Dwg Numbe		SCALE	BOD/ Progress: 04/29/19	CONSTRUCTION
	IRAL DRAWINGS			
G0.00	TITLE PAGE AND DRAWING LIST	NTS	X	X
30.01	GENERAL NOTES, SYMBOLS & ABBREVIATIONS	NTS	X	X
G1.01	CODE CRITERIA SUMMARY	NTS	X	X
G1.02	LIFE SAFETY PLANS - CLASSIFICATIONS AND OCCUPANT LOAD LIFE SAFETY PLANS - CHEMICAL CONTROL AREAS	1/32" = 1'-0" 1/32" = 1'-0"	X	
G1.03	LIFE SAFETY PLANS - CHEMICAL CONTROL AREAS LIFE SAFETY PLANS - EGRESS PLANS AND DISTANCES	1/16" = 1'-0"	X	I X
G2.01	ENLARGED DEMOLITION RCP & PLAN	1/4" = 1'-0"		i
<u> </u>	ENLARGED FLOOR PLAN & RCP	1/4" = 1'-0"	X	i X
<u>44.01</u>	INTERIOR ELEVATIONS 1	1/4" = 1'-0"	X	×
45.10 45.11	INTERIOR ELEVATIONS 2	1/4" = 1'-0"	X	I X
45.11 49.10	RBAL - CASEWORK DETAILS	AS NOTED	X	X
49.10 49.11	RBAL - PARTITION DETAILS & DOOR AND FRAME DETAILS	AS NOTED	X	×
	NOTE THAT THE CONTROL THE WILL DETAILS	7,5,10,125		
ELECTRICAL I		NITC	[2]	
E0.01	ELECTRICAL LEGEND ELECTRICAL DEMOLITION PLAN	NTS 1/4" = 1'-0"	X	X
E1.04	ELECTRICAL LIGHTING PLAN	1/4 = 1-0	X	
E2.04	ELECTRICAL DOWER PLAN	1/4" = 1'-0"	X	<u> </u>
E3.04	FIRE ALARM PLAN	1/4" = 1'-0"	X	I E
E4.04 E8.01	ELECTRICAL DETAILS	NTS	X	I X
HVAC DRAW		NEC	[57]	
M0.01	HVAC LEGEND & ABBREVIATIONS	NTS	X	
M0.01 M0.02	HVAC LEGEND & ABBREVIATIONS HVAC LEGEND & SPECIFICATIONS	NTS	X	×
M0.01 M0.02 M1.01	HVAC LEGEND & ABBREVIATIONS HVAC LEGEND & SPECIFICATIONS HVAC DUCTWORK DEMOLITION PLAN	NTS 1/4" = 1'-0"	X	× ×
M0.01 M0.02 M1.01 M1.02	HVAC LEGEND & ABBREVIATIONS HVAC LEGEND & SPECIFICATIONS HVAC DUCTWORK DEMOLITION PLAN HVAC PIPING DEMOLITION PLAN	NTS 1/4" = 1'-0" 1/4" = 1'-0"	X X	<u>></u>
M0.01 M0.02 M1.01 M1.02 M2.01	HVAC LEGEND & ABBREVIATIONS HVAC LEGEND & SPECIFICATIONS HVAC DUCTWORK DEMOLITION PLAN HVAC PIPING DEMOLITION PLAN HVAC NEW DUCTWORK PLAN	NTS 1/4" = 1'-0" 1/4" = 1'-0" 1/4" = 1'-0"	X X X	X X X
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M0.01 M0.02 M1.01 M1.02 M2.01 M2.02 M4.01 M5.01	HVAC LEGEND & ABBREVIATIONS HVAC LEGEND & SPECIFICATIONS HVAC DUCTWORK DEMOLITION PLAN HVAC PIPING DEMOLITION PLAN HVAC NEW DUCTWORK PLAN HVAC NEW PIPING PLAN HVAC ROOM PRESSURIZATION PLAN HVAC DETAILS	NTS 1/4" = 1'-0" 1/4" = 1'-0" 1/4" = 1'-0" 1/4" = 1'-0" 1/4" = 1'-0" NTS	X X X	X
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Owner

