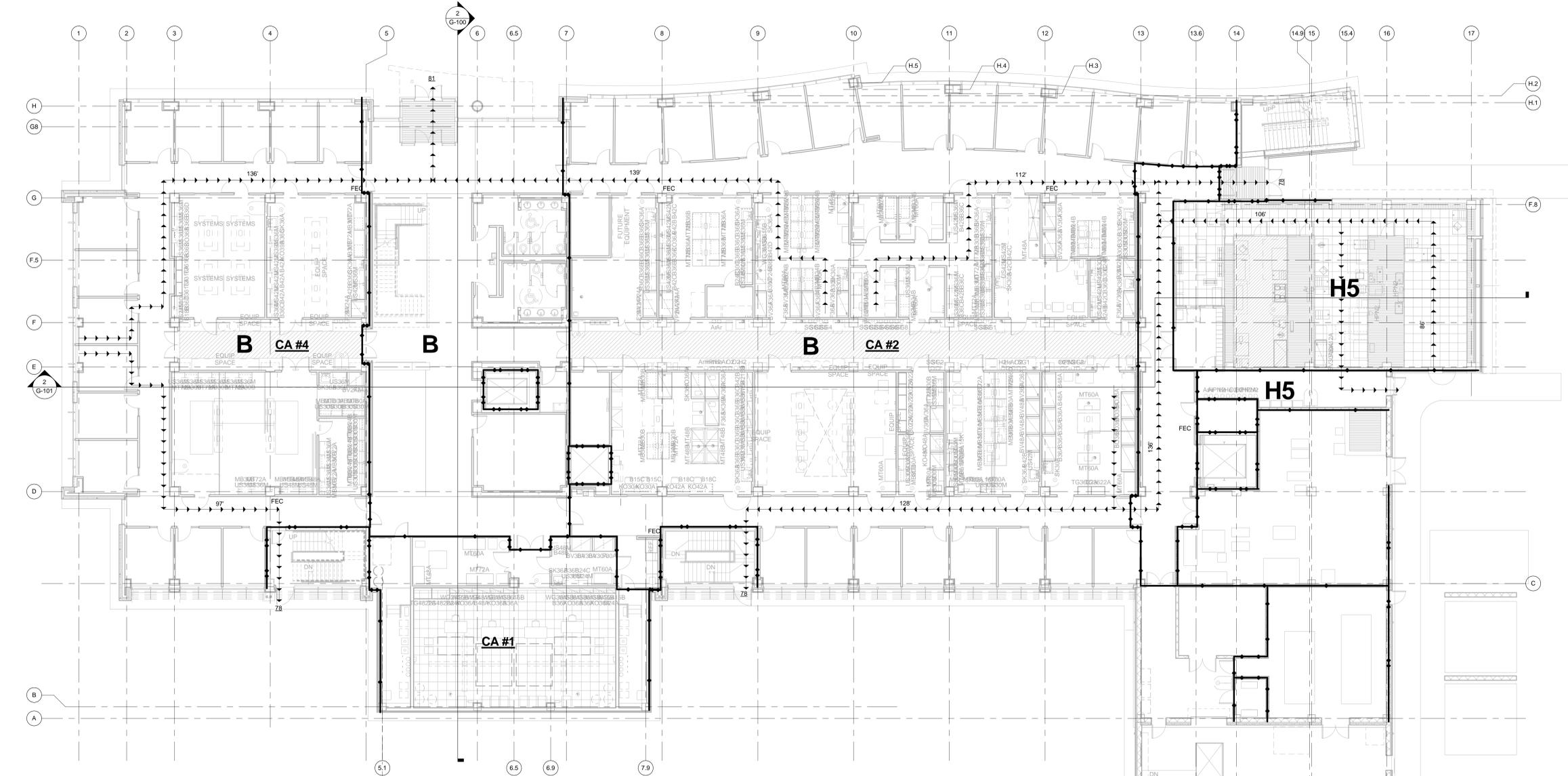
B OCCUPANCY CLASSIFICATION

FE FIRE EXTINGUISHER

FEC FIRE EXTINGUISHER CABINET



2 LONGITUDINAL BUILDING SECTION - CODE SECTION
 3/32" = 1'-0"



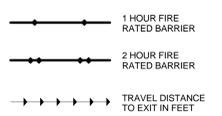
1 LIFE SAFETY FIRST
 3/32" = 1'-0"