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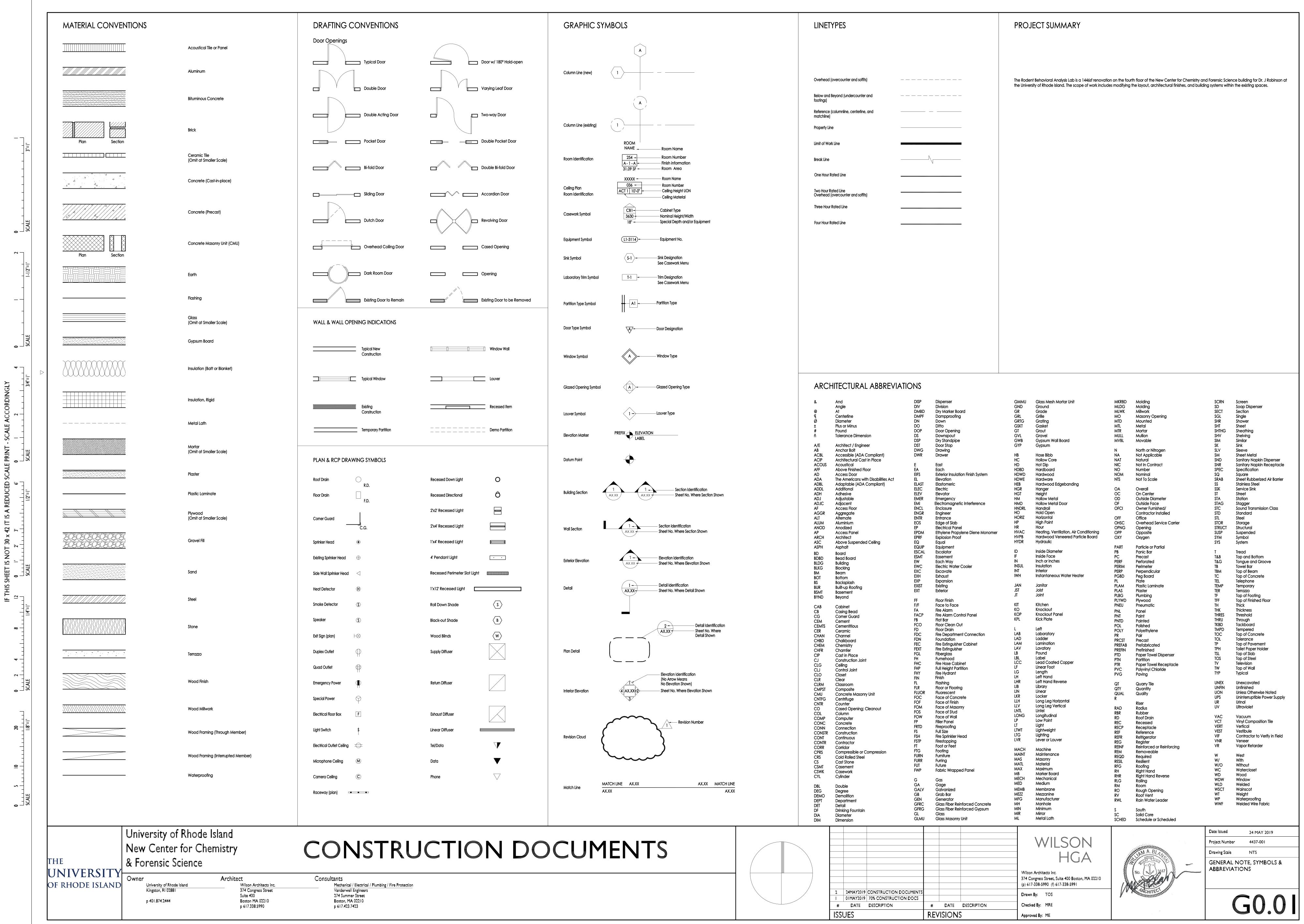
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THE UNIVERSITY University of Rhode Island OF RHODE ISLAND New Center for Chemistry & Forensic Science

Rodent Behavior Analysis Lab Renovation

Construction Documents 24 May 2019



IF THIS SHEET IS NOT 30" × 42" IT IS A REDUCED SCALE PRINT

1. Occupancy Classification

SBC-1: Non Separated and Separated Mixed Uses: A-3 (Large Classrooms) - Non Separated

B (Offices and Laboratories) - Non Separated Use

H-3 (Chemical Storage) - Separated Use S-1 (Storage) - Non Separated Use

RILSC: Separated Mixed Occupancies:

Business (Offices and Teaching Laboratories)

Industrial (Research Laboratories)

o Storage

The means of egress, type of construction, protection, and other safeguards in the building must comply with the most restrictive fire and life safety requirements of the occupancies involved per RILSC 6.1.14.3.2. Based on the construction type, each floor provides the required fire resistance rating needed to separate the Use Group B (Business) floors from the Use Group A-3 (Assembly) floors below. Therefore, Levels 3 and above are permitted to comply with the requirements for Use Group B (Business and Industrial). The lower floors will be subject to the Use Group A-3 (Assembly) requirements.

The hazardous materials in areas other than Use Group H-3 portions of the building must be maintained below exempt limits in SBC-1 Section 307.1 such that a high hazard classification will not be triggered for the entire building. Creating control areas with fire separation assemblies in accordance with SBC-1 Section 414.2 can further increase the allowable quantities. The amount of hazardous materials allowed per control area are reduced and the number of control areas per floor is limited as shown in SBC - 1 Table 414.2.2.

2. SBC - 1 TABLE 414.2.2 PERMITTED CONTROL AREAS

Level	Hazardous Materials - % Exempt Quantity	# of fire areas	Control Area Separation				
Level	per Fire Area	allowed per floor	Wall	Floors			
0 ^A	75%	3	1 hr	2 hr			
& Mezzanine	100%	4	1 hr	2 hr			
2	75%	3	1 hr	2 hr			
3	50%	2	1 hr	2 hr			
1	10.50/	2	2 hr	2 hr			

A. The lowest level is considered to be a basement, i.e. not a story above grade, per the definition in SBC-1 Section 202:

STORY ABOVE GRADE PLANE. Any story having its finished floor surface entirely above grade plane, or in which the finished surface of the floor next above is:

- More than 6 feet (1829 mm) above grade plane; or
- More than 12 feet (3658 mm) above the finished ground level at any
- This project was granted a variance to exceed 12 feet in the area of the loading dock only. The variance was granted by the Building Code Standards Committee of the Division of Capital Projects and Property Management on May 12, 2011.

3. Minimum Construction Type

SBC-1: Type IB RILSC: Type II(222)

4. Height and Area Limitations Construction Type IB

Code Reference	Height by	Height by Use Group Area b H-3 A-3 & B H-3		e Group
Code Reference	H-3			A-3 & B
Table 503	6 St. (160 ft)	11 St. (160 ft)	60,000 ft ²	UL
Section 504.2: Sprinkler Height Increase	N/A	N/A	-	-
Section 506.2: Street Frontage Increase (75% Open)	-	-	30,000 ft ²	N/A
Section 506.3: Sprinkler Area Increase	-	-	N/A	N/A
Total Allowed	6 St. (160 ft)	11 St. (160 ft)	90,000 ft ² per floor	UL
i Otal Allowed	0 St. (160 ft)	11 31. (160 11)	Aggregate: 270,000 ft ²	
Actual Height and Area	5 St /	~77 ft) ^A	36 660 ft ² por floo	
Actual Height and Area	5 St. (~11 10	Aggregate: 1	133,360 ft ²

- A. The lowest level is considered to be a basement, i.e. not a story above grade, per the definition in SBC-1 Section 202: STORY ABOVE GRADE PLANE. Any story having its finished floor surface entirely above grade plane, or in which the finished surface of the floor next
- More than 6 feet (1829 mm) above grade plane; or More than 12 feet (3658 mm) above the finished ground level at any
- This project was granted a variance to exceed 12 feet in the area of the loading dock only. The variance was granted by the Building Code Standards Committee of the Division of Capital Projects and Property Management on May 12, 2011.

LEGEND

 1	ONE HOUR RATED WALL
	TWO HOUR RATED WALL

FOUR HOUR RATED WALL

5. Fire Resistance Ratings

The following table summarizes the required fire resistance ratings for various building elements based on SBC-1 Table 601 and RILSC A.8.2.1.2 and other applicable code provisions.

Building	Element	Fire Resistance Rating (Hrs)	Opening Protectives (Hrs)
Structural Frame	Structural Frame		
Exterior Bearing Walls	Exterior Bearing Walls		
Interior Bearing Walls		2	
Exterior Non-Bearing W	Exterior Non-Bearing Walls		
loor Construction		2	
Roof Construction		1½ ^A	
Exit Access Corridors	Use Group H-3	1	1/3
(SBC-1 Table 1018.1)	All Other Uses	0	0
Stair Shafts (SBC-1 1022.1, RILSC 7.1.3.2.1)		2	1½
Other Shafts (SBC-1 Section 708.4, RILSC 8.6.5)		2 1½	
Elevator Machine Room		2	1½
Frash Room (SBC-1 Table 508.2.5)		Smoke Resistant	Self Closing
Fire Wall (SBC-1 Table	706.4)	3	3
Fire Pump Room (SBC	·1 Table 508.2.5) ^B	1	3/4
Use Separation (SBC-		1	3/4
Table 508.4, RILS 6.1.14.4.1)	Use Group H-3	2	1½

- A. Fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below.
- B. The location of the fire pump room should be reviewed with the fire department for approval per NFPA 20 to be certain that direct access from the exterior will not be required.

6. Exterior Wall Openings & Fire Resistance Rating

The exterior wall rating requirements and opening limitations are based on the fire separation distance for each wall. The fire separation distance is measured perpendicular to the exterior wall to the centerline of a public street, an interior lot line, or an imaginary lot line between two buildings on the same lot (SBC-1 Section 702.0). If the fire separation distance is more than 30 feet the wall is not required to be rated (SBC-1 Table 602). The allowable area of exterior wall openings is not limited when the fire separation distance is greater than 20 feet (SBC-1 Table 705.8).

The new building has a fire separation distance of at least 30' on both elevations (above grade) facing Chafee. For the east elevation, where both buildings have stories above grade, an imaginary lot line has been drawn 30' off the face of the new building and 9' off the face of Chafee.

In this arrangement, the new building is allowed to have unlimited unprotected openings based on the requirements of SBC-1 Tables 602 and 705.B. Chafee Hall is undergoing a sprinkler retrofit and other improvements (which will be complete prior to the completion of the new building). The exterior wall of Chafee will be in compliance with the requirements of the tables as well at that time.

7. High- Hazard Occupancy Requirements

The hazardous materials storage areas on Level 1 are expected to contain quantities of chemicals that require classification as a Use Group H-3 occupancy. These areas will be treated as separated-use occupancies in accordance with SBC-1 Section 508.4. These areas must comply with the additional protection requirements contained in SBC-1 Sections 414.0 and 415.0. In addition to the requirements of SBC-1 the requirements of 2008 NFPA 30 (Flammable Liquids Code) have been listed. These codes include the following additional protection features for these rooms:

- A. Explosion venting or suppression is required if the room will contain Class IA flammable liquids above exempt limits or Class IB flammable liquids in open use or dispensing (SBC-1 Section 414.5.1). NFPA 30 explosion control is only required if Class IA flammable liquids are stored in containers larger than 1 gallon (Section 9.16.1).
- B. Smoke detection within the room (SBC-1 Section 414.5.3).
- C. Hazardous exhaust with standby or emergency power if dispensing will occur (SBC-1 Section 414.5.4, NFPA 30 Section 9.14).
- D. Spill Control / Secondary Containment only required if the size of individual containers exceed 55 gallons or the aggregate capacity of hazardous liquids in the room exceeds 1,000 gallons (SBC-1 Section 414.5.5 / IFC Section 2704.2). NFPA 30 - spill containment (including sprinkler water containment) required if the room contains individual containers exceeding 10 gallons (Section 9.13.2).
- At least 25% of the room perimeter of the Use Group H-3 storage area must be located along the exterior wall of the building (SBC-1 Section
- The liquid storage rooms must be kept to a maximum area of 500 ft2 unless the storage rooms are separated by 4 hour fire walls (NFPA 30 Table 9.9.1). Storage rooms below 500 ft2 must be separated from adjacent spaces by 2 hour fire resistance rated construction.
- G. Class I materials are not permitted to be stored below grade per NFPA 30 Section 9.3.6.