ISSUE FOR BID		DATE		DWN. / APP. / QA	
JOB NO.	SHEET NO.	REVISION	DATE	DWN.	APP.
BROOKHAVEN NATIONAL LABORATORY			UNDER CONTRACT WITH UNITED STATES DEPARTMENT OF ENERGY PLANT ENGINEERING DIVISION UPTON, NEW YORK 11973		
JOB TITLE INTERDISCIPLINARY SCIENCE BUILDING		DWG. TITLE LIFE SAFETY PLAN - FIRST FLOOR			
SCALE 3/32" = 1'-0"	DATE 04/09/10	REVD BY Author	ACCT. NO. 079872	SHEET OF G-101	
ESBIO RISK LEVEL	APP'D BY Approver	BLDG. NO.	FILENAME: 079872-G-101		

3" = 1'
 1 1/2" = 1'
 1" = 1'
 3/4" = 1'
 3/8" = 1'
 1/2" = 1'
 3/16" = 1'
 1/4" = 1'
 1/8" = 1'

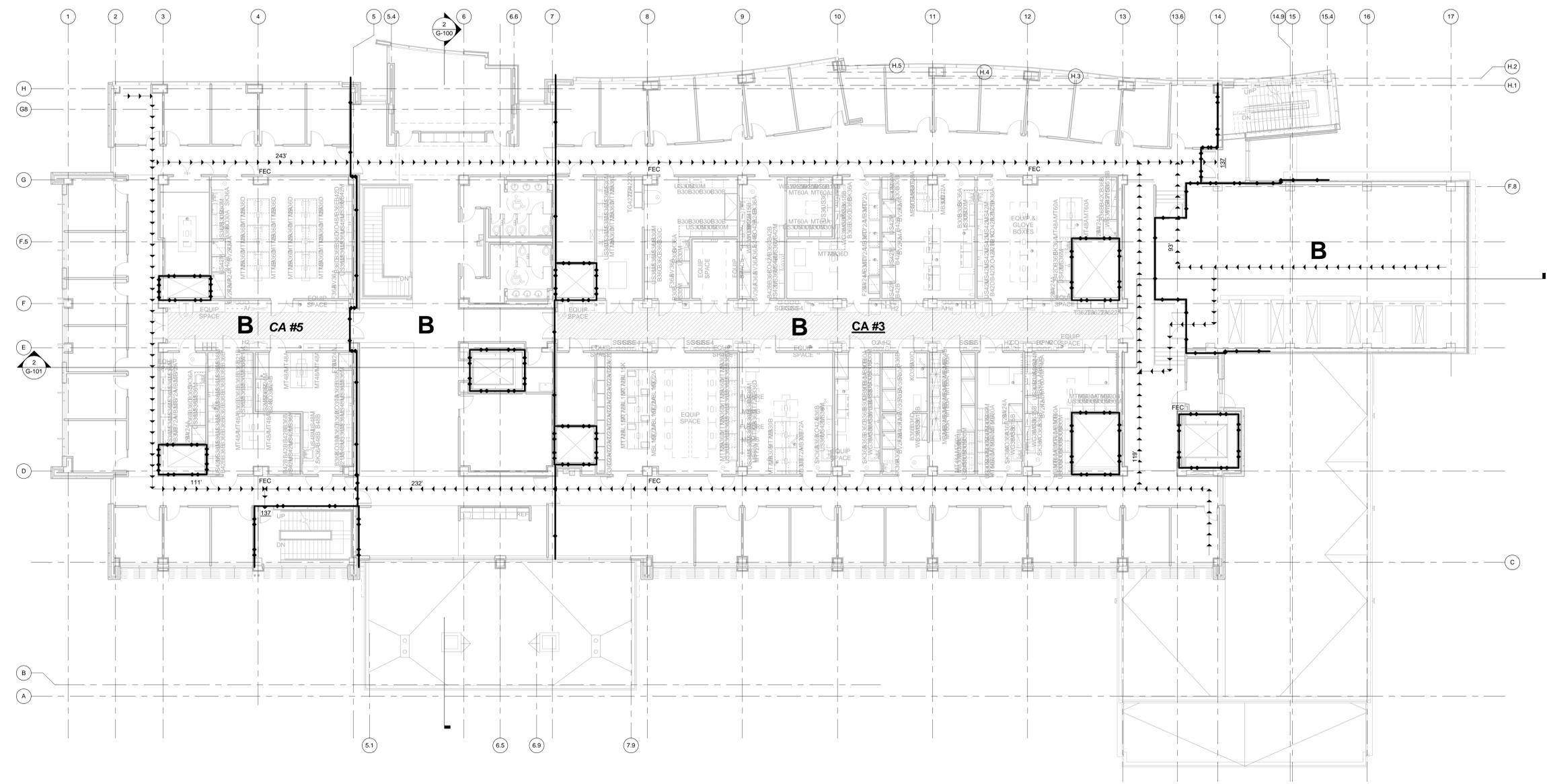


LIFE SAFETY LEGEND



NOTES:
 1) THE CODE ANALYSIS IS BASED ON THE ULTIMATE BUILD OUT CONDITION

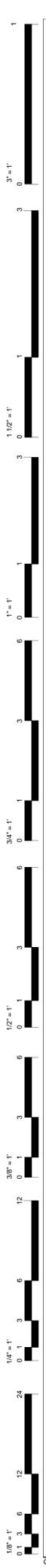
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- CA-1** CONTROL AREA DESIGNATION
- 185** OCCUPANT LOAD @ EXIT