8. Floor Openings

The two-story floor opening between levels one and two at the east end of the building meets the requirements of SBC-1 Section 708.2 Exception 7. The two story opening also meets the Life Safety Code requrements for a Convenience Opening (RILSC 8.6.8.1 or 8.6.8.2). The floor opening is separated from one of the two floors by 1-hr rated construction.

The Mezzanine level meets the requirements of SBC-1 Section 505 and RILSC 8.6.9 and therefore is considered a connected story but is not open to that story. The total area of the Mezzanine level does not exceed 1/3 of the area of the room(s) directly or adjacently below (SBC-1 Section 505.2, RILSC 8.6.9.2.1). Since the Mezzanine level iserves less than 10 occupants, it is not required to be open to the room(s) below (SBC-1 Section 505.4 Exc. 1, RILSC 8.6.9.3.2).

9. Finishes

Walls & Ceilings (See SBC-1 Table 803.5, RILSC A.10.2.2)

WALLS & CEILINGS (SBC-1 Table 803.5, RILSC A.10.2.2)

Use Group:	A-3	В	H-3	S-1
Exit Stair	Class B	Class B	Class B	Class C
Exit Access Corridors	Class B	Class C	Class B	Class C
Rooms & Enclosed Spaces	Class C	Class C	Class C	Class C

Since the building will be equipped with an automatic sprinkler system, traditional floor coverings such as wood, vinyl, carpeting, and other resilient floor coverings passing the DOC FF-1 pill test are allowed throughout the building, including all exits, exit passageways and exit access corridors (SBC-1 Section 804.4.1).

Exterior Finish

CONSTRUCTION DOCUMENTS

Exterior wall finishes must full comply with the requirements of SBC-1 14. Combustible materials are permitted to be used as an exterior wall finish for this building in accordance with SBC-1 Section 1406.0; however, all exterior wall finishes and architectural trim located greater than 40 feet above grade plane must be constructed of approved noncombustible materials and must be secured to the wall with metal or other approved noncombustible brackets (SBC-1 Section 1406.2.2).

10. Means of Egress

B (Business) & Teaching Laboratories

A (Assembly)

B (Business including all Laboratories)

H-3 (High Hazard Storage)

S-1 (Ordinary Hazard Storage)

RILSC 12.2.3.6.1).

The calculated occupant load for the proposed floor plans, the corresponding required number of exits, the provided number of exits, and the provided egress capacity are summarized on sheet G1.02 in accordance with SBC-1 Table 1004.1.1, Table 1021.1, and Section 1005.1, RILSC 7.3.1.2, 7.4.1.2, and 7.3.3.1.

Maximum Exit Access Travel Distance must be less than the following Maximum Travel Distance (feet) A A (Assembly) & Research Laboratories

H-3 (High Hazard Storage)	100
S-1 (Ordinary Hazard Storage)	250

Dead End Limit (feet

Maximum Dead End Corridor Length must be less than the following

- Occupancies in Use Group A with occupant loads of over 300 people must be provided with a main exit of sufficient width to accommodate ½ of the total occupant load (SBC-1 Section 1028.2,
- All rooms or spaces with an occupant load greater than 50 people are provided with two egress doors swinging in the direction of egress and illuminated exit signs at each exit (SBC-1 Sections 1015.1, 1008.1.2, & 1011.1, RILSC 7.2.1.4.2 & 12.2.5.1.2).
- Boiler rooms require two means of egress if the room is greater than 500 sqft. and includes individual fuel-fired equipment greater than 400,000 Btuh input capacity (SBC-1 Section 1015.3).
- Egress doors swing in the direction of egress travel where serving an occupant load of 50 or more people or a Group H occupancy (SBC-1 Section 1008.1.2, RILSC 7.2.1.4.2).
- All rooms or spaces with a common path of travel distance of over 75 feet (100 feet for Use Group B (Business & all Laboratories) floors) are provided with two egress doors and illuminated exit signs at each exit (SBC-1 Sections 1014.3 & 1011.1, RILSC A.7.6).
- All laboratories will be provided with 2 means of egress where the area is greater than 1,000 ft2 (all laboratories are Class B, C, or D) (2004 NFPA 45 Section 5.4.1).
- Remote means of egress must be separated by 1/3 of the diagonal dimension of the room or space they serve (SBC-1 Section 1015.2.1, RILSC 7.5.1.3.3).
- A stair or alternating tread device is provided to any main roof surface over four stories high (SBC-1 Section 1009.13).
- All exits discharge to the exterior of the building except that a maximum of 50% of the number and capacity of the exit enclosures are allowed to exit through areas on the level of discharge if the egress path fully conforms with the requirements of SBC-1 Section 1027.1 Exc. 1 and RILSC 7.7.2 including separating the discharge area from areas below as required for the stair enclosure.
- In buildings with four or more stories, where a required accessible floor is four or more stories above or below a level of exit discharge, at least one accessible means of egress must be an elevator complying with SBC-1 Section 1007.4 (SBC-1 Section 1007.2.1, RILSC 7.5.4.7).
- Standby power will be provided for the elevator (SBC-1 Section 1007.4, RILSC 7.2.12.2.4).

11. Required Fire Protection Systems

- Automatic Sprinkler System (SBC-1 Section 903.2, RILSC 12.3.5.1)
- Standpipe System (SBC-1 Section 905.3)
- Fire Alarm System with voice evacuation (RILSC 12.3.4.1)
- o Fire Extinguishers (RILSC 38.3.5).

12. Accessibility

All portions of the building except employee work areas and equipment spaces are accessible in accordance with the requirements of the SBC-1 Chapter 11 and ICC/ANSI A117.1-03.

13. Plumbing Fixtures

Section 419.2).