- B** OCCUPANCY CLASSIFICATION
- FE** FIRE EXTINGUISHER
- FEC** FIRE EXTINGUISHER CABINET



1 LIFE SAFETY SECOND
 3/32" = 1'-0"



ISSUE FOR BID		04/09/10	
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BROOKHAVEN NATIONAL LABORATORY			
UNDER CONTRACT WITH UNITED STATES DEPARTMENT OF ENERGY PLANT ENGINEERING DIVISION UPTON, NEW YORK 11973			
JOB TITLE INTERDISCIPLINARY SCIENCE BUILDING	DATE 04/09/10	DWG TITLE LIFE SAFETY PLAN - SECOND FLOOR	ACCT. NO.
SCALE 3/32" = 1'-0"	DWN. BY Author	REVD BY Checker	JOB NO. 079872
ES&D RISK LEVEL	APPR. BY Approver	BLDG. NO.	DWG. NO. G-102
FILENAME 079872 G-102			





LIFE SAFETY LEGEND

- 1 HOUR FIRE RATED BARRIER
- 2 HOUR FIRE RATED BARRIER
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NOTES:

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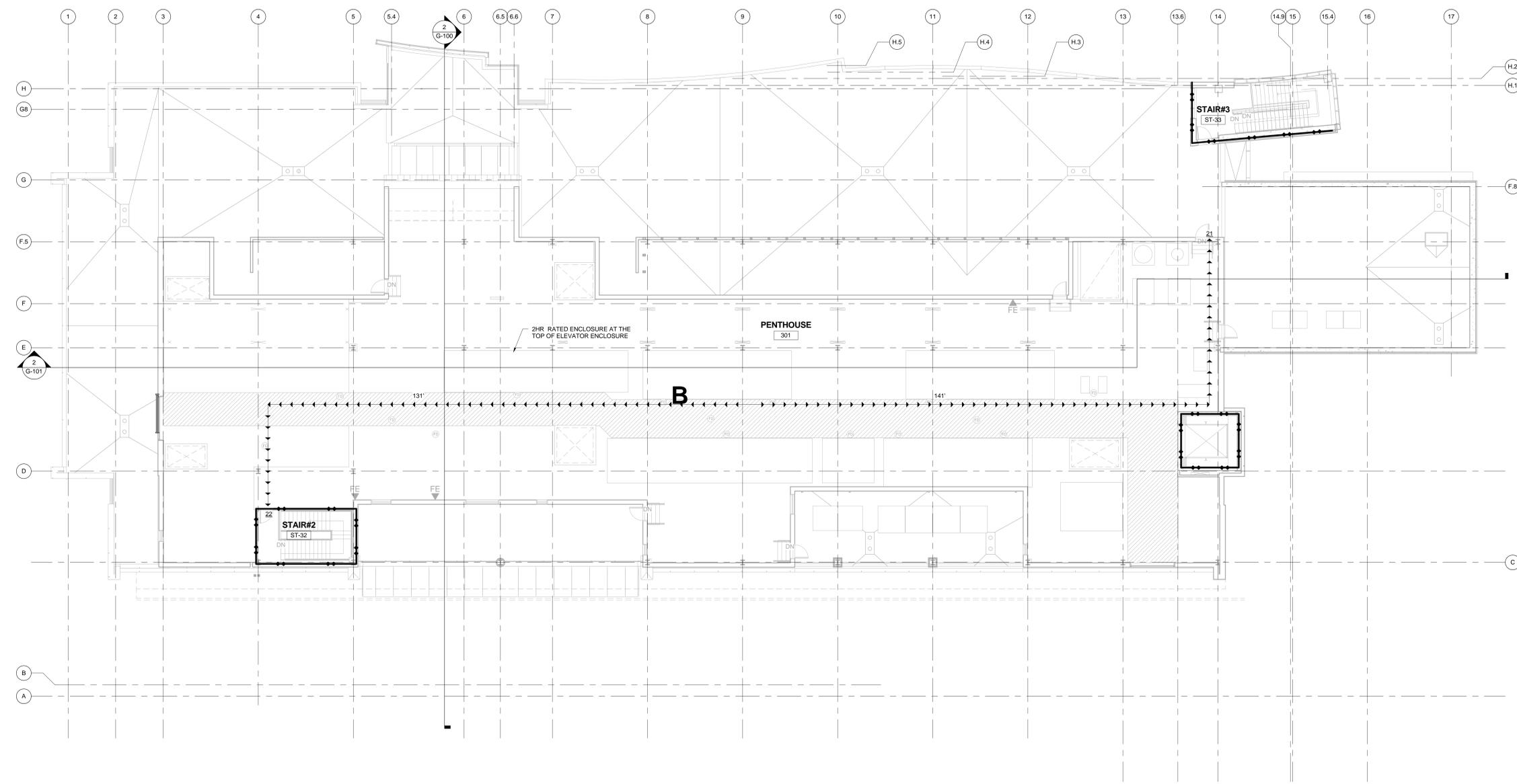
CA-1 CONTROL AREA DESIGNATION