SBC-3 regulates the number of plumbing fixtures required throughout building. The minimum number of plumbing fixtures is established by SBC-3 Table 403.1 based on the building use and the calculated population as determined by SBC-1 per SBC-3 Section 403.1. SBC-3 Section 403.1.1 requries that the building population be divided evenly between male and female for the purpose of determining fixture counts. Any distribution other than 50/50 is allowed where supported by approved statistical data.

Plumbing Fixture	Water Closets		Lavatories		Drinking	Service
Requirements	Female	Male ¹	Female	Male	Fountain ²	Sinks
Students ³ 920 O ccupants 460 F, 460 M	1 per 65	1 per 125	1 per 200		1 per 500	N/A
Required	7	3.7	2.3	2.3	1.8	0
Staff ⁴ 708 O ccupants 354 F, 354 M	The second secon	for 1st 50 r remainder	1 per 40 for 1st 80 1 per 80 for remainder		1 per 100	1 per floor
Required	7.1	7.1	5.4	5.4	7.1	4
Total Required	15	11	8	8	9	4
Proposed	19	18	13	12	15	4

APPLICABLE CODES

Code Type

Applicable Codes

SBC-1: Rhode Island State Building Code

Accessibility Standards
SBC-3: Rhode Island State Plumbing Code

(2012 International Plumbing Code)
SBC-4: Rhode Island State Mechanical Code

(2012 International Mechanical Code)
SBC-5: Rhode Island State Electrical Code

and Dumbwaiters (ASME A17.1))

Rhode Island Life Safety Code (RILSC)
(2012 NFPA 101: The Life Safety Code)

Rhode Island Uniform Fire Code (RIUFC)
(2012 NFPA 1: Uniform Fire Code)

(2014 National Electrical Code)

SBC-8: Rhode Island State Energy Conservation Code

(American National Standard Safety Code for Elevators Labor and Training

Accessibility Standards Code - Incorporates Uniform Federal

Conservation (2012 International Energy Conservation Code)
State of Rhode Island Elevator Safety Code

Enforcing Agency

Code Commission
Rhode Island State Building

Rhode Island State Building

Rhode Island State Building

Rhode Island State Building

Occupational Safety
Rhode Island State Fire

Marshal's Office

hode Island State Building

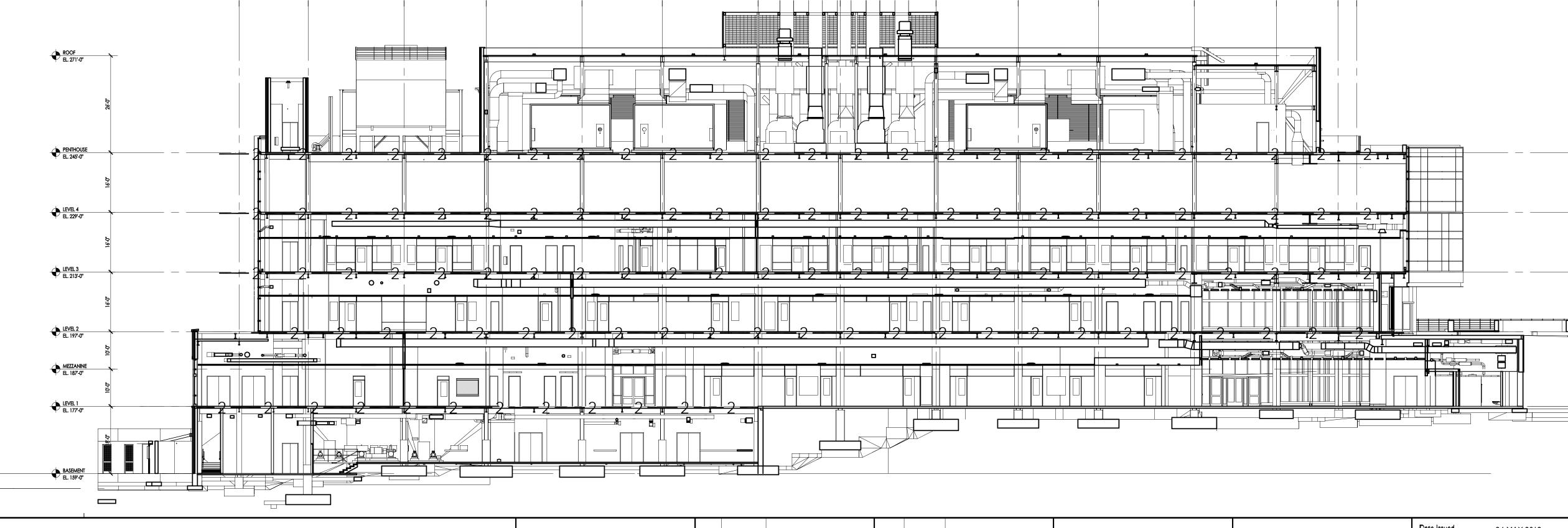
THIS CODE CRITERIA SUMMARY WAS CREATED AS PART OF THE ORIGINAL BUILDING CONSTRUCTION AND IS INCLUDED FOR REFERENCE. THE CURRENT LEVEL 4 SCOPE OF WORK INCLUDED AS PART OF THIS PACKAGE DOES NOT ALTER THE EXISTING CODE CRITERIA OR REQUIREMENTS.

Urinals may be substituted for 67% of the required water closets (SBC-3

Water coolers or bottled water dispensers shall be permitted to be substituted for not more than 50 percent of the required drinking fountains (SBC-3 Section 410.1).