185 OCCUPANT LOAD @ EXIT

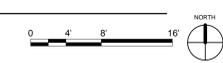
B OCCUPANCY CLASSIFICATION

FE FIRE EXTINGUISHER

FEC FIRE EXTINGUISHER CABINET



1 LIFE SAFETY PENTHOUSE
 3/32" = 1'-0"



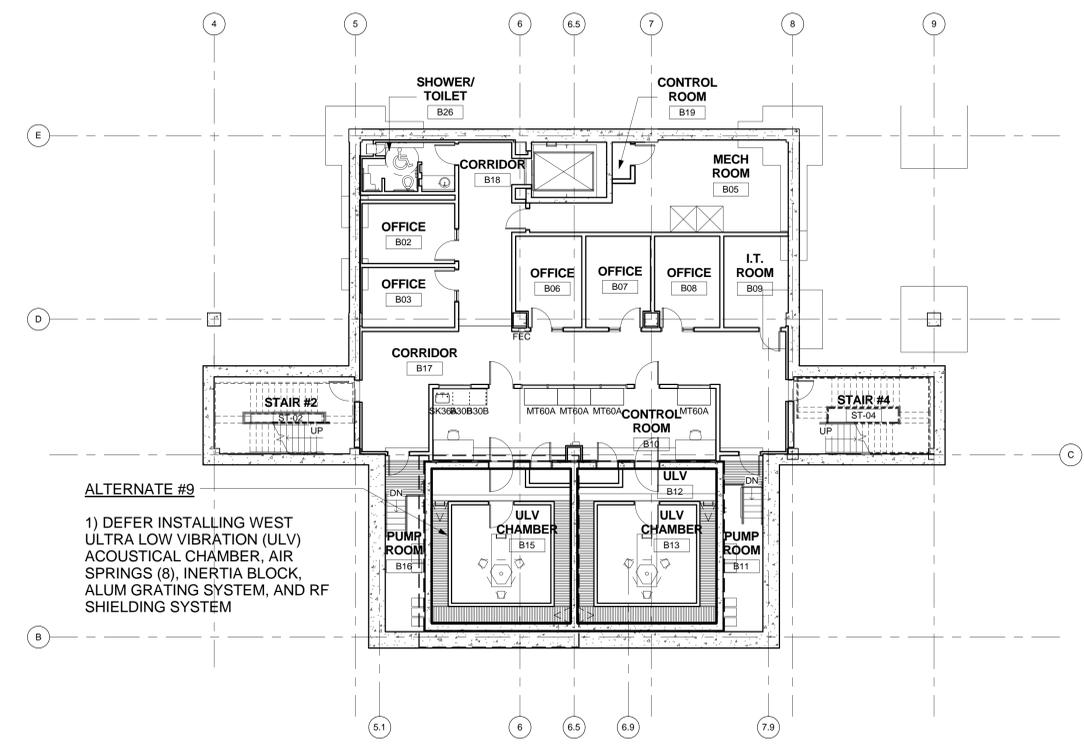
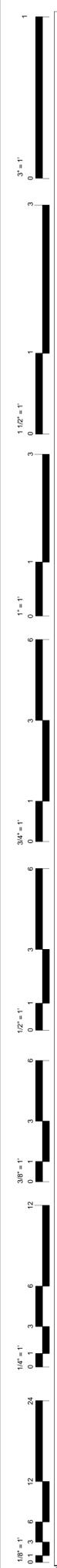
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JOB NO.	SHEET NO.	REVISION	DATE	DWN