3. Includes Teaching Labs, Lecture Halls, Classrooms, and Lounges on 4. Includes all Office, Storage, Mechanical, and Research Labs on all

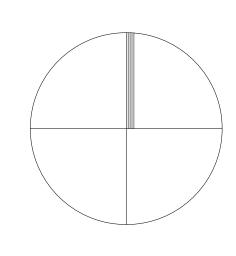
Since occupants are permitted to travel 300 feet and up or down 1 floor to reach their required fixtures, the building was analyzed as a whole (SBC-3

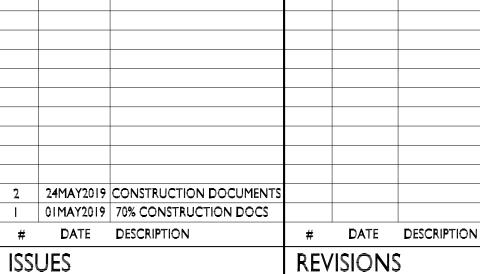


JNIVERSITY OF RHODE ISLAND

University of Rhode Island New Center for Chemistry & Forensic Science

Mechanical / Electrical / Plumbing / Fire Protection 374 Congress Street Vanderweil Engineers 274 Summer Street p 401.874.2444 Boston, MA 02210 Boston MA 02210 p 617.423.7423





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374 Congress Street, Suite 400 Boston, MA 02210