BROOKHAVEN NATIONAL LABORATORY

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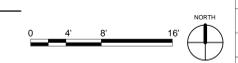
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SCALE 3/32" = 1'-0"	DATE 04/09/10
ES&B RISK LEVEL	APPRD. BY Approver
FILENAME 079872 G-103	ACCT. NO. JOB NO. 079872 BLDG. NO.

SHEET OF
G-103

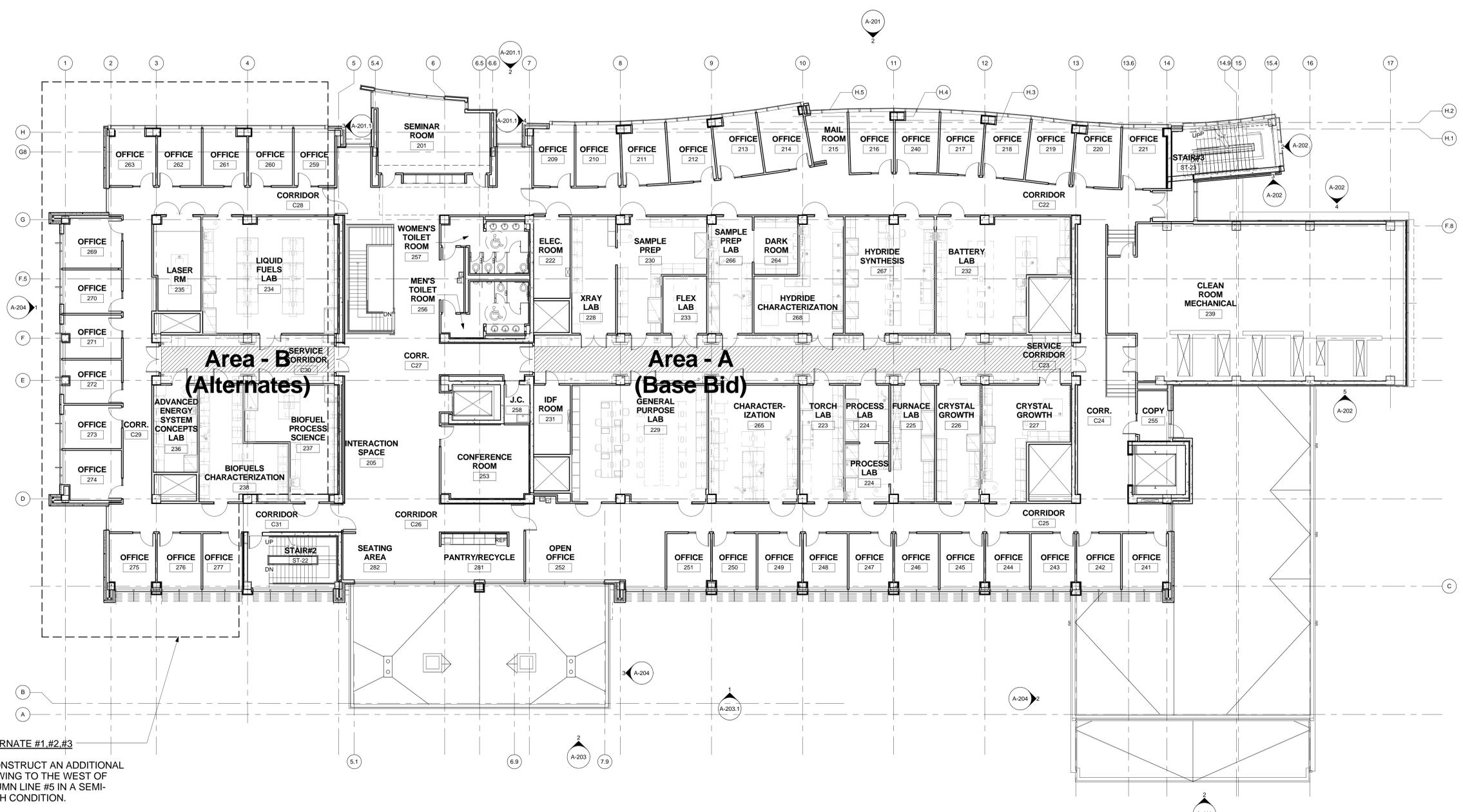


ALTERNATE #9
 1) DEFER INSTALLING WEST ULTRA LOW VIBRATION (ULV) ACOUSTICAL CHAMBER, AIR SPRINGS (8), INERTIA BLOCK, ALUM GRATING SYSTEM, AND RF SHIELDING SYSTEM

1 BASEMENT OVERALL PLAN
 3/32" = 1'-0"



ISSUE FOR BID		04/09/10	
JOB NO.	SHEET NO.	REVISION	DATE
BROOKHAVEN NATIONAL LABORATORY			
UNDER CONTRACT WITH UNITED STATES DEPARTMENT OF ENERGY PLANT ENGINEERING DIVISION UPTON, NEW YORK 11973			
JOB TITLE INTERDISCIPLINARY SCIENCE BUILDING		DWG. TITLE BASEMENT OVERALL PLAN	
SCALE 3/32" = 1'-0"	DATE 04/09/10	ACCT. NO. 079872	SHEET OF G-110
DESIGNED BY Author	CHECKED BY Checker	DATE 07/08/10	DWG. NO.
APPROVED BY Approver	BLDG. NO.		
FILENAME: 079872-G-110			



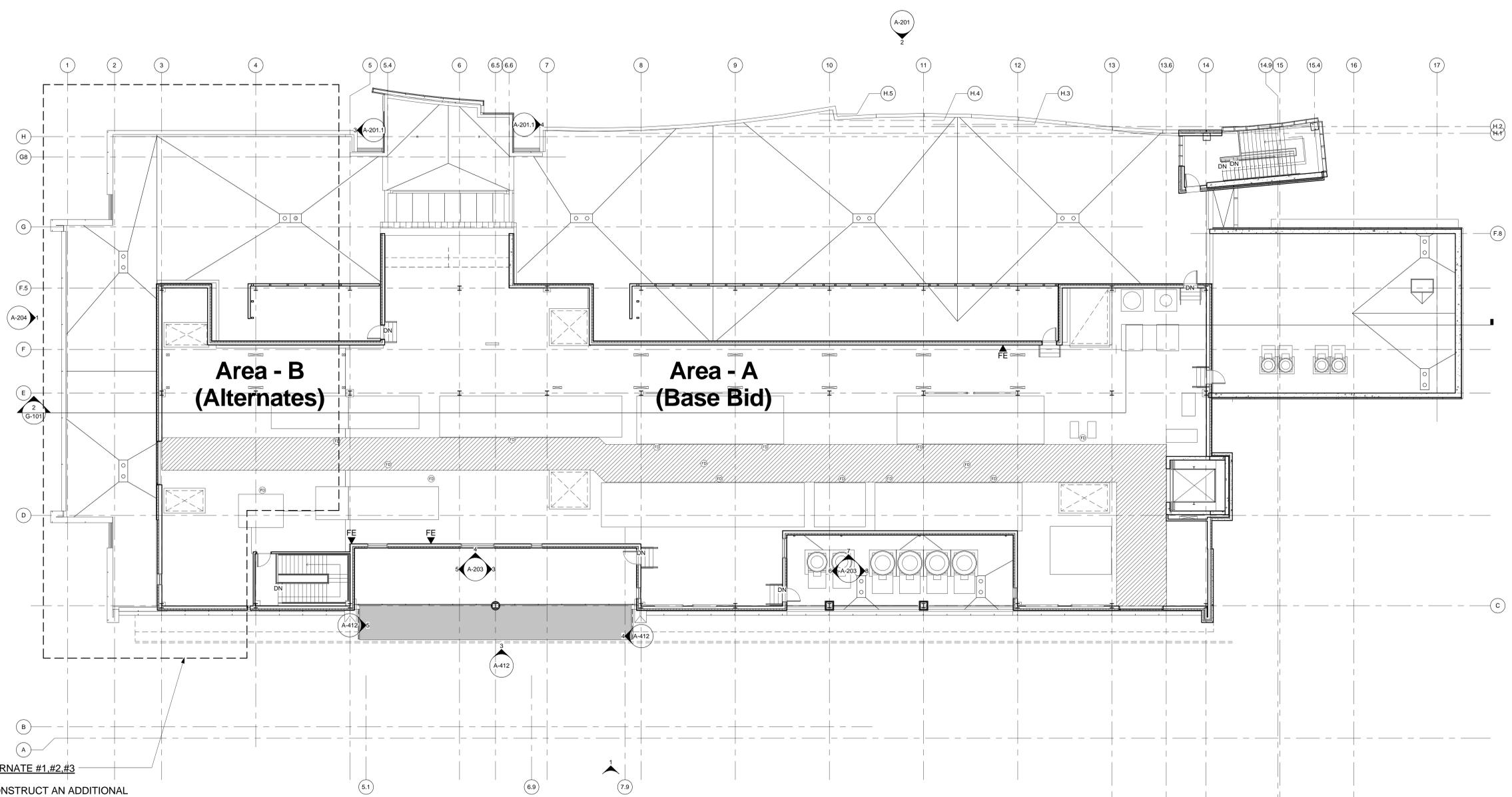
- ALTERNATE #1, #2, #3**
- 1) CONSTRUCT AN ADDITIONAL LAB WING TO THE WEST OF COLUMN LINE #5 IN A SEMI-FINISH CONDITION.
 - 2) PROVIDE SHAFT ENCLOSURE
 - 3) COMPLETE WEST WING TO FULLY USABLE LAB AND OFFICE SPACE