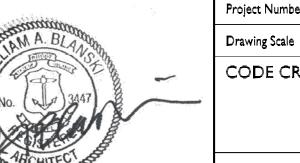
(p) 617-338-5990 (f) 617-338-5991

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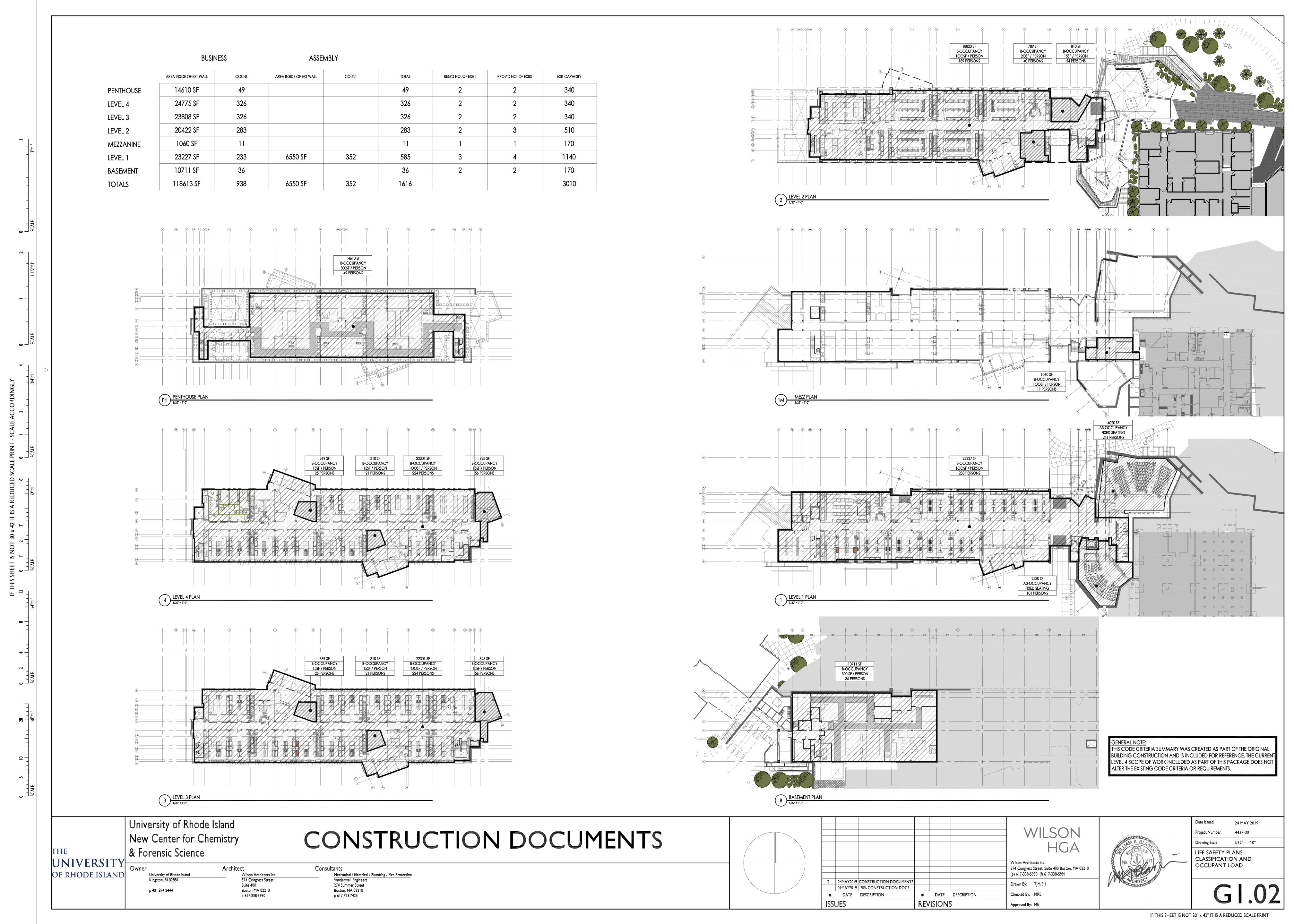
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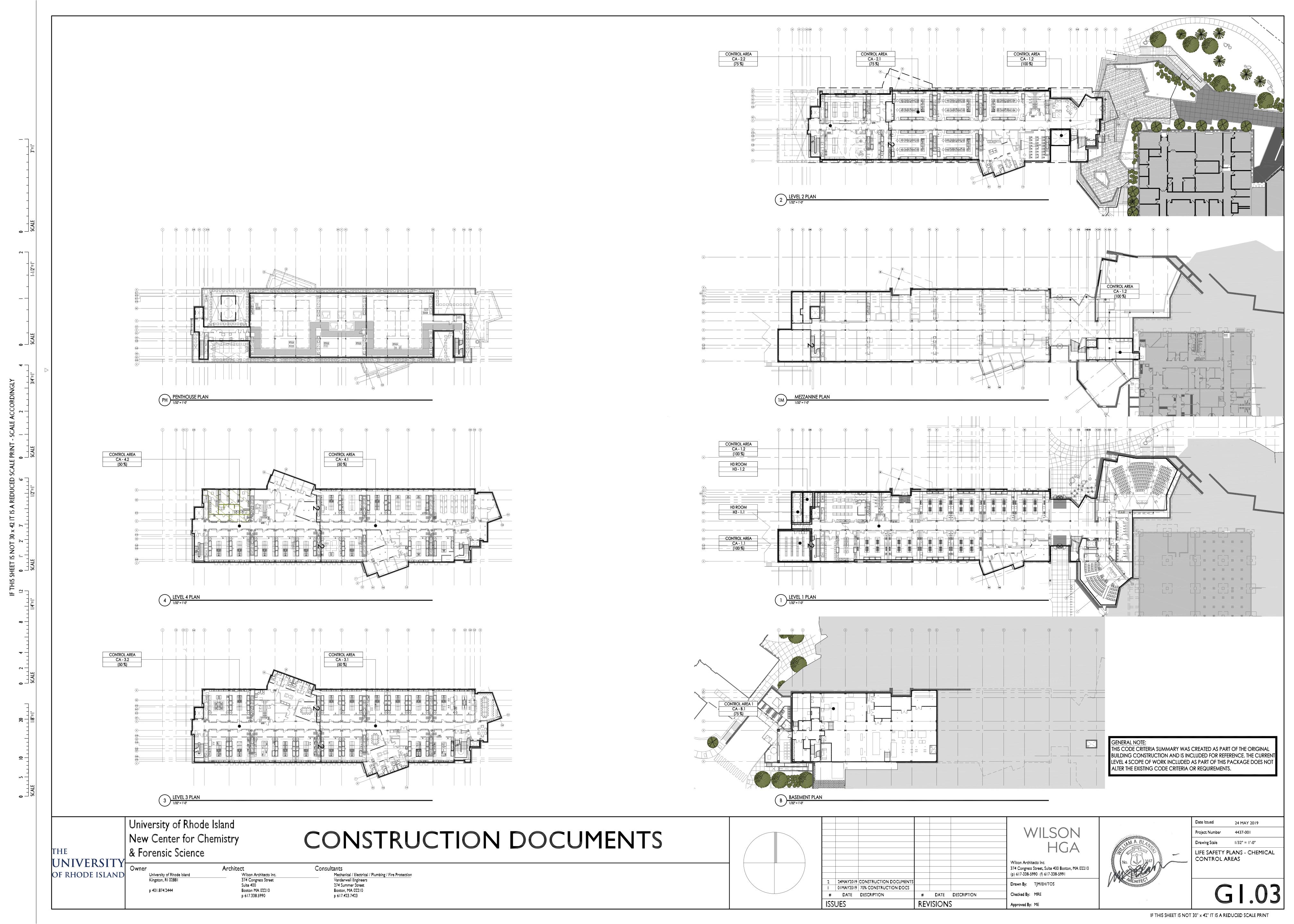
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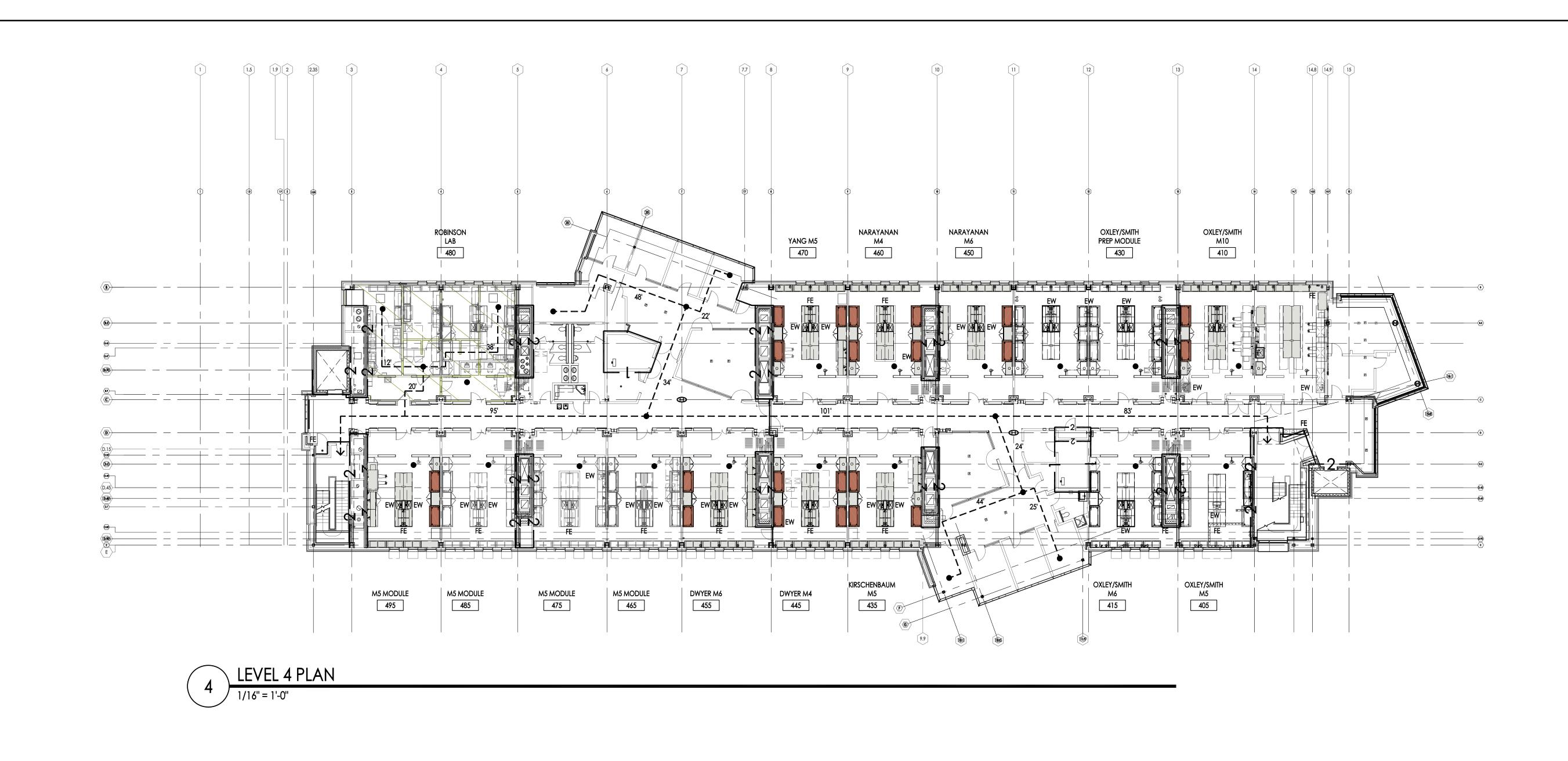
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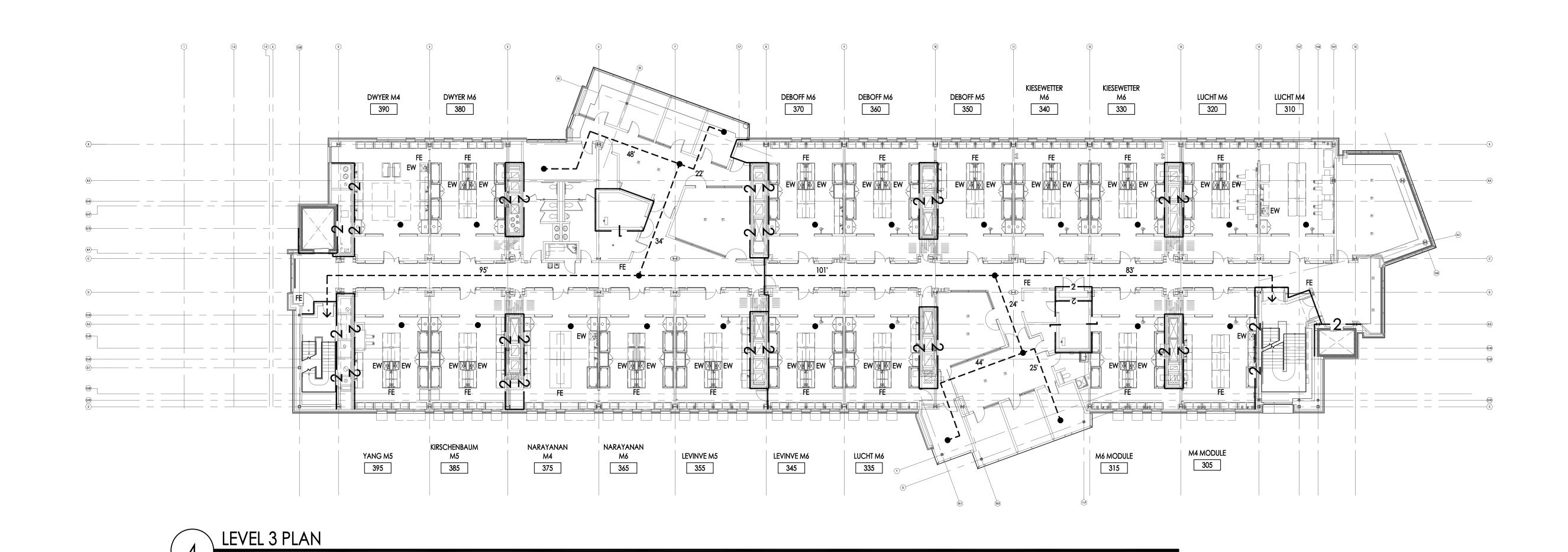


CODE CRITERIA SUMMARY









University of Rhode Island
New Center for Chemistry
& Forensic Science

Owner University of Rhode Island
OF RHODE ISLAND

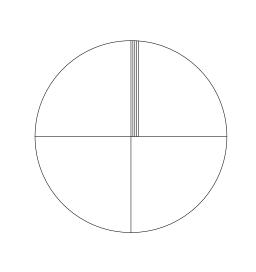
OF RHODE ISLAND

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2 24MAY2019 CONSTRUCTION DOCUMENTS 1 01MAY2019 70% CONSTRUCTION DOCS # DATE DESCRIPTION # DATE DESCRIPTION ISSUES REVISIONS

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HGA

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Checked By: MRE

Approved By: ME

No. 3447

Date Issued 24 MAY 2019

Project Number 4437-001

Drawing Scale 1/16" = 1'-0"

LIFE SAFETY PLANS - EGRESS PLANS AND DISTANCES

G2.0 I

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