1 2ND FLOOR OVERALL PLAN
 3/32" = 1'-0"

ISSUE FOR BID		04/09/10	
JOB NO.	SHEET NO.	REVISION	DATE
BROOKHAVEN NATIONAL LABORATORY			
UNDER CONTRACT WITH UNITED STATES DEPARTMENT OF ENERGY PLANT ENGINEERING DIVISION UPTON, NEW YORK 11973			
JOB TITLE	INTERDISCIPLINARY SCIENCE BUILDING	DWG. TITLE	SECOND FLOOR OVERALL PLAN
SCALE	3/32" = 1'-0"	DATE	04/09/10
ES&B RISK LEVEL	APPRD. BY	REVD BY	CHECKER
FILENAME	079872-G-112	JOB NO.	079872
		BLDG. NO.	
		DWG. NO.	G-112



1/8" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 3/16" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 1/4" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 3/8" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 1/2" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 3/4" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 1" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 1 1/2" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 2" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 3" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 4" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 6" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12
 12" = 1' 0 1 2 3 4 5 6 7 8 9 10 11 12



- ALTERNATE #1, #2, #3**
- 1) CONSTRUCT AN ADDITIONAL LAB WING TO THE WEST OF COLUMN LINE #5 IN A SEMI-FINISH CONDITION.
 - 2) PROVIDE SHAFT ENCLOSURE
 - 3) COMPLETE WEST WING TO FULLY USABLE LAB AND OFFICE SPACE

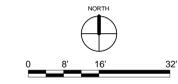
1 PENTHOUSE OVERALL PLAN
 3/32" = 1'-0"

ISSUE FOR BID		04/09/10
JOB NO.	SHEET NO.	REVISION
		DATE
		DATE
		DATE

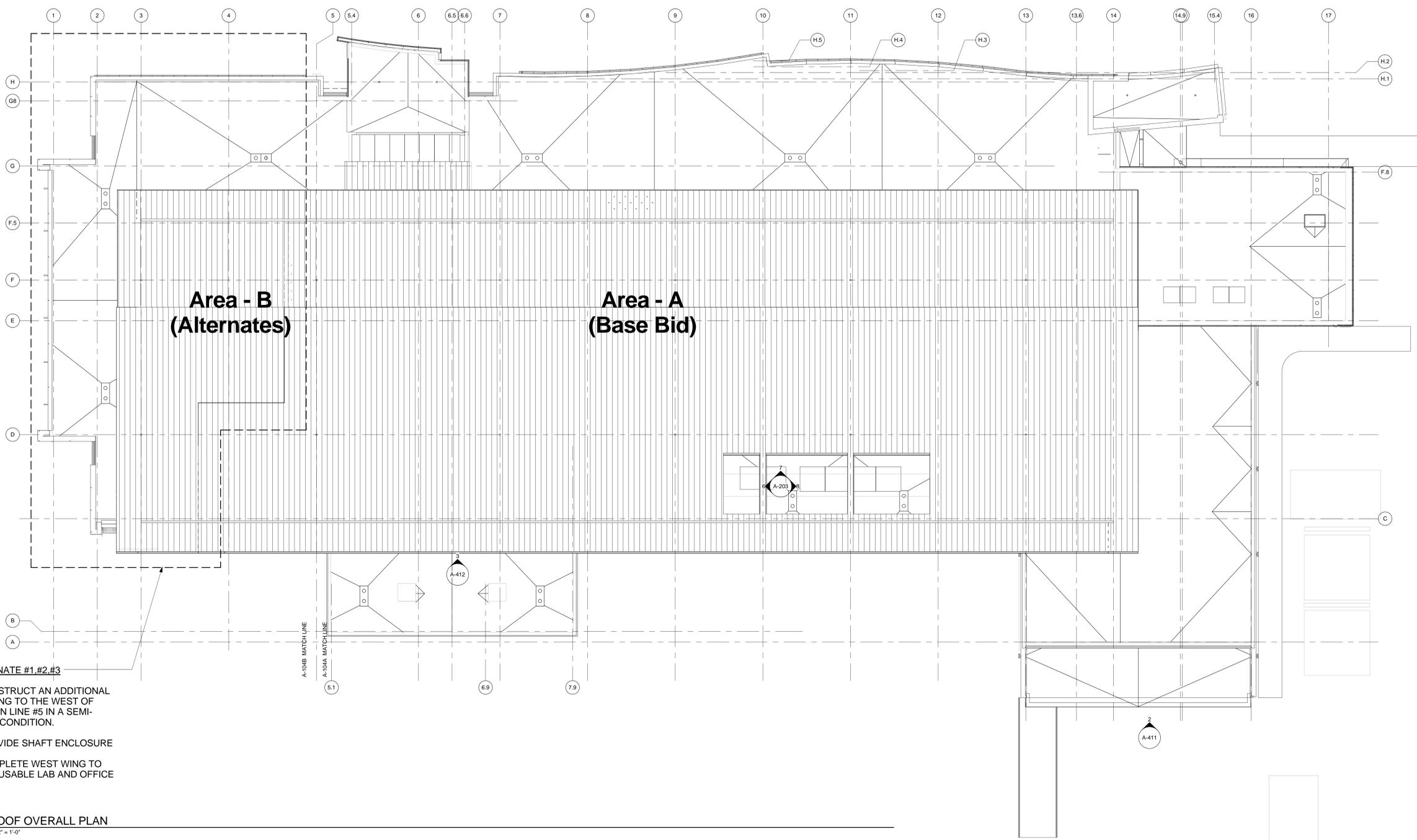
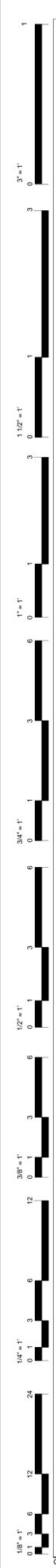
BROOKHAVEN NATIONAL LABORATORY

UNDER CONTRACT WITH
 UNITED STATES DEPARTMENT OF ENERGY
 PLANT ENGINEERING DIVISION
 UPTON, NEW YORK 11973

JOB TITLE INTERDISCIPLINARY SCIENCE BUILDING		DWG. TITLE PENTHOUSE OVERALL PLAN	
SCALE 3/32" = 1'-0"	DATE 04/09/10	ACCT. NO. 079872	SHEET OF G-113
DESIGNED BY Author	CHECKED BY Checker	APPROVED BY Approver	



1/8" = 1'
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 1/4" = 1'
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 1/2" = 1'
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 3/4" = 1'
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 1" = 1'
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 1 1/2" = 1'
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 3" = 1'
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



- ALTERNATE #1, #2, #3**
- 1) CONSTRUCT AN ADDITIONAL LAB WING TO THE WEST OF COLUMN LINE #5 IN A SEMI-FINISH CONDITION.
 - 2) PROVIDE SHAFT ENCLOSURE
 - 3) COMPLETE WEST WING TO FULLY USABLE LAB AND OFFICE SPACE

1 ROOF OVERALL PLAN
 3/32" = 1'-0"

ISSUE FOR BID		04/09/10	
JOB NO.	SHEET NO.	REVISION	DATE
BROOKHAVEN NATIONAL LABORATORY			
UNDER CONTRACT WITH UNITED STATES DEPARTMENT OF ENERGY PLANT ENGINEERING DIVISION UPTON, NEW YORK 11973			
JOB TITLE INTERDISCIPLINARY SCIENCE BUILDING		DWG. TITLE ROOF OVERALL PLAN	
SCALE 3/32" = 1'-0"	DATE 04/09/10	ACCT. NO.	SHEET OF
ES&D RISK LEVEL	DWN. BY Author	REVD BY Checker	JOB NO. 079872
FILENAME 079872-G-114	APPR. BY Approver	BLDG. NO.	DWG. NO. G-114